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Candidate session number

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Examination session (May or November)

MAY

Year

2012

Diploma Programme subject in which this extended essay is registered: GEOGRAPHY

(For an extended essay in the area of languages, state the language and whether it is group 1 or group 2.)

Title of the extended essay: ANALYSIS OF CHANGE IN POPULATION  
AGE STRUCTURE OF OSIELSKO MUNICIPALITY AND ITS CAUSES  
IN THE TIME PERIOD 1988-2009

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*This declaration must be signed by the candidate; otherwise a grade may not be issued.*

The extended essay I am submitting is my own work (apart from guidance allowed by the International Baccalaureate).

I have acknowledged each use of the words, graphics or ideas of another person, whether written, oral or visual.

I am aware that the word limit for all extended essays is 4000 words and that examiners are not required to read beyond this limit.

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Please comment, as appropriate, on the candidate's performance, the context in which the candidate undertook the research for the extended essay, any difficulties encountered and how these were overcome (see page 13 of the extended essay guide). The concluding interview (viva voce) may provide useful information. These comments can help the examiner award a level for criterion K (holistic judgment). Do not comment on any adverse personal circumstances that may have affected the candidate. If the amount of time spent with the candidate was zero, you must explain this, in particular how it was then possible to authenticate the essay as the candidate's own work. You may attach an additional sheet if there is insufficient space here.

The candidate began her research in the middle of the first year of the IB programme. She was convinced about the choice of the subject for the extended essay as studying geography was and still is her great passion.

The research question and the title of the work were presented to me for the first time with some arguments and a complete list of sources.

There were some doubts how to approach certain aspects of the issue, yet the candidate showed great responsibility and independence in solving the problems.

The candidate was always eager to discuss and comment her work that is why we didn't encounter any difficulties in the course of our cooperation.

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I have read the final version of the extended essay that will be submitted to the examiner.

To the best of my knowledge, the extended essay is the authentic work of the candidate.

I spent  hours with the candidate discussing the progress of the extended essay.

Supervisor's signature: \_\_\_\_\_

Date: 26<sup>th</sup> February, 2012



**Assessment form (for examiner use only)**

Candidate session number

**Achievement level**

Criteria	Examiner 1	maximum	Examiner 2	maximum	Examiner 3
A research question	2	2	2	2	
B introduction	2	2	1	2	
C investigation	3	4	3	4	
D knowledge and understanding	3	4	3	4	
E reasoned argument	2	4	2	4	
F analysis and evaluation	2	4	3	4	
G use of subject language	3	4	3	4	
H conclusion	2	2	2	2	
I formal presentation	3	4	3	4	
J abstract	2	2	2	2	
K holistic judgment	3	4	3	4	
Total out of 36	27		27		

*(weaker reasons)*

Signature of examiner 1: \_\_\_\_\_ Examiner number: \_\_\_\_\_  
 Signature of examiner 2: \_\_\_\_\_ Examiner number: \_\_\_\_\_  
 Signature of examiner 3: \_\_\_\_\_ Examiner number: \_\_\_\_\_

IB Cardiff use only: B: \_\_\_\_\_

IB Cardiff use only: A: 100837 Date: 30/04

# Extended Essay

## Geography

### Analysis of change in population age structure of Osielsko municipality and its causes in the time period 1988-2009

Some analysis of  
the pop data

↳ but  
becomes  
descriptive  
towards the  
end

Word Count: 3980

Very well written - but lacks a theoretical framework  
- tending towards descriptive

Use of migration models would have helped explain  
the causes of the migration better

= employment  
commitment possibilities

excellent  
mapping



## Abstract

This essay is an analysis of changes in population age structure of Osielsko municipality (located in Poland) which took place between 1988 and 2009. Therefore, the research question is: **How has the population age structure of the Osielsko municipality changed during the time period 1988-2009 and what were the causes of the change?**

Changes in population age structure were examined by analysing variations in proportions of people in pre-productive, productive and post-productive age as a share of population in various years within the researched time period. The outcomes were analysed against background of other districts, that is the voivodeship and the country in which Osielsko municipality is located, in order to verify if demographic processes occurring in municipality were similar to these occurring in the region. Then, variations in the size of population of Osielsko were determined in order to enable the investigation of the causes of population structure change. Two factors influencing demographic processes were examined, that is natural increase and migration. This analysis was based on statistical data obtained from statistical yearbooks and Osielsko municipality council and it was illustrated by graphs.

The analysis found that in the period researched, the size of Osielsko population has doubled and the share of people at the productive age has increased by 20%, while of those at post-productive age has decreased. These processes were different from those occurring in the region and the main cause of these changes was the immigration of dwellers from Bydgoszcz (a city located near Osielsko).

Causes of the big influx of people were found by conducting a questionnaire on a sample of the population, which showed that 75% of residents commute to work to Bydgoszcz. Low price and availability of land, attractive location, unpolluted environment were named as main causes of immigration.

Word count: 296

5 3/2

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## **APPENDICES**

**APPENDIX A: Statistical data**

**APPENDIX B: A sample blank questionnaire**



## Introduction

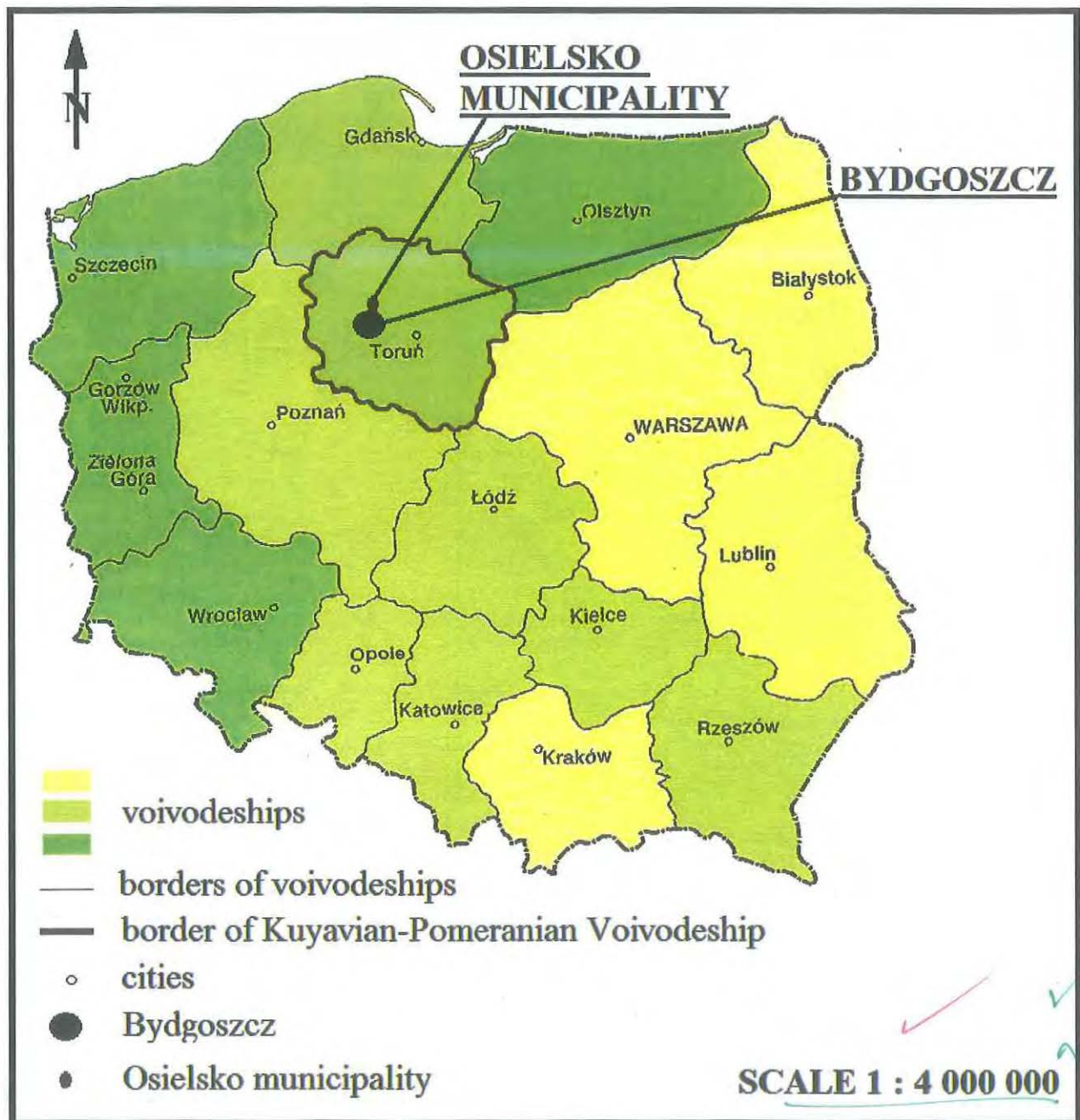
**How has the population age structure of the Osielsko municipality changed during the time period 1988-2009 and what were the causes of the change?**

One of the branches of geography is demographics, which is the study of human population. During my IB geography course I have found the study of populations very interesting as it is a constantly changing area of knowledge that can be easily applied to a local scale. Therefore, I have decided to investigate the demographic processes taking place in my local area, that is the city of Bydgoszcz (located in Poland) and its surrounding municipalities. After some primary research I have noticed interesting phenomena that involves Osielsko municipality - one of the district that is a neighbour of the city of Bydgoszcz, as presented on Maps 1 and 2. I have noticed that there are more and more dwellers from Bydgoszcz who move to the Osielsko municipality, although they still work in the city. Therefore, Osielsko population has increased. I have also noticed that the majority of the dwellers who settle down in Osielsko are people in the productive age, usually having two children. Because of that, during a long time period, the municipality has developed and changed from a rural area to an urbanized rural area. What attracted my attention the most and what I would like to investigate further, are the changes in the population structure that have occurred. Therefore, the aim of this study is to answer the question how the population age structure of the Osielsko municipality has changed during the time period 1988-2009 and what were the causes of the change.

The processes which I have observed and which will be analysed in this study are ongoing and are probably going to continue for some time. Therefore, I believe this topic is of great significance as we should be able to identify the processes occurring in our local area as we should be active participants of our community.

*Location of the research area and methodology*

Map 1: Location of Osielsko municipality on the map of Poland<sup>1</sup>



Osielsko municipality is a rural municipality located in the Kuyavian-Pomeranian Voivodeship in the northern Poland as presented on the Map 1. According to 2009 data it has a population of 10961 people and area of 102 square kilometres. It is a neighbouring

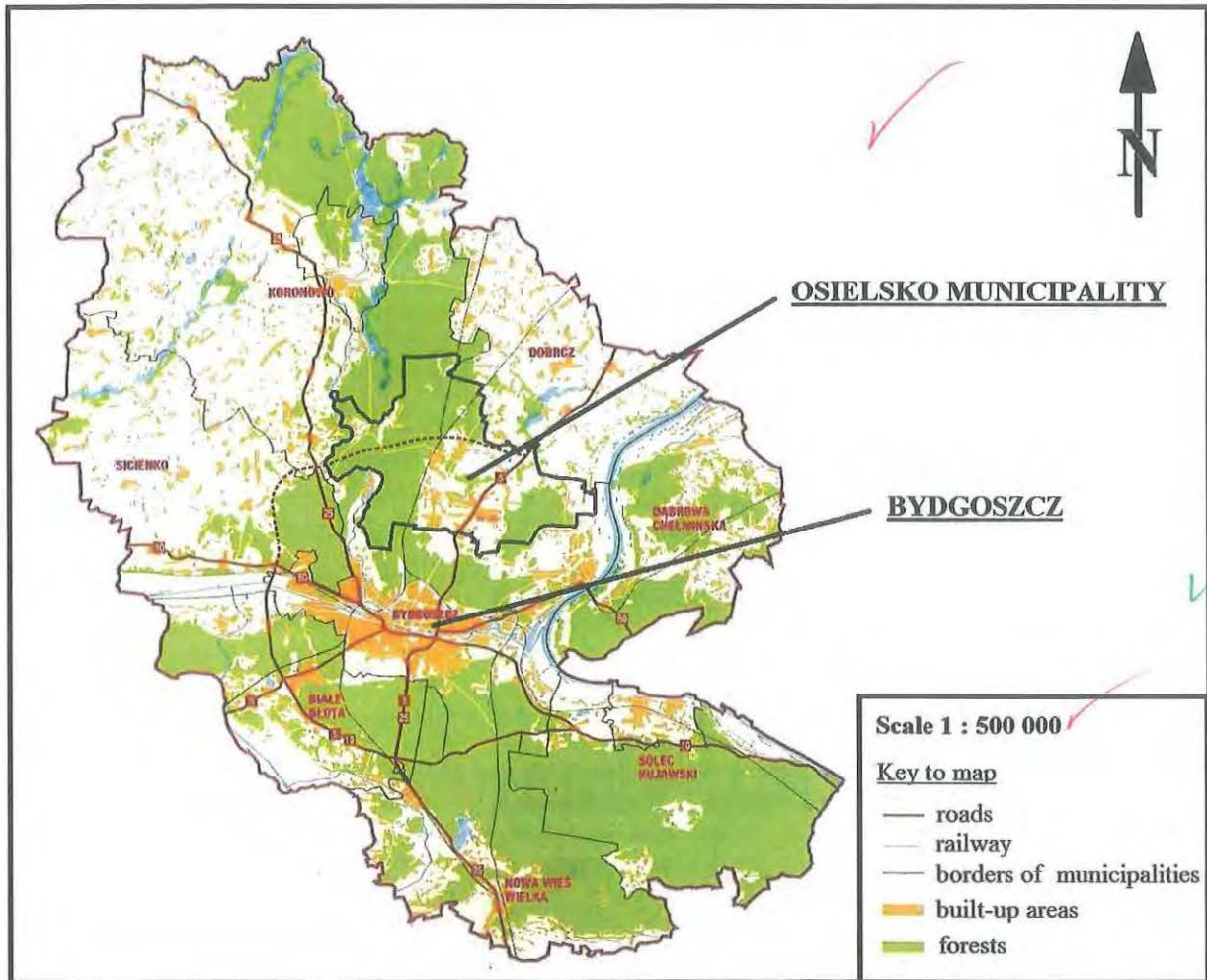
<sup>1</sup> Annotations made by me.

Source of map: *Gimnazjalny Atlas Geograficzny (Geographical Atlas)*, Nowa Era, 2004



municipality of Bydgoszcz-one of the largest cities in Poland with population of nearly 360 thousands citizens<sup>2</sup>. As presented on Map 2, Osielsko is located to the north of Bydgoszcz.

**Map 2:Location of Osielsko municipality in comparison to Bydgoszcz<sup>3</sup>**



The aim of this study is to investigate changes in the population structure that took place between 1988 and 2009. This period was chosen because, according to what I have noticed during my observations and primary research, the major changes took place in this time. This study relies strongly on secondary data. Data used in this research can be considered fully reliable as they were obtained from statistical yearbooks published by Central Statistical Office of Poland<sup>4</sup> and from the Osielsko municipality council. The research is also referenced by published books and studies about population studies which are listed in *Bibliography*.

<sup>2</sup> According to official information for year 2010. Source: *bydgoszcz.pl*. Accessem on 15.11.2011

<sup>3</sup> Annotations made by me. Source of map: *Gmina Osielsko: Informator na bazie planu gminy Osielsko (Osielsko municipality: brochure on the basis of municipality plan)*, 2010

<sup>4</sup> That is 'Główny Urząd Statystyczny'

In order to investigate the causes of the changes in population structure, a questionnaire was conducted on a sample of population.

According to my observations and primary research, since 1980s Osielsko municipality has been facing big influx of population due to migration. Back in 1980s it was a rural area with majority of the society involved in agriculture. Back then, the relation between Bydgoszcz and Osielsko could have been described as fitting core-periphery model. This model attempts to explain uneven distribution of human activities in the world<sup>5</sup> and can also be applied to a local scale. Core is an area of increased human activities that includes industry and higher population density and is commonly described as the area of wealth, while periphery is an area of decreased concentration of industry. As Bydgoszcz has been a major industry district of the region and also its biggest city, it can be called a core. Osielsko lacked industry, had low population and was a rural area, thus it can be called a periphery. However, since 1988 the size of population of Osielsko municipality has increased enormously and the relation between the city of Bydgoszcz and the municipality has changes and does not seem to apply to core-periphery model anymore. According to what I have noticed, the majority of population are people in productive age who commute to their work to the city of Bydgoszcz. Therefore, I have formulated hypotheses that will be verified in the course of this work: ✓

#### **Hypothesis 1.**

The proportion of people at the productive age as a share of population of the Osielsko municipality has significantly increased between 1988 and 2009, while the proportion of people at the post-productive age has decreased.

#### **Hypothesis 2.**

The changes in the population age structure of Osielsko municipality between 1988 and 2009 were caused by immigration from urban areas, that is from Bydgoszcz. ✓

In this study, 'pre-productive age group' refers to people between 0 and 17 years old, 'productive age group' refers to men between 18 and 64 years old and women between 18 and 59, 'post-productive age group' refers to men having 65 years and more and women having 60 years or more. 'Age groups' refers to these three groups.

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<sup>5</sup> Definition adapted from: S.Codrington, *Planet Geography*, Sold Star Press, Sydney, 2010



## *Analysis of population age structure change*

The purpose of this section is to analyse how the proportion of people at the pre-productive, productive and post-productive age as a share of the total population of Osielsko municipality has fluctuated between 1988 and 2009 and investigating if these changes are similar to those that have taken place in the country and region. Apart from 1988 data for municipality, all proportions of age groups were calculated by me using data obtained from the statistical yearbooks and the municipality council. All data is gathered in Appendix A.

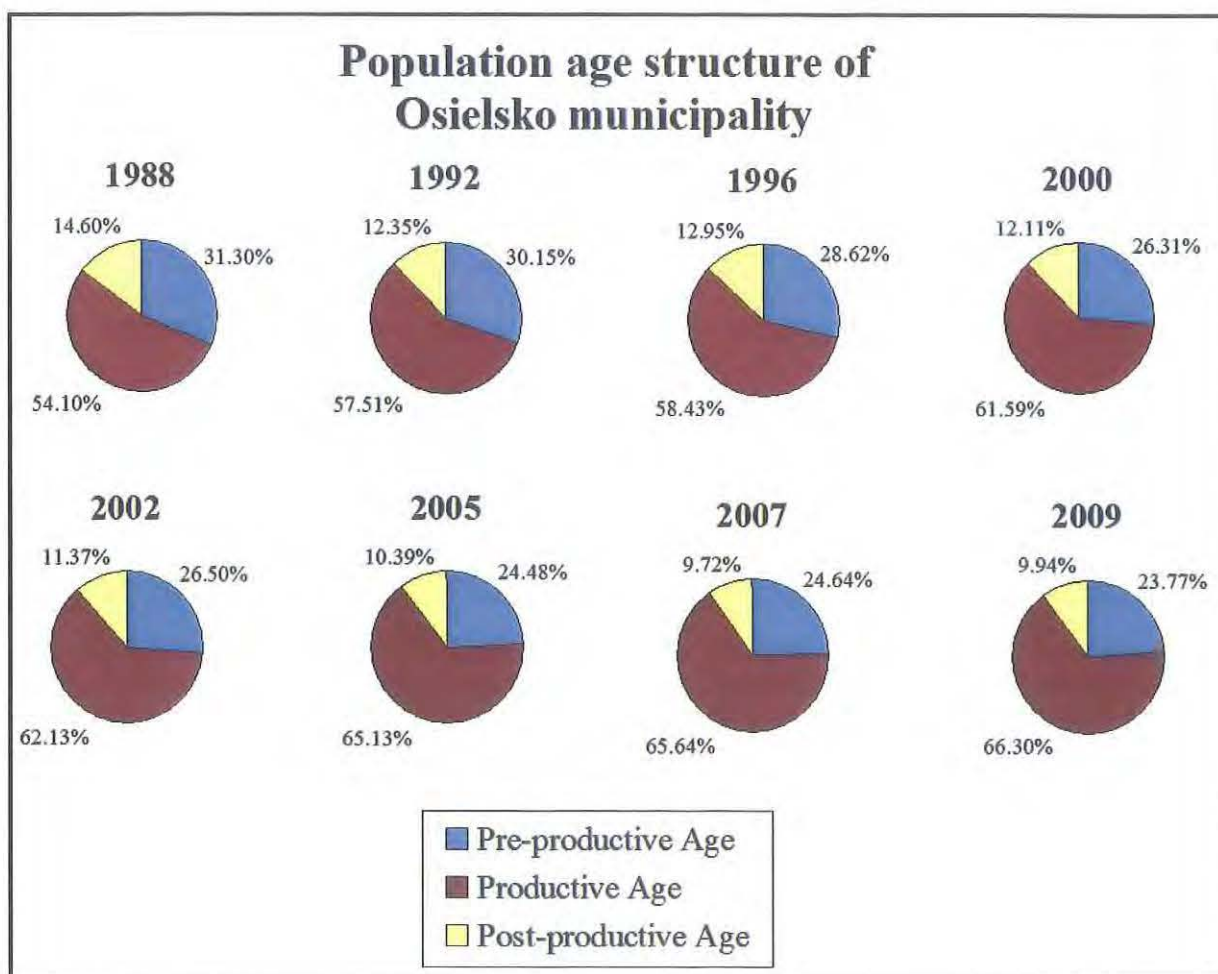
### *Analysis of population age structure change in Osielsko municipality*

**Table 1: Proportion of age groups as a share of population of Osielsko municipality between 1988 and 2009**

Year	Proportion of people at age		
	Pre-productive	Productive	Post-productive
1988	31.30%	54.10%	14.60%
1992	30.15%	57.51%	12.35%
1996	28.62%	58.43%	12.95%
2000	26.31%	61.59%	12.11%
2002	26.50%	62.13%	11.37%
2005	24.48%	65.13%	10.39%
2007	24.64%	65.64%	9.72%
2009	23.77%	66.30%	9.94%

Table 1. shows great changes in the age structure of Osielsko. Generally the number of people at productive age has increased, while both pre- and post-productive groups have decreased in size. To enable further analysis the data from Table 1 are displayed in the Figure 1.

Figure 1: Population age structure of Osielsko municipality in the period 1988-2009



*pie charts*

Figure 1. consists of graphs showing proportion of each age group as a share of population between 1988 and 2009. On the first graph we see that in 1988 little over half of the population was in the productive age (54.10%), while one third of people was in the pre-productive age. Although relatively small proportion of population was in the post-productive age, figure 14.60% indicates that elderly people were a major part of the society. We can see that in 1992 the proportion of pre-productive part of the population remained much unchanged. However, the balance between two remaining groups changed, that is we faced an increase in the proportion of people at the productive age and so the share of the eldest group of population has decreased. Between 1992 and 1996 the proportion of people at productive age remained to increase slightly, while the youngest part of the society as a share of population has slightly decreased. The proportion of people at post-productive age has increased by a fraction of percent point in comparison to 1992, however in comparison to 1988 its share was still much lower. From the year 2000 onwards, the trend which has



developed before has accelerated, that is the proportion of people at the productive age has been increasing, while two other age groups have continued to decrease as a share of population. Between 1988 and 2009 the proportion of people at productive age has increased from 54.10% to 66.30%, which means that the number of people at the working age as a share of population has increased from slightly over half of the population to predominant majority. Within this time period, the proportion of people at the productive age has increased by over 22.5%. During the same time period, the proportion of people at post-productive age has decreased from 14.60% to 9.94%, that is from a relatively high number of people at elderly age to less than one tenth of the population. During the same time, the share of the youngest part of the population has decreased from 30.1%, which indicated that Osielsko municipality has a youthful population, to 23.77%. On the basis of this analysis, we can state that between 1988 and 2009 Osielsko municipality has faced major changes in population age structure. ✓

### *Analysis of population age structure change against background of other districts*

In order to find patterns in the change of population of Osielsko municipality, we should analyse these changes against background of the immediately surrounding region of the municipality, that is the Kuyavian-Pomeranian Voivodeship and the country. That is because there might have been some processes occurring in the whole region which have been the cause of such population structure change in Osielsko.

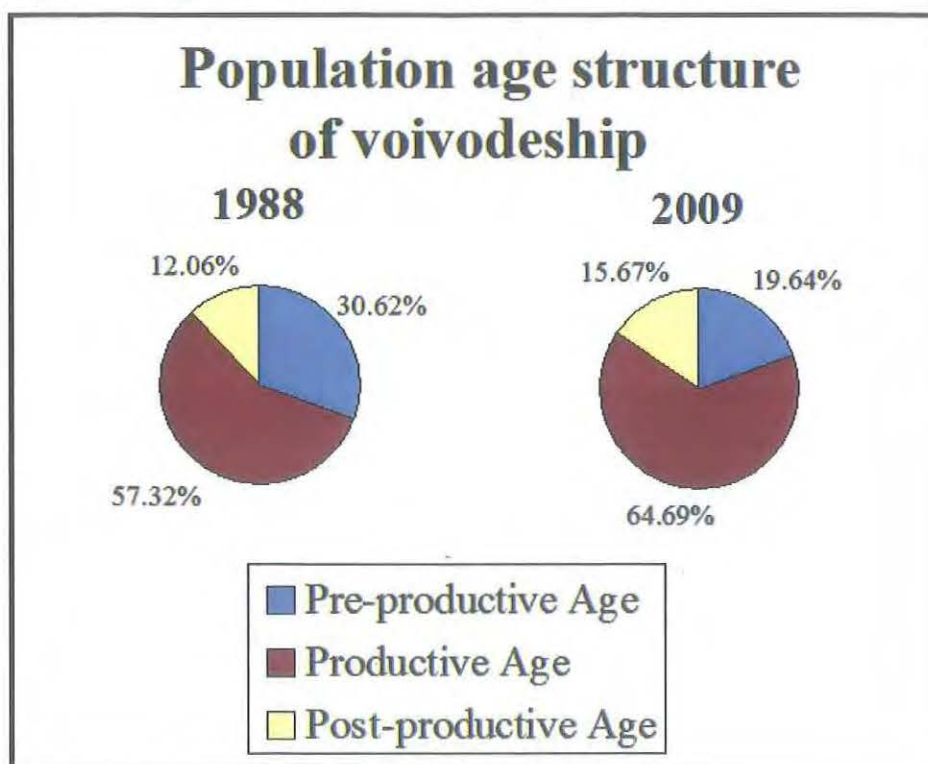
### *Population age structure change in Voivodeship*

Until 1999 there was a different administrative subdivision in Poland. Therefore, the data before 2000 are for Bydgoskie Voivodeship, in which Osielsko municipality has been located. Although the administrative borders of voivodeship before and after 1990 are different, it does not influence this study, as we investigate only the relations between age groups. *Noted*

**Table 2 : Proportion of age groups as a share of population of Voivodeship between 1988 and 2009**

Year	Proportion of people at age		
	Pre-productive	Productive	Post-productive
1988	30.62%	57.32%	12.06%
1992	29.78%	57.94%	12.28%
1996	27.70%	59.44%	12.86%
2000	25.21%	60.97%	13.82%
2002	23.13%	61.67%	13.91%
2005	21.36%	64.27%	14.37%
2007	20.41%	64.58%	15.01%
2009	19.64%	64.69%	15.67%

**Figure 2: Population age structure of Voivodeship in 1988 and 2009**



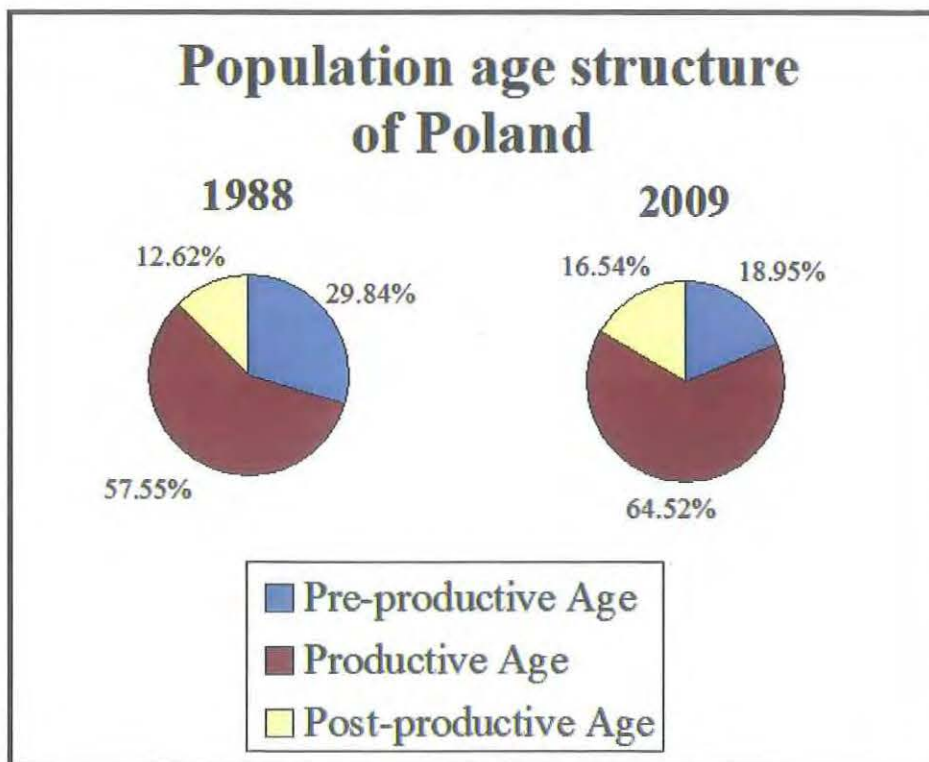


*Population age structure change in Poland*

**Table 3: Proportion of age groups as a share of population of Poland between 1988 and 2009**

Year	Proportion of people at age		
	Pre-productive	Productive	Post-productive
1988	29.84%	57.55%	12.62%
1992	29.09%	57.74%	13.18%
1996	26.96%	59.06%	13.98%
2000	24.40%	60.81%	14.80%
2002	22.67%	62.25%	15.08%
2005	20.61%	63.96%	15.43%
2007	19.65%	64.40%	15.96%
2009	18.95%	64.52%	16.54%

**Figure 3: Population age structure of Poland in 1988 and 2009**



*interesting*

### Comparison of population age structure changes

Figure 4: Proportion of people at the pre-productive age as a share of population of Poland, Voivodeship and Osielsko municipality in 1988 and 2009

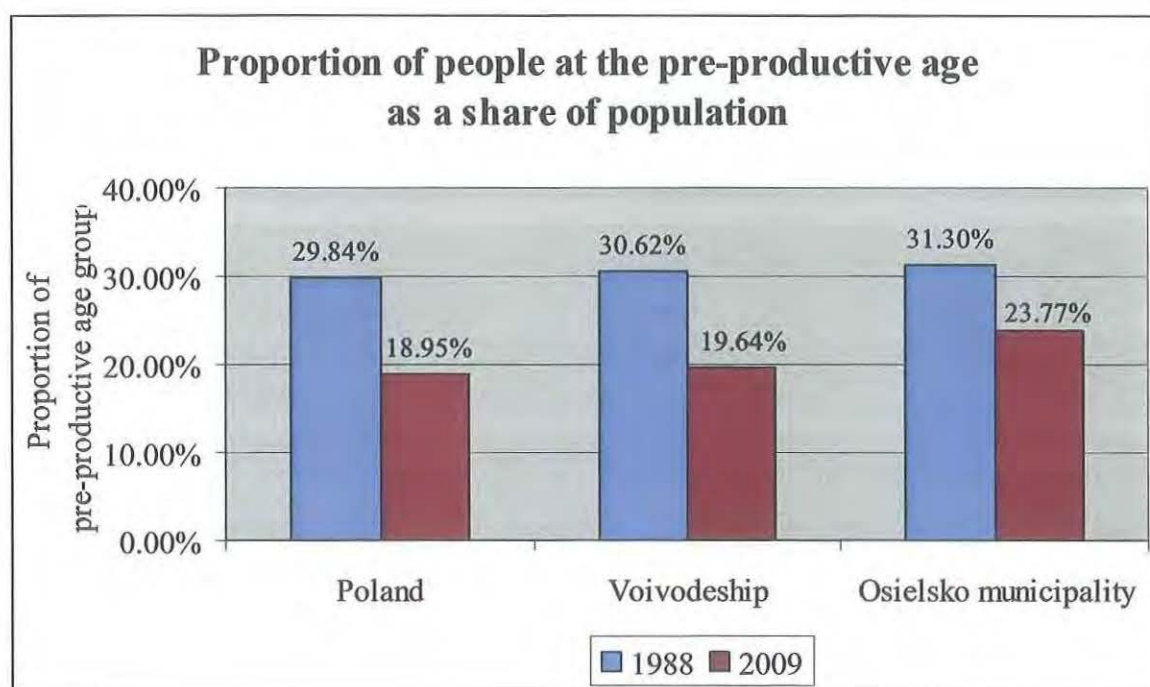


Figure 4. shows that since 1988 the birth rate has fallen down considerably in all districts. That is because 1980s was the time of baby boom in Poland, so birth rate was high. Its peak was in early 1980s. Therefore, the pre-productive age group decreased in size since 1980s in all districts. Comparing the figures for various districts, we see that in case of Poland and voivodeship, the share of the youngest population has decreased by over 10 percent points, while in case of Osielsko municipality it was only a 7.53 percent point decrease. Hence, the decrease in the number of people at pre-productive age was much smaller in case of Osielsko.



**Figure 5: Proportion of people at the productive age as a share of population of Poland, Voivodeship and Osielsko municipality in 1988 and 2009**

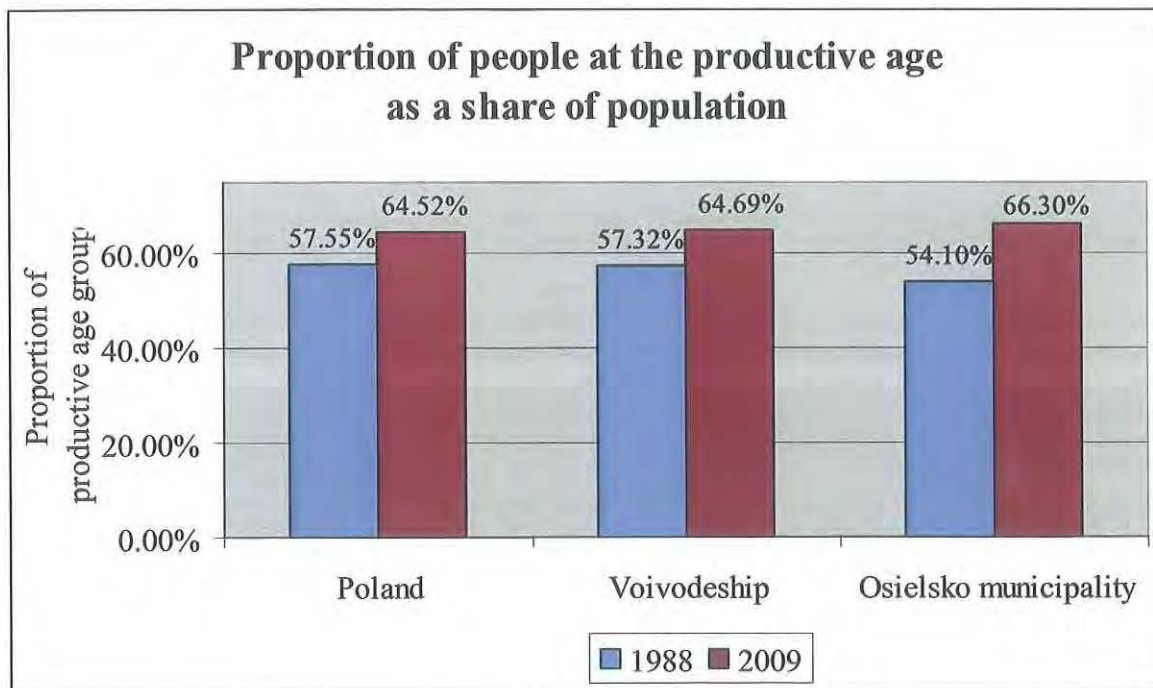
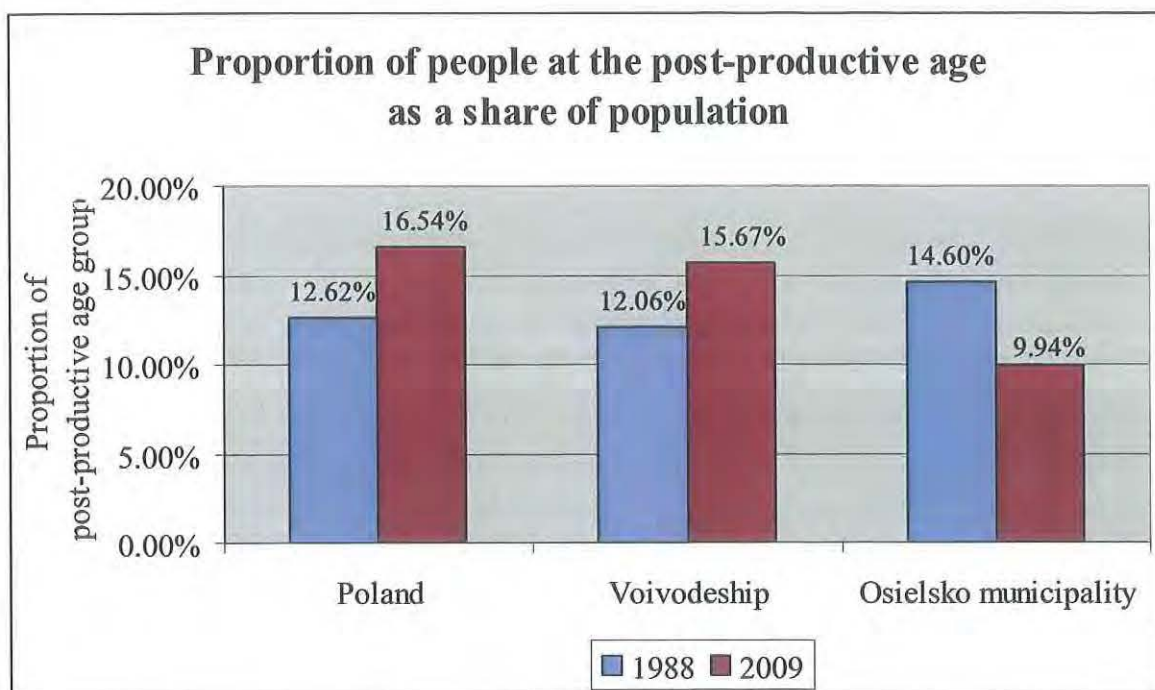


Figure 5. shows that the proportion of people at the productive age has increased between 1988 and 2009 in all districts. It should be noticed that after the baby boom in 1980s, the increased number of people reach the productive age barrier<sup>6</sup> in 1900s and 2000s. This may be a reason for the increasing share of this group. However, comparing this into our research area, the change in Poland is lower than the one which occurred in Osielsko. In case of the voivodeship and Poland this share increased from approximately 57% to over 64%, while in the Osielsko municipality it changed from 54.10% to 66.30%. This shows that in late 1980s Osielsko had a low proportion of people in the working age, while recently, the proportion is higher than on average in the voivodeship and in Poland. This suggests that the change in the population structure of Osielsko could have been caused by some extra factors.

<sup>6</sup> They turn 18.

**Figure 6: Proportion of people at the post-productive age as a share of population of Poland, Voivodeship and Osielsko municipality in 1988 and 2009**



The biggest differences between changes in population structure of Osielsko municipality and Poland is when analysing the post-productive age group. As shown on Figure 6, both in Poland and in Kuyavian-Pomeranian voivodeship the proportion of this group has increased considerably from about 12% to 15.67% in case of voivodeship and 16.54% Poland, which indicates that the society is ageing. However, in case of Osielsko municipality reverse situation took place. In 1988 the proportion of the population at post-productive age was 14.60% and it has decreased to 9.94% in 2009. We see that in late 1980s Osielsko had a much bigger number of elderly people than it was on average in Poland, which is typical for rural areas and peripheries as the elderly part of population is left after the people in productive age migrate to urban areas. Surprising might be the fact that this number has decreased considerably, so that now less than one person in ten is in the post-productive age.

*Younger trend*

This is an unusual phenomenon as the population of Poland has an ageing trend. Comparing the 2009 figures for Poland and Osielsko municipality, the difference between these is astonishing, that is 16.54% and 9.94% respectively. This indicates that there is on average over 1.6 times more people in post-productive age in Poland than in Osielsko municipality.

*Ageing descriptive*



## Investigation into the causes of the population age structure change

### Size of the population of Osielsko municipality

The size and structure of population are strictly related. Therefore when trying to find the causes of changes in population age structure, we should first investigate alterations in its size.

Table 4: Population of Osielsko municipality in the period 1988-2009<sup>7</sup>

Year	1988	1990	1992	1996	2000	2002	2005	2007	2009
<b>Total Population</b>	5311	5351	5483	5901	6443	6939	8635	10126	10961

Figure 7: Population of Osielsko municipality in the period 1988-2009

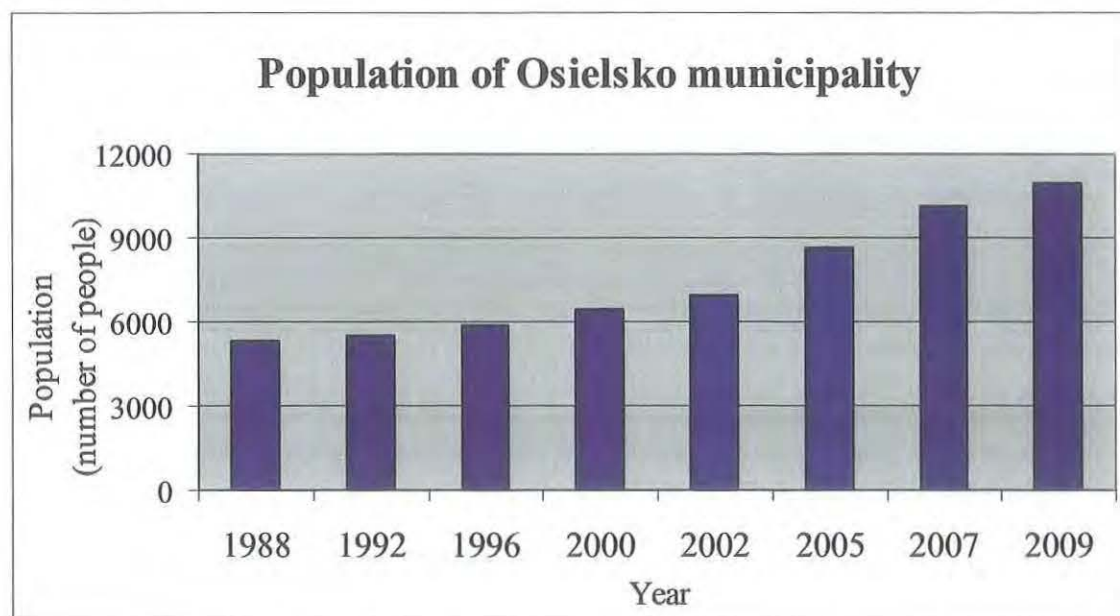


Figure 7. shows an increasing trend in the total population of Osielsko municipality between 1988 and 2009, when the population has increased by 5650 people, which is an astonishing number given that in 1988 population size was 5311 people. This indicates that the population

<sup>7</sup> Data obtained from statistical yearbooks of Kuyavian-Pomeranian Voivodeship.

*doubling in  
21 years is  
not  
that  
fast a  
growth  
rate  
(2% 3.5%/yr)*

of Osielsko has doubled its size between 1988 and 2009. It might be a surprising finding as Osielsko is a rural municipality and has been described as a periphery in 1988. According to core-periphery model, the population of periphery decreases as people migrate to cores in order to find job in industrial districts. Therefore, we would expect Osielsko's population to decrease due to outflow to urban areas, especially to Bydgoszcz<sup>8</sup>. This finding suggests that Osielsko might have been facing different processes from an usual rural area and that relation between Bydgoszcz and this municipality can no longer be applied to core-periphery model.

Moreover, the findings suggest that there is a relationship between the change in Osielsko's population size and its structure. Thus, when trying to identify the causes of the change in population age structure, the alterations in its size should also be taken into consideration.

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<sup>8</sup> According to migration laws, most migrants travel short distances.  
Source: S.Codrington, Planet Geography, Sold Star Press, Sydney, 2010



## *Analysis of the causes of population age structure change*

To find the causes of fluctuations of population size and structure two factors will be analysed: natural increase and migration.

### *Natural increase*

A population can grow in size and also change its structure by a natural increase. The period investigated is 1990-2009 as the data was not available for 1988.

**Table 5: Population change in Osielesko municipality between 1990 and 2009<sup>9</sup>**

Year	Number of Births	Crude Birth Rate	Number of Deaths	Crude Death Rate	Natural Increase	Rate of Natural Increase
1990	66	12.3	54	10.1	12	2.2
1992	92	16.9	53	9.7	39	7.2
1996	66	11.3	52	8.9	14	2.4
2000	54	8.5	53	8.3	1	0.2
2002	59	8.6	55	8	4	0.6
2005	89	10.69	68	8.17	21	2.52
2007	101	10.46	70	7.23	31	3.20
2009	103	9.59	72	6.7	31	2.89

*[8 y<sup>o</sup> = + 2160  
20 y<sup>o</sup> = + 5300  
ok)*

*Total Pop. 1990 - 5351  
2005 - 10961  
Δ = 5600*

*→ NAT increase = 160  
migration = 2000*

*(1-20) Where did remaining 3400 come from ??*

<sup>9</sup> Data obtained from statistical yearbooks of Kuyavian-Pomeranian Voivodeship.

*all the other years*

Figure 8: Natural increase in Osielsko municipality between 1990 and 2009

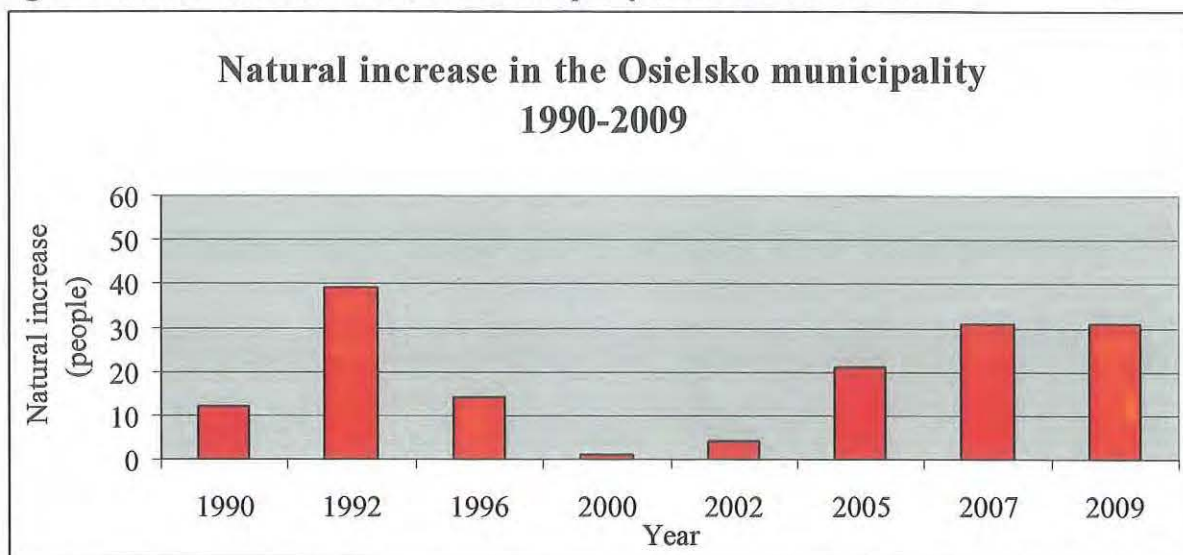
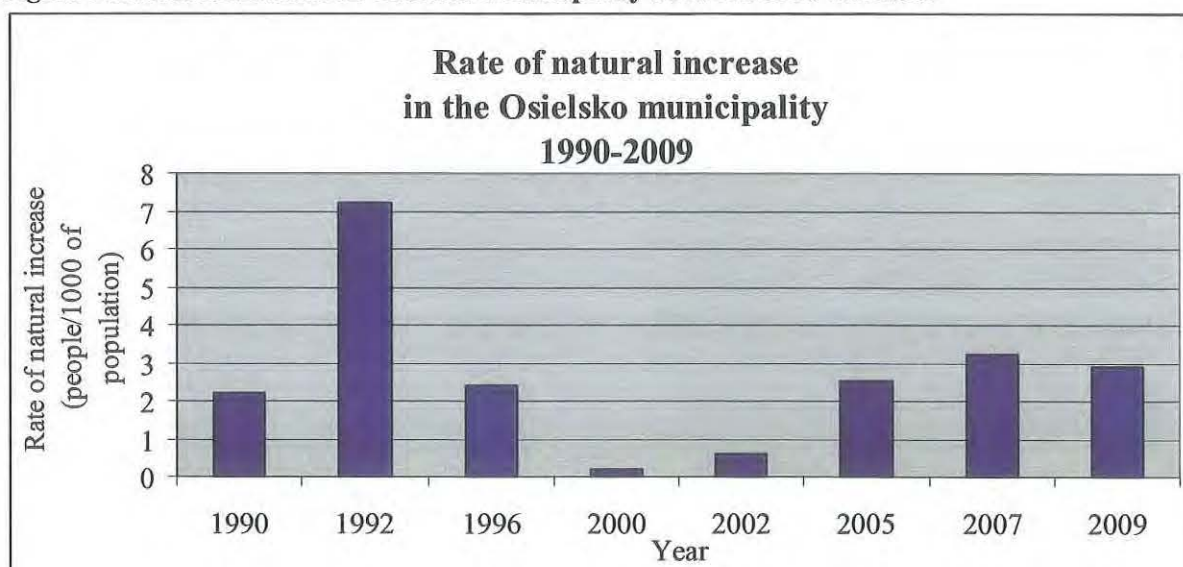


Figure 9: Natural increase in Osielsko municipality between 1990 and 2009



Figures 8. and 9. show fluctuations of natural increase and its rate between 1990 and 2009. The recently increased rate of natural increased is probably the result of the high proportion of people at the productive age, who at the same time are at the reproductive age. This fact can be the reason why the proportion of population at the pre-productive age remained quite high in the municipality.

Although, generally it may seem that the rate of natural has been high, if we analyse the mode values of natural increase we can see that the figures are not very high in terms of increasing the size of the population to huge extent. Therefore we can state that the natural increase has not been the major reason of the growth of the population and the changed in its structure.

*Sand  
deduction*



## *Migration*

Another reason of population growth is migration, that is the permanent change of residence by an individual or group<sup>10</sup>. The size of the population increases when the net migration balance is positive, that is more people immigrate to the area than emigrate from it.

**Table 6: Migration in Osielsko municipality between 1990 and 2009<sup>11</sup>**

Year	Net Migration Balance	Inflow			Outflow		
		Total inflow	From urban areas	From rural areas	Total outflow	To urban areas	To rural areas
1990	39	146	95	51	107	82	21
1992	9	181	123	58	172	135	137
1996	72	162	116	46	90	64	26
2000	142	217	177	40	75	40	35
2002	356	472	436	35	116	82	34
2005	471	556	515	39	85	53	32
2007	634	789	727	60	155	94	47
2009	419	577	521	53	158	95	60

see  
p. 18  
Numbers do not add up  
when # of yrs  
considered

<sup>10</sup> Source of the definition: J. Flis, *Słownik szkolny, Terminy geograficzne (School Dictionary, Geographical terms)* Wydawnictwo Szkolne i Pedagogiczne, Warsaw 1999

<sup>11</sup> Data obtained from statistical yearbooks of Kuyavian-Pomeranian Voivodeship.

**Figure 10: Net migration balance in Osielsko municipality between 1990 and 2009**

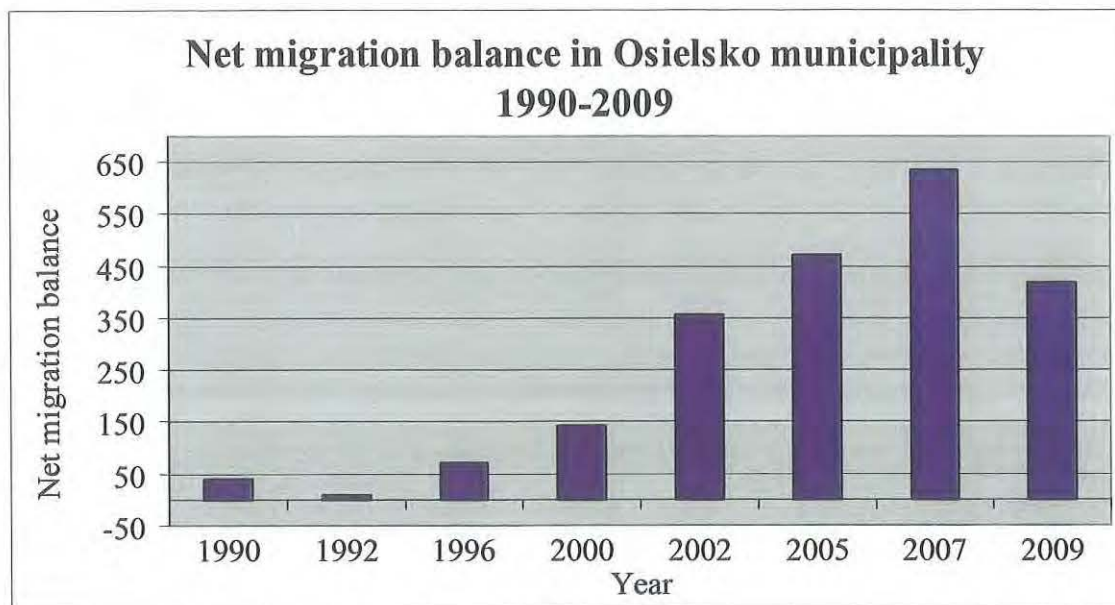
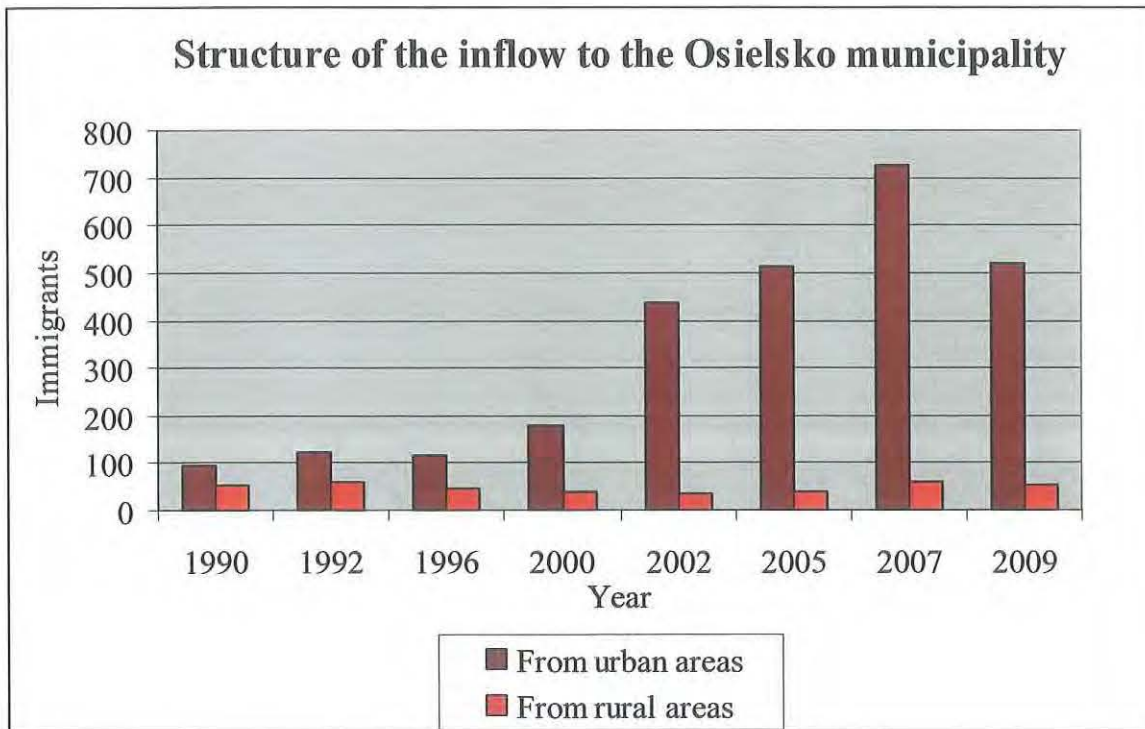


Figure 10. indicates that since 1990 Osielsko municipality has had positive net migration balance. Among the years researched, only in 1992 the net migration balance has been very small, as it was only 9. Apart from this, the figure has been increasing and has reached very high values since 2000. In recent years the values are about 400. This is very rare for rural area to have positive net migration balance, especially to such extent.

Since the influx of people to district has been very high since 1990s, it can be stated that the population of Osielsko municipality has increased mostly due to immigration.



Figure 11: Structure of inflow to Osielsko municipality between 1990 and 2009



Important to notice is the structure of inflow. Figure 11 shows that the majority of immigration is from urban areas. In years investigated, the inflow from rural areas has always been below 60, while from urban areas it has been well above a hundred since 1992, with an astonishing amount of 727 in 2007. It indicates that the population of municipality has grown mostly due to immigration from urban areas, which is unlike for peripheries. It has to be noticed that Osielsko municipality is an immediate neighbour of the city of Bydgoszcz<sup>12</sup>, which is the main source of migrants.

All this suggests that Osielsko municipality should not be considered a periphery as it has a positive net migration balance and it has been facing inflow of people from urban areas, presumably from Bydgoszcz. Therefore the relation between the city of Bydgoszcz and Osielsko municipality has changed since 1988 and is no longer described by the core-periphery model.

<sup>12</sup> As presented on the Map 2, p.7

### *Causes of the changes in age population structure according to the questionnaire*

In order to investigate the causes of changes in the population structure of Osielsko municipality I conducted a questionnaire on 115 people. It needs to be indicated that the outcomes of this questionnaire are estimates which could have been influenced by statistical errors, since they were conducted on a small part of the population. Although a high concern was made to find the sample of the population that would mirror its structure, there are still some limits of the findings. Appendix B presents a blank questionnaire.

The questionnaire proved that the changes in the population structure of Osielsko were mostly caused by immigration, as 70% of the surveyed people have immigrated to Osielsko municipality. Out of the people who has immigrated, 26% moved to Osielsko before 1990 and 74% after 1990. 90% of the immigrants moved to Osielsko from Bydgoszcz. This proves Hypothesis 2 and thus indicates the main cause of change of population age structure of Osielsko.

### *Causes of immigration from urban areas to Osielsko municipality*

This section suggest causes of immigration from Bydgoszcz to Osielsko municipality. Most of the conclusions are based on the outcomes of the questionnaire. Map 3. presents some characteristics of the municipality.



# Map 3: Annotated map of Osielsko municipality<sup>13</sup>

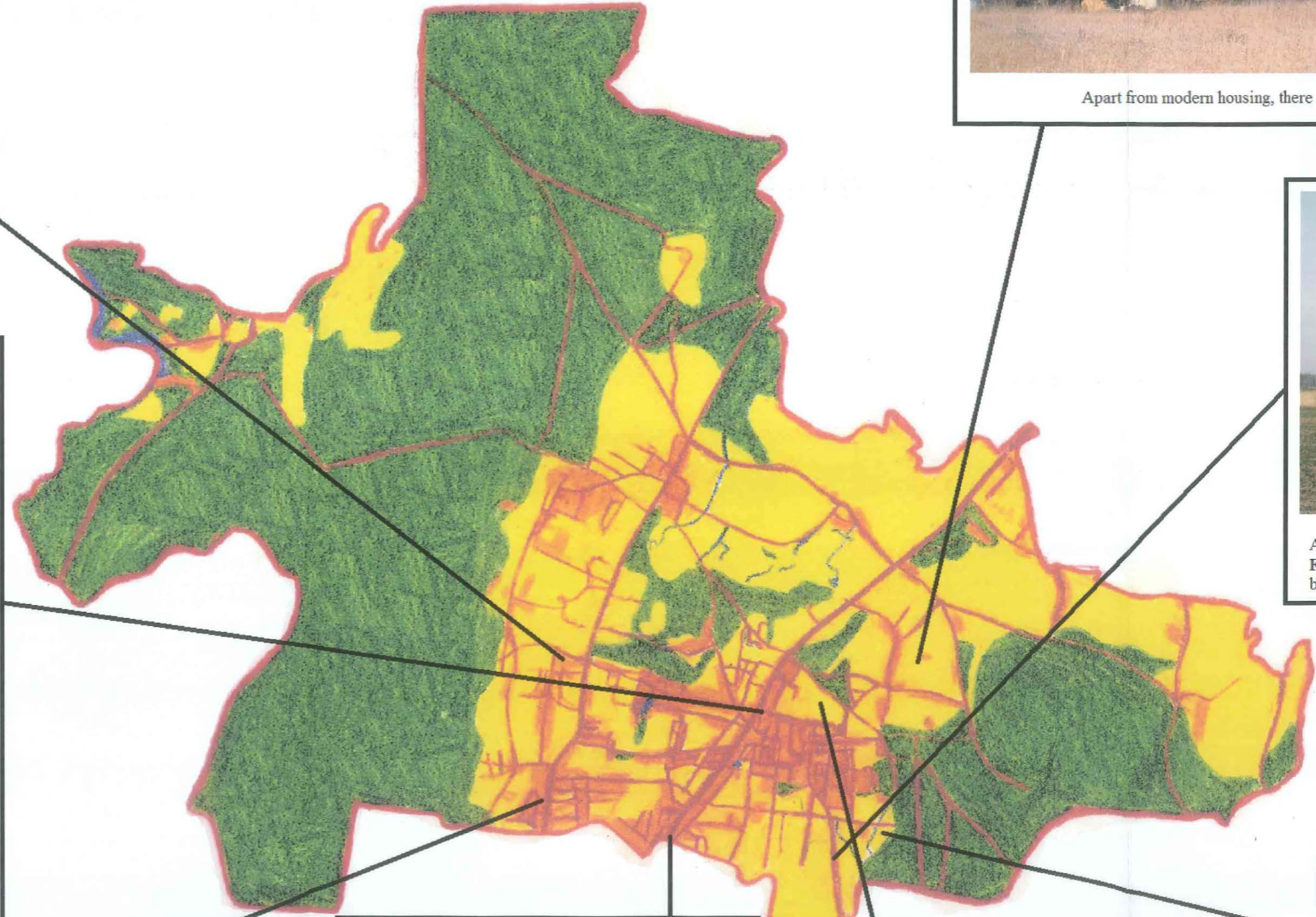
SCALE 1 : 55 000

### Key to map

- border of municipality
- roads
- built-up areas
- not built-up areas
- forests, grasslands
- rivers, lakes



Apart from modern housing, there are s

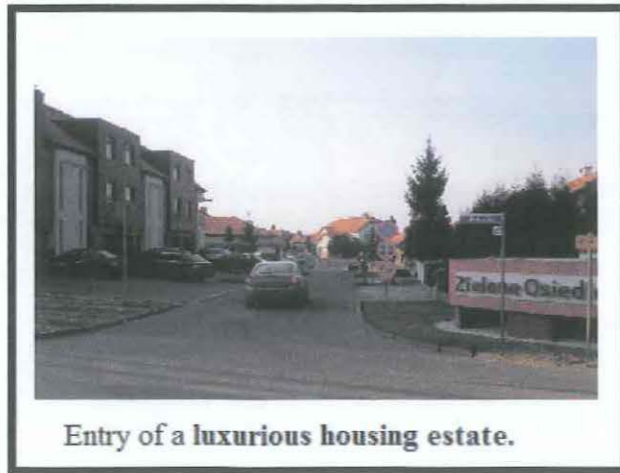


A view  
Farmi  
backgr

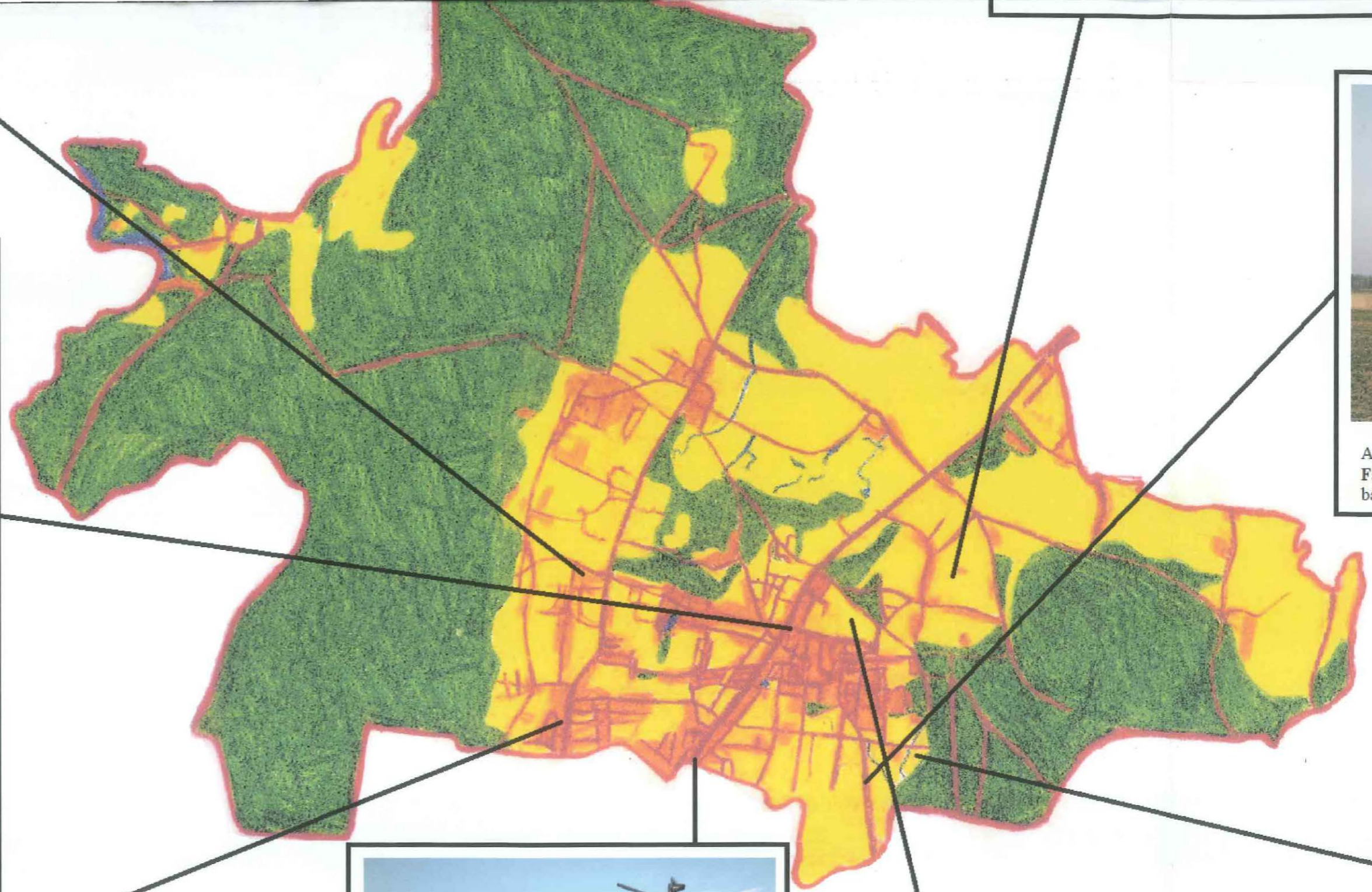




Modern centre of municipality with well-developed infrastructure.



Entry of a luxurious housing estate.



Trunk road number 5 is a quick connection between Osielsko and Bydgoszcz.

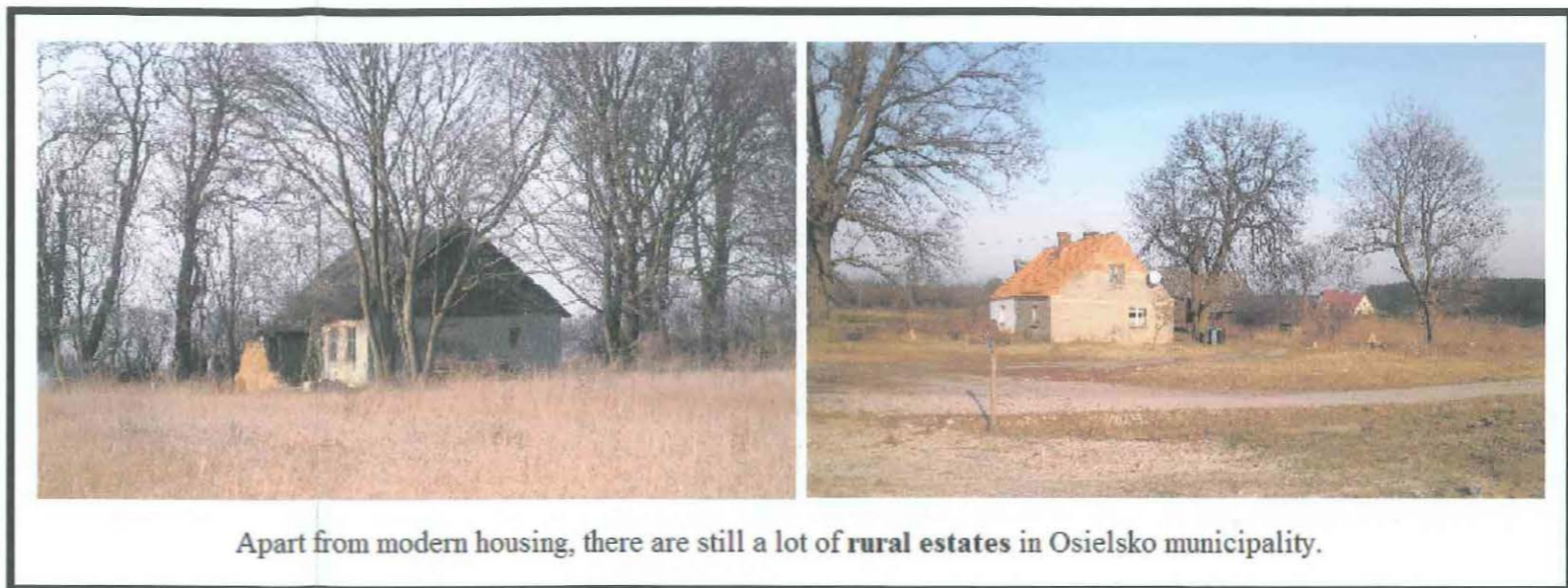
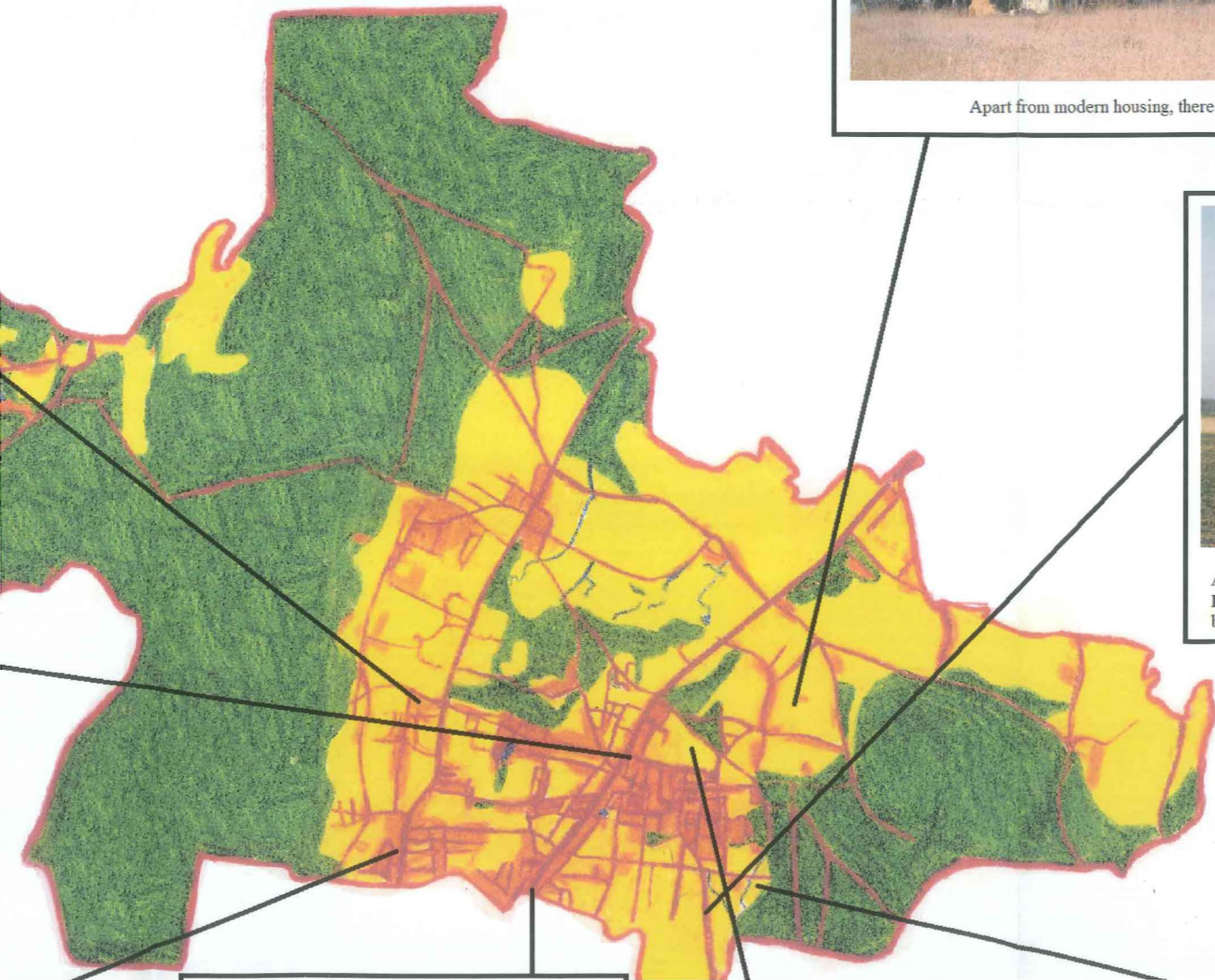


Farming land near the centre of Osielsko.



A view from Farm back





Apart from modern housing, there are still a lot of **rural estates** in Osielsko municipality.

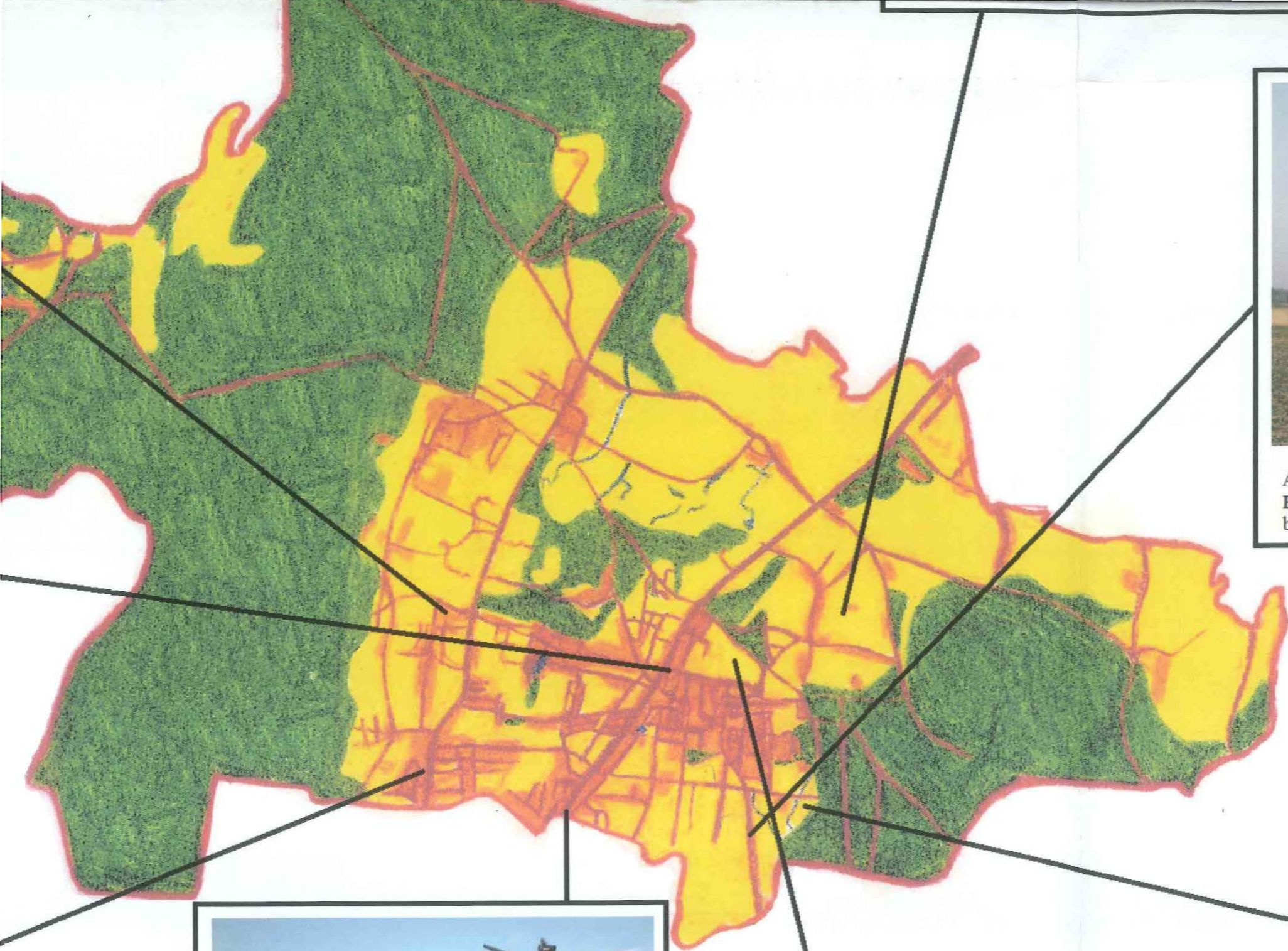


A view on one of the roads entering Osielsko. **Farming land** is visible in the foreground and **single-family houses** in the background.

*Sever*







A view on one of the roads entering Osielsko. **Farming land** is visible in the foreground and **single-family houses** in the background.

*Seem*



**Quiet surroundings and unpolluted environment** attract new settlements.

*excellent work*



**Trunk road number 5** is a quick connection between Osielsko and Bydgoszcz.



**Farming land** near the centre of Osielsko.



To find causes of immigration to Osielsko, I have asked questions to characterise a typical immigrant. According to the questionnaire a typical immigrant is in the productive age and have on average 2 children. About 50% of immigrants are in reproductive age. The questionnaire found that 35% of residents have higher education, which is a very high number especially that the figure is about 15% for the nation<sup>14</sup>.

The questionnaire asked also about the working sector. Only 10% of surveyed people work in agriculture. It was found that 75% of people commute to work to the district of Bydgoszcz. Therefore, the Osielsko municipality can be called a dormitory village, since the vast majority of people who migrated to the municipality of Osielsko are commuting to work to Bydgoszcz. The reason why Osielsko has become dormitory village are complex and they can be suggested on the basis of questionnaire and the knowledge about the district.

The municipality of Osielsko has been perceived as an attractive place for settlement due to various reasons. Firstly, Osielsko municipality is the immediate neighbour of Bydgoszcz as presented on Map 2<sup>15</sup>. Furthermore, Osielsko is more easily accessible then other parts of Bydgoszcz due to a very good road connection as a trunk road number 5 passes through the municipality(as presented on Map 3 and Photo 1), which is a dual carriageway. Therefore it takes 10 to 15 minutes to travel from the centre of Bydgoszcz to Osielsko municipality by car, which is less then it takes to go to some other parts of the city. The good connection between the city and Osielsko was among one of the most commonly named reasons of immigration during the questionnaire as 98% of immigrants ticked it.

✓  
This is  
worthy to  
investigation

**Photo 1: Trunk road enables quick connection with Bydgoszcz<sup>16</sup>**



✓  
migrants on  
models !

<sup>14</sup> Source: <http://www.poland.gov.pl/struktura,wyksztalcenia,45.html> accessed on 15.11.2011

<sup>15</sup> Map 2 is presented on page 7

<sup>16</sup> Photo made by me on 07.01.2012

Adding to good transport connection with Bydgoszcz, within the district the municipality offers well developed infrastructure involving roads and sanitation (Photos 2 and 3). These factors are the reasons why Osielsko has been perceived not as a rural area outside the city, but a place that can be treated as a part of the city and at the same time offering many other advantages. Among the biggest advantages is the fact that the municipality is a quiet place with a wonderful landscape as shown on photos on Map 3. The clean environment has also been seen as an advantage by people who were tired of living within the polluted city landscapes as these factors were also named by surveyed immigrants. About 58% of municipality's territory is covered with forest<sup>17</sup>. This is visible on Map 3. and it shows how attractive the district is.

**Photo 2: Well developed infrastructure within municipality<sup>18</sup>**



Commuter possibilities  
= transport  
rail  
car ownership

**Photo 3: Many supermarkets in municipality offer urban-like facilities<sup>19</sup>**



<sup>17</sup> *Studium uwarunkowan i kierunkow zagospodarowania przestrzennego gminy Osielsko w Wojewodztwie Bydgoskim (Area development study of Osielsko municipality in Bydgoskie Voivodeship), 1997*

<sup>18</sup> Photo made by me on 07.01.2012

<sup>19</sup> Photo made by me on 07.01.2012



Since 1980s the municipality government has taken much care into the development of the district. The perspective of future improvements in the infrastructure and facilities offered by the municipality has been a pull factor for migrants who looked for a land on which to built a house. 99.50% of immigrant named the low price and availability of land as one of the main causes of migration to Osielsko. The fact that this factor was the main reason for the influx of people is easily noticed as according to the questionnaire, over 97% of people in Osielsko municipality live in houses and not in blocks of flats (Photos 4 and 5).

**Photo 4: Housing estate in municipality with well developed infrastructure<sup>20</sup>**



**Photo 5: One of many luxurious houses in Osielsko municipality<sup>21</sup>**

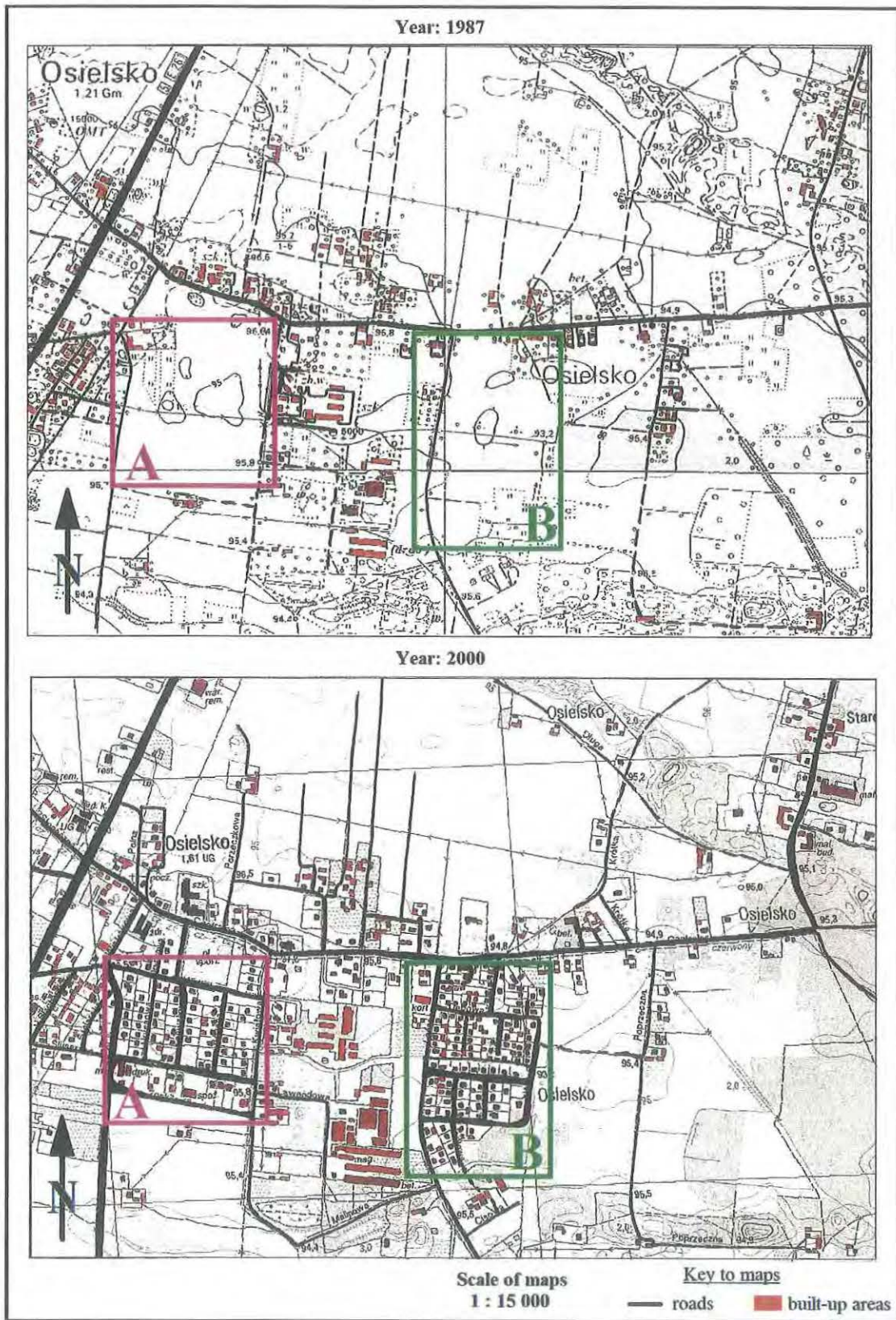


<sup>20</sup> Photo made by me on 07.01.2012

<sup>21</sup> Photo made by me on 07.01.2012



Figure 12: Change in building density in part of Osielesko (1987-2000)<sup>22</sup>



<sup>22</sup> Annotations made by me. Source of maps: Bydgoszcz city council



Figure 12. presents the comparison of the distribution of built-up areas in a certain part of Osielsko in 1987 and 2000. It is visible that the building density has increased significantly in this period, especially in areas marked A and B. In 1987 there were almost no buildings there. In 2000 both of these areas were very densely built-up and the structure of the buildings shows that they are all single-family houses. The fact that the building density has increased so much proves that the availability of land was among the strongest pull factors.

Having noticed the inflow of dwellers in 1990s, the municipality has been modifying its local plan of spatial development to fit the needs of immigrants. As the municipality council realises that the quiet and clean environment is one of the biggest advantages of the region, it pays a lot of attention to sustainable development and tries to maintain the low polluted environment by introducing severe plans such as the study<sup>23</sup> prepared by the council between 1995 and 1997.

All in all, the relatively low prices of land and perspective of future development of facilities have encouraged people to settle in Osielsko. 97% of surveyed people believe that there are better facilities offered in Osielsko municipality than those in Bydgoszcz. All this suggests that the main cause of the massive immigration from the Bydgoszcz to Osielsko municipality since 1988 is the fact that Osielsko is perceived as a quiet rural area which offers urban-like facilities and therefore has many advantages to people looking for land to build their houses.

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<sup>23</sup> *Studium uwarunkowan i kierunkow zagospodarowania przestrzennego gminy Osielsko w Wojewodztwie Bydgoskim (Area development study of Osielsko municipality in Bydgoskie Voivodeship), 1997*

## *Conclusion*

This study has shown how the population age structure of Osielsko municipality has changed between 1988 and 2009 and what were the causes of the change. By analysis of the fluctuations of proportions of the age groups as a share of population in this period, it was found that the proportion of people at the productive age has increased by 20%, while the share of post-productive group has significantly decreased. This proved the Hypothesis 1. The increase in the size of productive age group which occurred in Osielsko was much greater from the one which occurred in Poland and Kuyavian-Pomeranian Voivodeship, which was found by comparing data for the districts. In case of post-productive age group, the research showed that the trend for Osielsko and for the other districts have been completely reverse. This showed that change in population structure of Osielsko municipality differed from that in Poland and immediate region. The change was connected with an overwhelming increase in Osielsko population, as between 1988 and 2009 the municipality's population has doubled its size.

In order to answer the second part of the research question, possible causes of the alteration were analysed. The study showed that the change in population size and structure could have not been caused only by natural increase. The investigation revealed that the major reason for this was the immigration. It was found that since 1980s the net migration balance has been increasing, with the greater immigration from the urban areas than from rural areas. In order to investigate this issue further, a questionnaire was conducted on a sample of population of Osielsko municipality. It proved that Hypothesis 2. is true and so the reason for the population structure change was the immigration from Bydgoszcz since 70% of surveyed people moved to the municipality from Bydgoszcz.

The causes of the massive immigration to Osielsko municipality were outlined on the basis of a questionnaire. Among main reason are the attractive location of municipality, unpolluted environment, good connection with Bydgoszcz, well-developed infrastructure and low prices of land.

*What about employment  
or commuter opportunities?*



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## APPENDIX A: Statistical data

All statistical data were obtained from statistical yearbook which are listed in *Bibliography*.

**Table A: Population of Osielsko municipality according to age groups**

Year	Population at age		
	Pre-productive	Productive	Post-productive
1988	N/A	N/A	N/A
1992	1653	3153	677
1996	1689	3448	764
2000	1695	3968	780
2002	1839	4311	789
2005	2114	5624	897
2007	2496	6648	984
2009	2605	7267	1089

**Table B: Population of Kuyavian-Pomeranian Voivodeship<sup>24</sup> according to age groups**

Year	Population at age		
	Pre-productive	Productive	Post-productive
1988	338800	634300	133500
1992	334445	650694	137904
1996	314030	673939	145793
2000	521337	1260688	285792
2002	484870	1292652	291644
2005	441718	1329325	297210
2007	421767	1334274	310095
2009	406397	1338427	324259

<sup>24</sup> For 1988, 1992 and 1996 the figures are for Bydgoskie Voivodeship



**Table C: Population of Poland according to age groups**

Year	Population at age (in thousands)		
	Pre-productive	Productive	Post-productive
1988	338800	634300	133500
1992	334445	650694	137904
1996	314030	673939	145793
2000	521337	1260688	285792
2002	484870	1292652	291644
2005	441718	1329325	297210
2007	421767	1334274	310095
2009	406397	1338427	324259

## APPENDIX B: A sample blank questionnaire

### QUESTIONNAIRE

*Please answer only the questions that apply to your situation.*

1. How long have You been living in Osielsko municipality?  
 Since I was born  
 I immigrated here before 1990  
 I immigrated here after 1990
  
2. What is Your age?  
 Below 18  
 Between 18 and 49  
 Between 50 and 60 (women) or 65 (men)  
 Above 60 (women) or 65 (men)
  
3. Do You have higher education?  
 Yes                       No
  
4. Do You work in agriculture?  
 Yes                       No
  
5. Have You migrated to Osielsko municipality from rural or urban area?  
 Rural  
 Urban: the city of Bydgoszcz  
 Another urban area
  
6. Where do You work?  
 I commute to work to Bydgoszcz  
 I commute to work to another urban area  
 I work in Osielsko municipality  
 I commute to work to another rural area



7. Which of the following factors would You identify as causes of your migration to Osielsko municipality? *(Please indicate the most important ones)*
- It is an attractive place for settlement.
  - It has good transport connection to Bydgoszcz.
  - It has well-developed infrastructure.
  - It has beautiful landscape and unpolluted environment.
  - There was land available for a low price.
  - I can live here in a beautiful surroundings and continue to work in Bydgoszcz.
- Other: .....
8. Are You single or do You have family?
- Single
  - Family(not necessarily married)
9. How many children do You have?
- None
  - 1
  - 2
  - 3 or more
10. In what kind of housing do You live?
- I live in a house
  - I live in a block of flats
11. Do You believe that there are better facilities offered in Osielsko than in Bydgoszcz?
- Yes, living in Osielsko is better and it has many advantages.
  - There is not a big difference.
  - No, Osielsko is just a rural area and Bydgoszcz offers better facilities.

*Thank You for answering the questionnaire*