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STRUCTURAL CHANGES IN THE SETTLEMENT UNITS OF THE POZNAŃ AGGLOMERATION AT THE TURN OF THE 20TH AND 21ST CENTURIES

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Abstract: Settlement units (villages and towns) and their adjacent area, in the immediate zone of influence of a big city, are beginning to form an integral part of urban agglomerations. They are characterized by a specific community of technical, engineering and environmental infrastructure, complementary demographic structures, intense commuting to work and cultural purposes, as well as by the need to improve standards of living. Intensive development of the housing industry is transforming suburban areas at a fast pace, leading to the development of open spaces and filling in already existing structures. This is happening mainly due to the autonomous development of the individual settlement units located around the center of an urban agglomeration. There is a process of integration, and uniting at different levels of social, economic, and spatial aggregation. As a result of a range of spatial, demographic, legal administrative and economic factors, the units of the suburban area develop, become more similar to one other and even merge.

The aim of this paper is to identify and analyze the most important functional and spatial changes which take place in the settlement units of the Poznań agglomeration and the factors which cause them. In order to accomplish the objectives set out in the paper, research was conducted in Poznań and its suburban area which (due to data availability) is treated as synonymous with Poznan County. The subjects of detailed research were selected settlement units of the Poznań agglomeration. An inventory of these units was made and expert surveys were carried out among the representatives of local authorities. The information used in the study was also obtained from the District Office in Poznan, the Central Office of Geodesy and Cartography as well as from local development plans and the relevant documentation in the field of spatial planning.

Keywords: structural changes, agglomeration, Poznań

INTRODUCTION

The introduction of a new socio-economic system in Poland in 1989 contributed to the rapid development of urbanization processes. These processes are well under the way in the suburban areas of large cities which are undergoing multi-directional transformations.

Settlement units (villages and towns) and their adjacent areas, in the immediate zone of influence of a big city, are beginning to form an integral part of urban agglomerations. These units, operating in the "suburban" area, are characterized by both common and specific features of development. They are like satellites, organically integrated into the urban settlement system, and in-

terconnected by a variety of production, economic and cultural functions as well as by living conditions. They are characterized by a specific community of technical, engineering and environmental infrastructures, complementary demographic structures, intense commuting to work and cultural purposes as well as by the need to improve standards of living. Another feature of the development of such units is the formation of a base conducive to the growth of cities. This leads to moving large surface production out of the city center, which is often harmful due to environmental reasons, out of the center of the agglomeration and distributing it in suburban areas, thus creating centers of economic stimulation. The functions change or are compensated for, and this allows for the development of a region, mainly through the creation of additional jobs. Such activation is not a mono-business one. The base function "takes on" complementary functions.

The suburban zone formed around a big city is a settlement system created primarily by the housing industry. Intensive development of the housing industry transforms suburban areas at a fast pace, leading to the development of open spaces and filling in already existing structures. This happens mainly due to the autonomous development of the individual settlement units located around the center of an urban agglomeration. There is a process of integration, and uniting at different levels of social, economic and spatial aggregation. As a result of many spatial, demographic, legal administrative and economic factors, the units of the suburban area develop, become similar to each other and even merge. At the turn of the 20th and 21st centuries, the settlement systems of urban agglomerations in Poland are undergoing dynamic transformations (Falkowski 2008; Lisowski and Grochowski 2007; Markowski 1998; Parysek 1998, 2002).

The aim of this paper is to identify and analyze the most important functional and spatial changes which are taking place in the settlement units of the Poznań agglomeration and the factors which cause them. Particular attention is paid to spatial and functional transformations (including changes in the landscape of the main city in the agglomeration), and the endogenous and exogenous factors influencing the development of settlement units located within the agglomeration.

So as to accomplish these objectives, research was conducted in Poznań and its suburban area, which in practice (due to data availability) means Poznań County. The subjects of the detailed research were selected settlement units of the Poznań agglomeration. An inventory of these units was made and expert surveys were carried out among the representatives of local authorities. The information used in the study was also obtained from the District Office in Poznań, the Central Office of Geodesy and Cartography as well as from local development plans and the necessary documentation in the field of spatial planning.

THE FUNCTIONAL AND SPATIAL TRANSFORMATIONS OF SETTLEMENT UNITS OF THE POZNAN AGGLOMERATION AFTER 1990

The economic and political changes initiated in the 1990s led to the liberation of processes which resulted in the dynamic, yet chaotic development of suburban areas. There was uncontrolled urban sprawl. The 1990s initiated intense construction work in some partsof the suburban area. The number of people commuting to the center of the urban agglomeration increased, due to the proximity of centers of scientific and cultural life, government centers, as well as education and health care centers. This proximity also contributed to the specification of services, treating the market of the adjacent city as a market and consumer base for the surrounding area. In rural areas located near cities, commerce has become more diverse, and the transport system has included the public transport network. The lifestyle has changed. The suburban zone posed a threat to the big city in the initial period of transition. Until recently it was considered as an area with good transport accessibility, where friendly municipal policies contributed to the creation of areas in which spatial and structural transformations as well as transformations connected with civilization, occurred as a result of higher socio-economic activity. It was thought that these were areas with potential for further development of the housing industry and services, where access to open spaces, greenery and recreational facilities was virtually unlimited. It was felt that better living conditions, increased resident comfort (peace and quiet, far from the hustle and bustle), lower population density as well as lower costs of living and maintenance, prevailed in the suburban zone.

As a result, people increasingly prefer to settle in the suburban area, while the population of Poznań is steadily decreasing (Łodyga 2008). In 2009, the number of inhabitants of Poznań was less than 64% of the population of the Poznań agglomeration, even though in 1995 this indicator stood at 70.7% (Fig. 1).

The changes in population are characterized by very large spatial variation (Fig.2). In the years 1995–2009 the population of two cities: Poznań and Buk decreased. The number of inhabitants of Poznań decreased by 4.6% (around 27,000 people), while in Buk the population decreased by nearly 160 people (down by 2.5%). At the same time, the population concentrations in other areas of the agglomeration increased. Particularly high population growth has been marked by almost all settlement units adjacent to Poznań. The biggest increase in inhabitants was recorded in the following rural municipalities: Dopiewo (an increase of almost 89%), Suchy Las (80%), Komorniki (73%) and Rokietnica (69%). Much lower values of this index (up to 20%) were recorded in cities and municipalities more remote from the central city of the agglomeration.

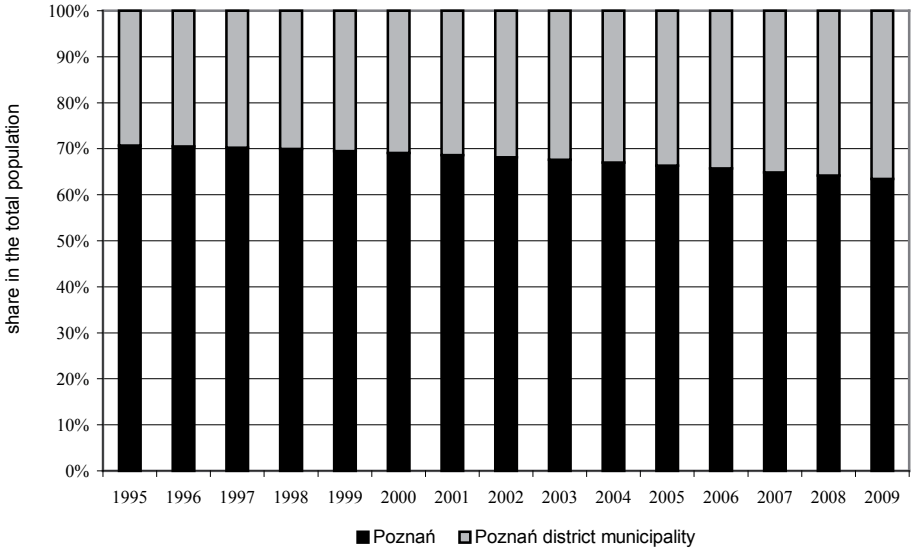

Fig. 1. The population of the Poznań agglomeration in the years 1995–2009
Source: compiled on the basis of Central Statistical Office (www.stat.gov.pl)

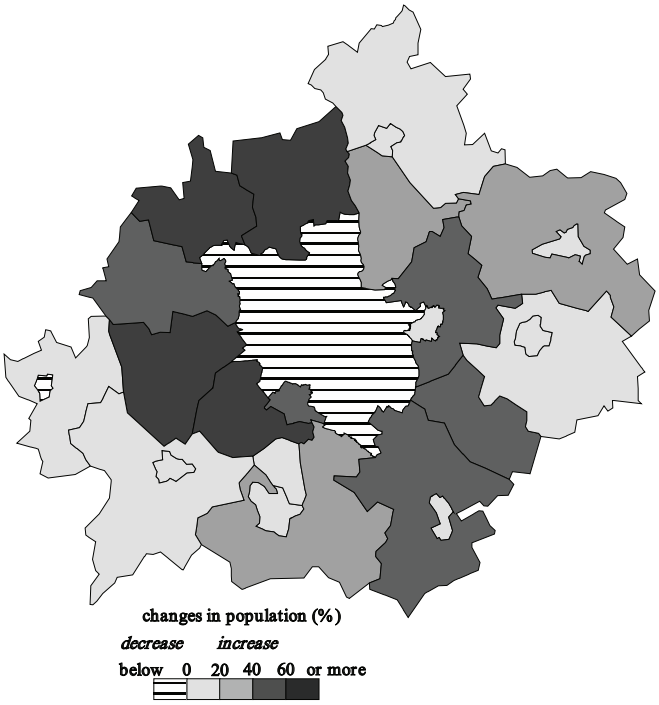

Fig. 2. Population change in the Poznań agglomeration in the years 1995–2009
Source: compiled on the basis of Central Statistical Office (www.stat.gov.pl)

Although the intensive process of Poznań "sprawling" onto the adjacent area (*urban sprawl*) results in many negative consequences (such as transportation problems, failure to adjust the technical and social infrastructure to the rapid pace of population growth, conflicts which arise from the "mixing" of functions performed by different areas – residential areas in the immediate vicinity of industrial and services areas), the settlement units of the suburban area are still seen as attractive places to live in. When choosing to live in suburban areas, people (residents of Poznań and migrants from other areas) take into account the more advantageous prices of land and property – usually much lower than in Poznań (Maćkiewicz 2007). Certainly, the activity of developers and the policy of local authorities is also important. Some local authorities took advantage of the boom in the property market and the proximity of a large city, and decided to develop the housing industry – areas were prepared, cooperation with developers was undertaken (e.g. in the Rokietnica municipality, Suchy Las municipality, Tarnowo Podgórne municipality). As a result, these areas are undergoing dynamic population growth, associated with the development of numerous estates of detached houses or even multi-family houses (also in rural areas such as in Kalinowe in the Rokietnica municipality).

The most important consequences of the increasing concentration of population in the Poznań agglomeration are mainly changes in land use. Every year, there is an increase in urban areas[1] and a decrease in the acreage of agricultural land.

In the years 1990–2007 the share of urbanized areas in the total area of the Poznań agglomeration increased from 9.8% to 12.8%. In Poznań the analyzed index rose by just a little over 9 percentage points (from 31.8% in 1990 to 40.9% in 2007). And in the municipalities of Poznań County there was an increase in the share of urbanized areas in land use from 6.8% to 8.9%. It should be noted that in 1990, in all the rural municipalities of the agglomeration the share of urbanized areas in land use did not exceed 10% (Czerwonak municipality – 9.7%). Of course, in the cities, this share was much higher, ranging from 20% in Mosina to over 43% in Swarzędz. At the end of the seventeen year period there had been an increase in the share of urbanized areas in land use in nearly all units of the agglomeration. In four rural municipalities, urbanized areas constituted more than 10% of the total area – Tarnowo Podgórne 15.5%, Komorniki 12.7%, Swarzędz 11.6% and Czerwonak 11.1%. The growing importance of these types of areas was recorded in all urban units. In Pobiedziska, they constituted only about ¼ of the total area – the lowest amount. The highest values of the analyzed index were recorded in Swarzędz and Buk. Urban areas constituted 56.5% and 53.7% respectively – more than half of the city.

[1] Urban areas include: residential areas, urban undeveloped areas, recreational areas and land transport (including roads, railway areas).

The changes in the surface area of urban areas were strongly spatially differentiated (Fig. 3). In 1990–2007, in most units of cities and rural municipalities, urbanized areas increased by more than 25%.[2] A particularly high growth of urban areas (50%) occurred in the Tarnowo Podgórne municipality and the Kleszczewo municipality and in the cities of Mosina and Puszczykowo. A slight decrease in the surface area of urban areas took place in rural parts of the Murowana Goślina municipality (14.5%) and the Pobiedziska municipality (5.9%).

The increase in urban area is accompanied by a "shrinking" of the acreage of agricultural land. In the years 1990–2007 the share of agricultural land in the total area of the Poznań agglomeration decreased from 61.3% to 58.2%. The acreage of agricultural land within the agglomeration decreased by 8,002 ha – 58%

Fig. 3. Changes in the surface of urban areas in 1990–2007

Source: Based on materials prepared by the Ministry of Spatial Development and Construction (as of 01/01/1990) and the Head Office of Geodesy and Cartography (as of 01/01/2007)

[2] In the whole agglomeration this indicator stood at 29%.

of which was located in rural areas. In the structure of land use in Poznań, the share of agricultural land reduced to a level of 33.6% (43.2% in 1990).

In the above mentioned period of time, the acreage of agricultural land in all rural municipalities decreased (Fig. 4). However, the scale of the decline varied. The surface area of arable land in the rural municipality of Kostrzyn decreased by only 0.7%, yet by over 10% in the Suchy Las (11.1%) and Tarnowo Podgórne (10.3%) municipalities. This was a more diverse and much more dynamic process in the cities. In Pobiedziska there was a 13.5% increase in the acreage of agricultural land. In Kostrzyn, Murowana Goślina and Kórnik, agricultural areas slightly decreased – by about 14%. However, in Puszczykowo the acreage of arable land decreased by more than a half (52%).

Owners of agricultural land are interested in implementing changes in the form of agricultural land use, as this involves a significant increase in its value.

Fig. 4. Changes in the surface of agricultural land in 1990–2007

Source: Based on materials prepared by the Ministry of Spatial Development and Construction (as of 01/01/1990) and the Head Office of Geodesy and Cartography (as of 01/01/2007)

Surveys conducted among the representatives of local authorities indicate that more and more farmers are lobbying for changes in the planning documents which would facilitate the rezoning of agricultural land and thus, enable it to be sold. In the years 2000–2009 in the Poznań County 256.5 ha of agricultural land underwent rezoning (Fig. 5). Although the scale of this rezoning does not seem particularly large, it must be remembered that this is not the whole picture. The rezoning recorded by the county authorities only applies to land with better quality soil – soil which has a mineral substrate is not considered. Agricultural land which has undergone "rezoning" is used for various types of investment. This land is usually changed to industrial or service areas and also residential areas (Fig. 6). The result of the changes which take place in land use is the restriction, and in some areas even the disappearance, of urban agricultural functions (Głębocki 2008).

There has been uncontrolled development of suburban areas which is the result of planning decisions resulting from the misuse and misapplication of legislation. In Polish planning law, there is no European formula for the aim of spatial planning, namely well-ordered spatial development. The structures which arise under these conditions are characterized by functional monoculture and spatial monotony. Extensive, chaotic and uneven land development as well as diffusion of widely understood service functions has led to longer commuting times and, consequently, the degradation of services. The use of space is permanently and

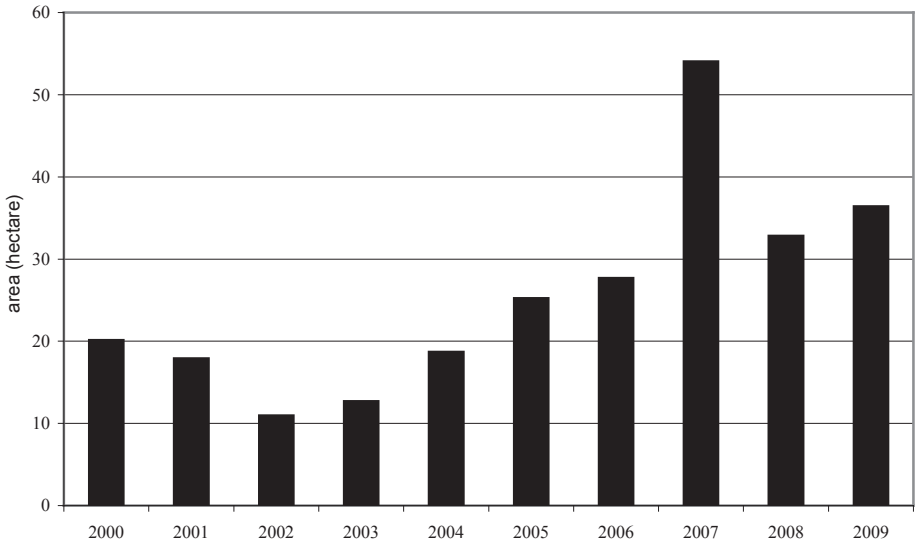

Fig. 5. The exclusion of agricultural land from production in Poznań County in 2000–2009
Source: Based on data obtained from the County Office in Poznań, Department of Environmental Protection, Agriculture and Forestry

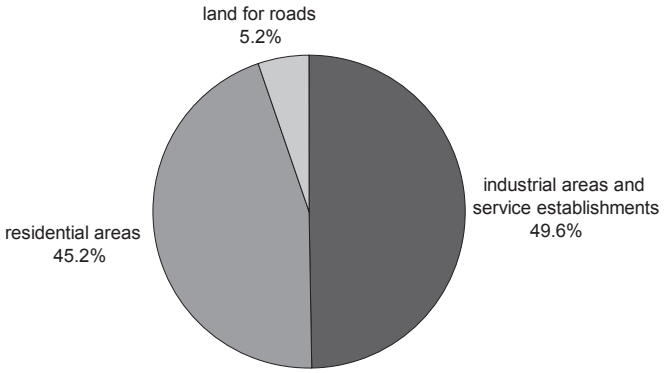

Fig. 6. The structure of agricultural land use excluded from production in the years 2000–2009 in the district of Poznań
Source: Based on data obtained from the County Office in Poznań, Department of Environmental Protection, Agriculture and Forestry

solely dependent on having one's own car, which in turn requires more and more land for transport infrastructure and is associated with the transformation and pollution of the natural environment and cultural heritage.

As a result of these long-term transformations, however, an organism has evolved whose center is a large city, and whose satellites are the suburban villages. The reason for this is not only the changes within the surrounding cities resulting from the transformation of city centers, industrial areas or transport systems, which are manifested in the succession of the functions of individual urban areas, but also due to the fact that there has been, and still is, a concentration of leadership, managerial and administrative functions, high-class office buildings, hotels, banks, financial institutions, advisory and legal institutions and other specialist services in the central districts of the cities. However, in the suburban areas there are modern, large-sized production plants and shopping centers.

CHANGES IN THE LANDSCAPE OF THE CENTRAL CITY

It is unquestionable that Poznań has an impact on the development of other urban settlement units, yet at the same time it too undergoes various transformations.

At present, the areas where the greatest transformations occur in Poznań are: the city center, the industrial areas, the communication systems, the outskirts and areas of typical, agricultural style. There is a clear succession of the functions of individual urban areas. This process is reflected in the shifting of certain

functions, particularly industrial and storage spaces (deindustrialization of central areas) as well as residential areas from the city center to its outskirts and suburban areas, and replacing them with services.

The city authorities are now seeking to protect fundamental cultural values, such as the historic downtown urban planning systems of Śródmieście, Śródka, Ostrów Tumski and of the following metropolitan districts: Jeżyce, Łazarz, Wilda and Solacz, as well as the separate town urban planning layouts, such as the Stübben Ring, wedge-shaped green areas. In the above mentioned areas, it is essential to maintain the spatial arrangements of historic buildings and to care for the area surrounding those historic buildings and monuments when shaping the landscape. There is a trend to restore the identity of the nineteenth-century districts by emphasizing their individual spatial features and to bring out the elements which crystallize the space, former land-use values, and symbolic elements. Those elements of little value, run down or disharmonized buildings are being replaced, yet at the same time taking into consideration the historical and spatial context in the process of modernization. So as to preserve cultural values there is a tendency to maintain and protect surviving panoramas and open views from different parts and points of the city, such as Stare Miasto, Wzgórze Przemysława, Ostrów Tumski, Śródkę, Wzgórze św. Wojciecha and to eliminate or neutralize individual elements which distort the historical panorama. It is also important to maintain and protect the existing green parks and tree-lined streets, as well as to preserve and highlight the remains of the inner ring of Prussian fortifications. In the case of the forts, all the elements of the fortifications have been put under protection (residential, commercial, industrial buildings, embankments, green areas), removing the possibility of new buildings being erected in their place and indicating a function which fits the existing style of the fortress buildings, including the conditions resulting from the protected areas of Natura 2000. In order to reflect the entire nineteenth-century system of fortifications as much as possible, there is a trend to make clear the layout of the former front line roads, also through the creation of alternative connections which allow the creation of a coherent system.

In order to preserve the unique cultural values of existing historic urban planning layouts, rural systems, layouts of manor houses and palaces, building complexes and individual architectural buildings as well as green spaces, except for those areas protected by law in the form of an entry in the Register of Historic Monuments, the study of the conditions and directions of spatial development determines the minimum areas of cultural value within the city of Poznań which are not yet under the monument protection scheme, but are intended to be. These areas include complexes and places of high cultural, architectural or landscape value, which are significant in shaping the identity of the city, and thus the city landscape. These areas include: the historic villages with a clear spatial layout (e.g. Krzesinki, Fabianowo); villages with clear spatial layouts of

palaces – manor houses – parks and folwarks (Morasko, Radojewo); layouts of palaces – manor houses – parks and folwarks (spatial layouts consisting of palaces, manor houses, parks, and folwark complexes, later extended to residential colonies). The selected areas are very diverse in terms of the saturation of cultural heritage elements: there are valuable architectural buildings (church complexes, residences, manor houses entered in the register of monuments, and nature complexes protected and recorded by the nature conservation officer, for example: Marcelin, Wielkie); villages which have been strongly transformed, urbanized (traces of the rural past are visible in these areas, but generally, these are areas where intensive investment processes are taking place, e.g. Górczyn, Dębiec), complexes of housing estates (e.g.: Warszawski, Plac Lipowy) barracks (e.g.: the Sapper Barracks on Rolna Street), recreational complexes (e.g.: Szelągowski Park) industrial complexes, including: brickyards, railway station buildings, mills.

In relation to the city of Poznań, there is a tendency to develop long-term programs which involve the conservation, adaptation, restoration and transformation of: preserved complexes of palaces, manor houses, and folwarks; individual monuments, former industrial complexes and areas, such as the area of former brickyards Rudnicze Wykopy – Kopanina; rural systems; the housing industry which is typical of the outskirts of Poznań, for example, the layouts of manor houses and former suburban villages. These programs should initiate, and act as a catalyst for a whole group of activities (renovation, modernization and revitalization), so as to create high-quality historic and cultural areas which would be attractive to the residents of Poznań and to future generations.

In shaping the spatial and functional structure of a city, in addition to preserving its historic and cultural value, it is important to establish rules concerning the formation of newly created spaces. The aim of the governing bodies which outline the main directions of urban development should be firstly to fill in the empty spaces of the existing urban structures. New investments should be located primarily within the areas where technical infrastructure already exists or where there is a possibility of expanding it. It is extremely important to create opportunities for active and attractive development of downtown areas and to promote new potential locations which have the same functions as downtown areas, using the advantages of the planned transport system of a city. It is significant to find areas for economic activation and the development of the housing industry. Preventing an increase in migration of residents from the city can be achieved, among other ways, by increasing the attractiveness of residential buildings in downtown areas, improving the quality of housing, for example by appointing areas which are solely residential areas and separating residential areas from nuisance generating features, finding new areas for housing construction addressed to residents with varying degrees of affluence, including residential buildings in attractive areas of the city.

Not without significance is the reduction of areas used for agriculture in places where the previous function is impossible to maintain. The main task should be to preserve, fill in and restore the existing structural, spatial and functional skeleton of Poznań. This skeleton is continually being shaped by the underlying elements of development, such as: the wedge and ring-shaped system of open green spaces, which is filled in and enriched by new elements, the general transport system, the downtown area with valuable urban and cultural complexes, the functional downtown area. The changes should apply to the spatial structure by means of reorganizing the areas along the banks of the River Warta causing the city to "turn" towards the river; creating an area of public spaces, including functional chains and connections with a focus on preserving their continuity in the urban structure, improving the city's attractiveness and creating new areas which have the same functions as the downtown areas significant to the whole city. In terms of the arrangement of spatial structures, action will be taken to distinguish and define the urban planning complexes, and to attempt to achieve a common distinctive style of the area (by means of the standardization of its elements, the context and the relation with the neighborhood). In order to clean up run down areas which have no clear spatial layout, and to establish a clear spatial quality in new areas meant for investment, a common approach has been adopted to define one style of building developments within a given urban planning complex. Of course, reducing the negative impact of the main traffic routes in the city (motorways, I, II, III, traffic artery) will not be easy.

New elements which may disrupt the spatial structure of Poznań, must be integrated into the historic style of the city and at the same time, make it more attractive. In order to protect and shape the urban landscape, special attention must be paid to: the panorama of the city from certain vantage points, the location of complexes as the dominant spatial structure, the location of the complexes which disharmonize the landscape, such as overhead and ground technical infrastructure, outdoor advertisements and mobile communications facilities. Care should be taken when shaping the area of unique places, such as "the city gate" and "the gates of the city center." These points need to be emphasized, so as to highlight the entrances to the city or the downtown area, which may be achieved by means of a particular form of development or construction parameters.

It is extremely important to pay attention to public spaces in the city. These include the city center, the Śródecki, Jeżycki, Łazarska, Wildecki and Wschodni district markets, the Rataje markets i.e.: Piastowski, Jagielloński, as well as the planned market at the square in Łacina. Then there are the major urban routes which lead traffic into the city center from the aforementioned markets, and which are based on the existing cultural and commercial arteries, including Dąbrowska, Głogowska, Wierzbięcice, and Górna Wilda streets and recreational routes.

The location of service complexes and facilities is also significant in shaping the urban landscape, not only because of the architectural and urban planning forms, but also because of the traffic which they generate. Shopping facilities will be located in the form of shopping precincts, which constitute public spaces, as well as multi-service facilities (department stores, galleries, etc.) together with residential developments and other service facilities. These shopping facilities are mainly located in the functional downtown area, in the form of independent, large, multifunctional shopping centers; as a single complex in a free location (for basic services) and as objects which co-create the local service centers. The size and architectural form of the complexes and service facilities are adapted to the style of the building developments. Shopping facilities with a surface area over 2,000 m^2 are located in the vicinity of the Komorniki intersection, near Franowo, in the bus station and railway station complex, in the area of Lechicka street – Księcia Mieszka I and also Hetmańska street, Górecka street and in the city center.

The main directions of urban development appear to be in accordance with the principles of spatial order, sustainable development, the principles of urban planning design and spatial planning. However, this will be difficult to achieve in an era of inconsistent laws, illegal building and constantly growing investment needs.

FACTORS AFFECTING THE DEVELOPMENT OF SETTLEMENT UNITS IN URBAN AGGLOMERATIONS

The factors affecting the functioning of a settlement unit include: migration, governing and adopting a policy by the municipal authorities, applicable law, urban planning trends and doctrines, as well as other developmental determinants. The present study is an attempt to organize the factors which affect the changes in the way the units of the agglomeration are shaped. These factors have been divided into 4 categories: spatial factors, demographic and social factors, legal and administrative factors, as well as economic factors. Within each of these categories the factors have been further divided into endogenous and exogenous.

The first group of factors (spatial factors) are those which have a direct influence on the shape of the area of settlement units and thus, they determine how the area is going to be built up and developed. External factors arise from the decisions made by superior authorities, from the concept of spatial development prepared at regional and national levels. Urban planning trends and doctrines appear to be less restrictive, as the manner of shaping estates is the responsibility of those teams of designers working on behalf of the authorities. This is not obvious, however, because public demands and preferences in terms of, say, the size or shape of the investment lot, are imposed by the authorities. If they do not take

into account the needs and preferences of the customers, they will not find buyers. The qualities of the natural environment are another very important factor in development. Making appropriate use of resources conditions the positive feelings of potential buyers. Proximity, the opportunity of interaction, and therefore active or passive participation in making the above-mentioned areas attractive, provide an opportunity for spatial development. Among the most attractive villages located near Poznań in terms of building housing estates are those located near large areas of woodland, that is, the Wielkopolski National Park (situated near the south-west border of the city) and Puszcza Zielonka Landscape Park (in the north-east). The main places of interest are Rogalinek, Sasinowo, Wiry, Rosnówko and Puszczykowo and also Czerwonak, Kliny, Milno, Annowo, Owińska and Potasze. Very attractive places, where investors have gladly bought property, are those located near bodies of water, such as Lake Kiekrz and Lake Lusowskie. Another decisive factor when choosing investment locations or locations meant for economic activity is access to transport. The towns situated at the exit routes from Poznań, characterized by the highest number of businesses include: Suchy Las, Swadzim, Przeźmierowo, Sady, Tarnowo Podgórne and Czerwonak. In the development strategies of municipalities which have national transportation routes, there is a functional division of land with decisions concerning the means and opportunity to implement investment objectives. Municipalities create and shape their own areas dividing them into functional zones. Areas of economic activity (industrial activity) are located along national roads, then there are residential areas together with green belts. The agricultural zone is located further away from the roads (Fig. 7).

The internal factors connected with the way building and land development is carried out are conditioned by the decisions made by local authorities, the possibilities inherent in the structure (local resources), as well as by the connection between the elements of the structure and the activity related to maintaining spatial order and sustainable development. The conditions of building and land development, the orders and prohibitions contained in existing plans, and permits issued by the competent administrative authority all play a vital role in the process of landscaping. When preparing local land development plans, the authorities determine not only the appearance of a housing estate, but also the living conditions of the residents of that community. Examples of towns which came into existence as a result of rigorous geodetic divisions, which had ready local land development plans allowing for the construction of the features of urban settlements are: Przeźmierowo and Skórzewo (Tarnowo Podgórne municipality) Koziegłowy (Czerwonak municipality) or Suchy Las (e.g. Grzybowe, Suchy Las municipality). Suburban estates, which act as bedroom suburbs of the big adjacent cities, are very intensely developed. A dense network of streets, low quality of public green spaces, not enough rest areas, the lack of public spaces and also hierarchically important areas, an insufficient amount of parking

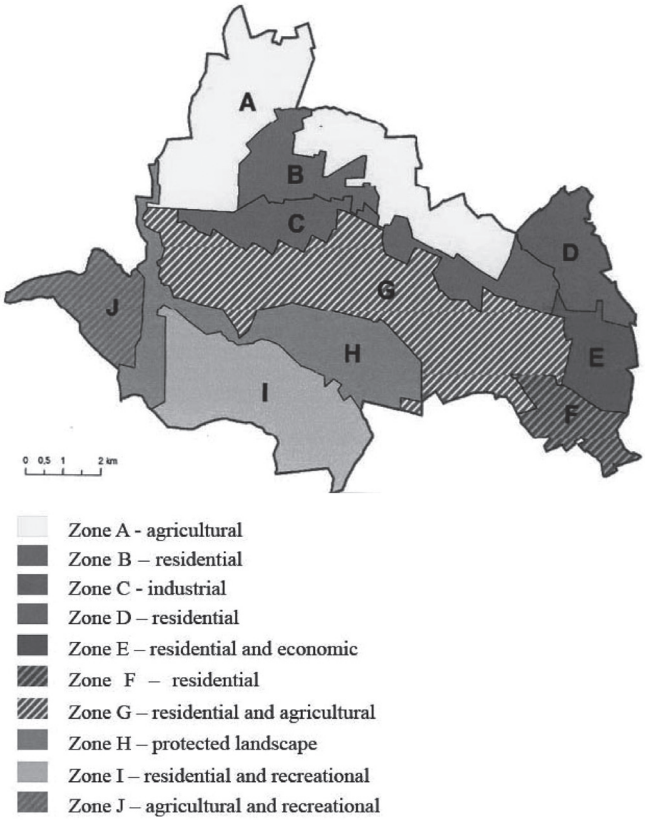

Fig. 7. The development strategy of Tarnowo Podgórne municipality
Source: Tarnowo Podgórne District Office

spaces, yet at the same time, a lot of built-up areas, reduce the quality of life of the inhabitants. This is the result of the spread of cities, a problem which concerns ever larger areas of the country. As is stated in the Athens Charter of 2003, dynamic urban sprawl is considered a harmful trend (*damaging trend*). Additionally, it stated that:

– being in touch with nature is not only a source of well-being for people, but also a survival condition;
– permanent preservation of open spaces and agricultural areas on the outskirts of cities is an important prerequisite for sustainable development;
– suburban development and distributing municipal functions in surrounding areas lead to more time spent commuting and consequently to a lower quality of services, while the deterioration of public transport and the increase in the number of private cars lead to more problems for cities.

Therefore, these issues require urgent and radical countermeasures at local, regional and especially, national levels. Unfortunately, this task, in our

conditions, is extremely difficult, due to the existing spatial development system which practically makes it impossible to counteract the urbanization element. Improving the system, is therefore one of the conditions for streamlining the processes of development.

The second group includes demographic and social factors. Migration, demographic transformations and social stratification had an effect on the number of inhabitants of the city of Poznań and the surrounding municipalities. There are two concentric rings of municipalities around Poznań. The first, internal ring with a faster growth of population density, is strongly functionally connected to the city, while the other retains the agricultural style of rural building development and has low growth or a decline in population density. The distribution of population density growth in the municipalities of the first ring is asymmetrical. Population growth in municipalities adjacent to the city from the west, northwest and south is more rapid than in the municipalities to the north-east, east and south-east. This situation is conditioned by the major transport routes, receptiveness of urban areas as well as by the spatial policy adopted by district authorities. The number of inhabitants, social and financial differences, psychosocial features, and education all clearly have an impact on the development and functioning of a given housing estate.

The next category is made up of a group of legal and administrative factors. Construction Law, the Law on Spatial Planning and Development, the Law on Environmental Protection and Nature Conservation, the Real Estate Management Act, the Farm and Forest Land Protection Act, the Act on public roads as well as the local land development plans are stimuli for shaping the area of the settlement units in suburban areas. A conflict of laws and interests of the inhabitants is a major threat to the widely understood spatial order. Note, however, that the agent of spatial changes is local government. The local authorities must reconcile the interests of all parties when formulating the rules from inconsistent legislation and with limited financial resources. The authorities are obliged to address the interests of the investors, and at the same time, to acknowledge the needs of the residents.

Economic and business factors are strictly related to the spatial policy of a community, as the impact of the factors related to state policy (exogenous) is of marginal significance. The only matter which appears to be important in this group is cooperation in carrying out domestic and foreign investments. Attracting investors is significant for the development of an individual or a group of settlement units. When locating investments in the vicinity of major cities, entrepreneurs often enjoy the conveniences of well-developed technical infrastructure, business sectors, increased market demand or a high quality of the labor market, while paying a much lower price for the land, lower rent and taxes and having access to an increased supply of vacant land for development. Territorial marketing is undoubtedly helpful in this endeavor, as it is a tool used in

individual development management. In wishing to attract customers and investors, local authorities must take certain cognitive, analytical and operational actions. These measures make up the spatial and socio-economic policy of a region/municipality which, through the activation of economic activity, results in the improvement of the living conditions of its inhabitants.

In attempting to attract investors, a municipality provides assistance with advice on the design of investments, organizing the execution of investments, raising funds for the completion of investments, assisting the investors in finding the most suitable and professional contractors, organizing tenders, keeping a human resources data bank and providing training, mediating in the process of establishing cooperation and providing promotional and advertising materials. Authorities are often a source of information oninvestment conditions, application procedures related to setting up a business in the area, the possibilities of using technical infrastructure. They also help in establishing contacts with other local administrative and government bodies as well as in ensuring an efficient course of investment procedures.

The set of factors listed above is infinite. These are only some of the visible factors which space users are aware of. There are also other significant factors, connected with place, and these include: location (understood as the possibility of internal and external connections to a different place/location), the arrangement of elements (individual, which determine whether a given place will come into existence, develop or decline), significance (determined by people), the location system (so that some places / units are part of larger areas) and finally, a system of spatial interactions and flows (due to which individual places become part of one general circulation). Therefore, it seems evident how detailed the spatial analysis of a place should be. It is from the features of a place that the needs of its users arise, and the factors of development arise from the way those needs are answered.

CONCLUSIONS

The process of the systemic transformation which began in Poland in 1989 contributed to the advancement of urbanization processes. The agglomeration of Poznań is “sprawling” over the adjacent areas. *Urban sprawl* is now having a significant impact on the functional and spatial structure of the settlement units which make up the agglomeration.

An analysis of selected aspects of the functional and spatial transformations of the settlement units of the Poznań agglomeration indicates the dynamic (unfortunately, too often chaotic) development of these units. A characteristic feature of the Poznań agglomeration is the systematic depopulation of the city center, accompanied by population growth in the other units of the agglome-

ration. Among the most important consequences of increasing population concentration in the cities and *municipalities* of Poznań County are, above all, the changes in land use – there is an increase in the size of urban areas, while the area of agricultural land is "shrinking". Agricultural land which has undergone rezoning is used primarily as industrial, service and housing areas. Marginalization of the agricultural function occurs – especially in Poznań and the units surrounding it.

Unfortunately, some of the functional and spatial transformations are negative, because the planning documents are often prepared under pressure from land owners, investors, or focussing on the immediate benefit to the local authorities. This results in scattered residential estates, developments which are not integrated into a historically shaped structure, the lack of proper transport routes between the units of the agglomeration, disintegration of the space and landscape. It should be pointed out that urbanization processes have led to the blurring of boundaries between the city and rural areas. However, the suburban areas are still primarily a residential, recreational, and service base for the city of Poznań (trade, location of problematic investments – sewage treatment plants and garbage dumps).

The most important transformations taking place in Poznań at the turn of the twentieth and twenty-first centuries concern the downtown area, industrial areas, transportation systems and the outskirts. There is deindustrialization of the central areas as well as "shifting" of housing functions from the city centers to the outskirts and suburban areas. The functions which originally appeared in the city center are being replaced by services. It seems that the main directions of urban development consider the principles of spatial order and sustainable development, although unfortunately not all of the observed changes are beneficial to the development of the city. It is certainly difficult to avoid mistakes when the applied laws are far from perfect and the investment needs are steadily increasing. It is worth mentioning that Poznań (like other large Polish cities) has lost its attractiveness, and although it provides jobs, it is not so positively perceived as a place of residence (Lisowski and Grochowski 2007; Domagalski et al. 2008).

The structural changes within settlement units of the agglomeration are determined by various exogenous and endogenous factors. Spatial factors affect the building and land development of the settlement units, demographic and social factors determine the functioning of a given housing estate, legal and administrative factors stimulate the spatial development of the settlement units and economic factors are primarily related to the spatial policy pursued by the various administrative units. These factors have both a negative and positive effect on the social, economic and above all spatial development of the settlement units within the agglomeration. As a result of these factors, "an agglomeration organism" is formed which is tied together spatially, functionally, organizationally, and socially.

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PRZEMIANY STRUKTURALNE JEDNOSTEK OSADNICZYCH AGLOMERACJI POZNAŃSKIEJ NA PRZEŁOMIE XX I XXI WIEKU

Streszczenie

Jednostki osadnicze (wsie i miasteczka) wraz z przyległym terenem, znajdujące się w bezpośredniej strefie wpływu dużego miasta, zaczynają stanowić integralną część aglomeracji. Cechuje ją: określona wspólnota infrastruktury techniczno-inżynieryjnej, ekologicznej, wzajemne uzupełnianie się struktur demograficznych, intensywne dojazdy wahadłowe ludności do pracy i w celach kulturalno-bytowych. Intensywny rozwój mieszkalnictwa w szybkim tempie przekształca strefę podmiejską, doprowadzając do zagospodarowania przestrzeni otwartych i uzupełniania już istniejącej struktury. Dzieje się to głównie w wyniku autonomicznego rozwoju poszczególnych jednostek osadniczych zlokalizowanych wokół ośrodka centralnego aglomeracji. Obserwuje się proces integracji, zespalania zachodzącego na różnych szczeblach społecznej, przestrzennej i gospodarczej agregacji. W wyniku wielu czynników demograficzno-społecznych, prawno-administracyjnych i gospodarczo- ekonomicznych jednostki strefy podmiejskiej rozwijają się, przybliżają do siebie, a nawet scalają.

Celem opracowania jest identyfikacja i analiza najistotniejszych zmian funkcjonalno-przestrzennych zachodzących w jednostkach osadniczych aglomeracji poznańskiej oraz czynników, które je wywołują. Realizując przyjęty cel, przeprowadzono badania w Poznaniu i jego strefie podmiejskiej utożsamianej (ze względu na dostępność danych) z powiatem poznańskim. Obiektami badań szczegółowych były wybrane jednostki osadnicze aglomeracji poznańskiej. Wykonano ich inwentaryzację oraz przeprowadzono wywiady eksperckie z przedstawicielami władz lokalnych. Wykorzystano również informacje udostępnione przez Starostwo Powiatowe w Poznaniu, Główny Urząd Geodezji i Kartografii oraz plany rozwoju lokalnego i niezbędną dokumentację z zakresu planowania przestrzennego.