

## THE DYNAMICS OF THE URBAN POPULATION. PUBLIC SPACE IN THE CITY - MODERN TRANSFORMATIONS

**Jacek Gyurkovich**

Prof. D.Sc. Ph.D. Arch.

[jgyurkovich@pk.edu.pl](mailto:jgyurkovich@pk.edu.pl)

Department of Urban Design, Chair of Urban Composition

Cracow University of Technology, Faculty of Architecture, Dean of the Faculty

Ul. Podchorążych, Cracow, 30-084, Poland

+48 605 580 998

+48 12 628 2020

**Key words:** *transformation, revitalisation, sustainable development*

### Abstract

The article presents the issue of changes in the population of selected Polish cities against the background of global demographic and urbanisation-related phenomena over the period of the last 55 years and in the perspective of forecasts until the mid-21<sup>st</sup> century, as well as the meaning of the effect of the disurbanisation processes observed today on the strategy of the spatial and functional organisation of cities.

There occurs the need to think about cities as a network within the scheme of metropolitan systems – with a polycentric structure, where the main link – a hub city - cooperates with a grid of smaller towns, independent territorially, but cooperating with each other and the hub city itself. This strategy can limit the territorial expansion of cities and have its effect on the development of the urban subregion. Operations fostering the process of strengthening of the hub city and preventing the ‘escape’ of residents from cities are presented by means of a discussion of an example of a project of transformation of degraded areas, connected with the concept of sustainable development of the city.

### Global and local demographic processes and condition of selected cities

The rapid growth of the number of people inhabiting the Blue Planet over the last fifty-five years – from 3.038 billion in 1960 to over 6 billion in 2000 (6.127 billion) and nearly 7.3 billion in January 2016 (7.296 billion)<sup>1</sup> despite a diversified demographic situation in different regions of the world, obliges to get engaged in the local urbanisation processes control strategies in the trend of global activities for the benefit of sustainable development.

---

<sup>1</sup> <http://pl.sputniknews.com/swiat/20151231/1758373/Ziemia-liczba-ludnosci.html> ;

Table 1. Global population growth rate:<sup>2</sup>

	POPULATION IN MILLIONS							POPULATION GROWTH	
	1960	1970	1980	1990	2000	2010	2014	2010/2014	1960/2014
<b>WORLD</b>	<b>3038</b>	<b>3682</b>	<b>4440</b>	<b>5310</b>	<b>6127</b>	<b>6930</b>	<b>7266</b>	<b>1.04</b>	<b>2.39</b>
EUROPE	604	657	694	721	726	735	738	1.00	1.22
ASIA	1708	2120	2626	3202	3714	4170	4350	1.04	2.55
AFRICA	287	366	478	632	814	1044	1157	1.10	4.03
NORTH AMERICA	204	231	254	281	314	344	355	1.03	1.74
SOUTH AND CENTRAL AMERICA	220	288	365	447	527	600	628	1.04	2.85
AUSTRALIA AND OCEANIA	16	20	23	27	31	36	39	1.08	2.44

The factor of the global population growth rate is variable in individual periods of time; nevertheless, its dynamics demonstrates a downslide tendency (from 21.19% in the first decade, and 20.58%; 19.59%, 16.38%, 13.10%, and 12.12% over subsequent periods during the last four years, respectively). An absolute average annual population growth was the highest in the decade of 1980-1990 – 87.0 million per year (in the period 1960-1970 ca. 64.4 million / year; in the period 2000-2010 80.3 million / year). According to demographic forecasts drawn up by different research centres, the number of inhabitants of the world will stabilise in the middle of our century at the level of 9 billion, and later on it can go down, although it is possible that the peak of the global population will be reached in 2075 – 9.5 billion (NATO)<sup>3</sup>. Some scientists believe that a scenario according to which the population of the globe will grow until 2100, when it will reach 12-13 billion, is also possible.<sup>4</sup> Experts anticipate that the economic development of developing countries, especially in Africa, will bring about a slowdown and then a drop in the population growth in the future, as it can be observed in the economies which are developed today (Europe, North America). Today, nearly 60% of people of the world live in Asia. Nevertheless, the highest factor of the population growth dynamics is visible in the cradle of humanity – Africa, where it will most probably be maintained for the longest period of time, due to the level of economic development of countries of that continent. The forecasts of the growth of the population of Earth demonstrate the scale of needs, which will be connected with the provision of appropriate living conditions, including appropriate economy, with non-renewable water resources<sup>5</sup>,

<sup>2</sup> Demographic Annals 2015 - tables; 14\_international review\_RD'2015; Tabl.1.(212) World surface area and population <http://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-demograficzny-2015,3,9.html>

<sup>3</sup> [http://www.nato.int/docu/review/2011/Climate-Action/Population\\_growth\\_challenge/PL/](http://www.nato.int/docu/review/2011/Climate-Action/Population_growth_challenge/PL/) Przegląd NATO, Wzrost liczby ludności - podstawowe wyzwanie XXI wieku / Population Increase – Fundamental Challenge of the 21<sup>st</sup> Century

<sup>4</sup> [http://wyborcza.pl/1,75400,16674054,Zla\\_wiadomosc\\_w\\_2100\\_r\\_będzie\\_nas\\_nawet\\_13\\_miliardów.html?disableRedirects=true](http://wyborcza.pl/1,75400,16674054,Zla_wiadomosc_w_2100_r_będzie_nas_nawet_13_miliardów.html?disableRedirects=true); Tomasz Ulanowski, Zła wiadomość: w 2100 r. będzie nas nawet 13 miliardów / Bad News There Will Be Even 13 Billion of Us in 2100; 20.09.2014 09:00; and: <http://science.sciencemag.org/content/early/2014/09/17/science.1257469>: World population stabilization unlikely this century

<sup>5</sup> Gyurkovich J., Woda w mieście przyszłości / The Water in the City of the Future, [in:] Czasopismo Techniczne / Technical Transactions, Publishing House of the Cracow University of Technology, Series Architecture, 1-A/2014 (111) ed. Jacek Gyurkovich; (ISSN 0011-4561; ISSN 1897-6271); pp. 13-30;

with overcoming problems connected with the production of food, management of the environment of residence, jobs, etc., never encountered before.

Europe is an aging continent – *the number of pensioners in the EU states exceeds the number of children considerably – therefore, it attracts people migrating in search of jobs from other regions of the world. In many countries of the world – in Europe, as well as in the USA, the growth of population is more related to the inflow of immigrants than the birth rate.*<sup>6</sup> Global forecasts also relate mass migrations in the future to the process of climatic changes (global warming), which according to experts will be the cause of the need of moving of even 1 billion inhabitants of the threatened areas.<sup>7</sup> In order to maintain the developed economies and high standards of living, the aging societies of Europe need support in the form of numerous young immigrants, looking for jobs and better living conditions.

This social and economic problem has evoked a new wave of migration (since 2015) in the scale that Europe is not able to cope with. Nevertheless, such a phenomenon should have been taken into account, but perhaps not in such a drastic form. We should reckon that the observed process of the reduction of the population in some European countries and cities is a transitory phenomenon, resulting from a variable flow of people between cities in search of jobs and better living conditions, as well as from the local and global demographic and economic and political situation.<sup>8</sup> Poland belongs to a group of countries of Central and Eastern Europe where the population may drop considerably over the decades to come, and where demographic forecasts determine the situation as a 'demographic disaster'.

**Table 2. Poland and the world – population forecast<sup>9</sup>**

	POPULATION				
	2015	2030	2040	2050	GROWTH / LOSS % IN 2050 COMPARED TO 2015
<b>WORLD</b>	<b>7,296,000,000</b>	-	-	<b>9,000,000,000</b>	<b>+ 1,704,000,000</b> <b>/ + 23.0 %</b>
<b>POLAND</b>	<b>38,419,200</b>	<b>37,185,000</b>	<b>35,668,000</b>	<b>33,951,000</b>	<b>- 4,468,200</b> <b>/ - 11.6 %</b>

<sup>6</sup> Gyurkovich J., *Znaczenie współczesnych transformacji obszarów śródmiejskich dla globalnych procesów urbanizacji / The Significance of Contemporary Transformations of Urban Areas for the Global Processes of Urbanization*; [in:] *Przyszłość Miasta – Miasto Przyszłości / FUTURE OF THE CITY – CITY OF THE FUTURE*; Volume 1; Czasopismo Techniczne / Technical Transactions, Publishing House of the Cracow University of Technology, Series Architecture; 1-A / 1/2012 Issue 1, Year 109, pp. 231-247; text published before a new wave of migrations from Arabic countries, the problems of which the EU is trying to cope with.

<sup>7</sup> Cf.: Gyurkovich J., *Mieszkać w mieście / Living in the City* [in:] Gyurkovich J., *Architektura w przestrzeni miasta. Wybrane problemy / Architecture in the Urban Space. Selected Problems*, Publishing House of the Cracow University of Technology, Cracow 2010, pp 61-128; also:

[http://www.nato.int/docu/review/2011/Climate-Action/Population\\_growth\\_challenge/PL/](http://www.nato.int/docu/review/2011/Climate-Action/Population_growth_challenge/PL/), Przegląd NATO, *Wzrost liczby ludności - podstawowe wyzwanie XXI wieku / Population Increase – Fundamental Challenge of the 21st Century*, op.cit.

<sup>8</sup> Gyurkovich J., *Mieszkać w mieście / Living in the City* [in:] Gyurkovich J., *Architektura w przestrzeni miasta... / Architecture in the Urban Space...*, op. cit., pp. 61 – 128.

<sup>9</sup> <http://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-demograficzny-2015.3.9.html>; Demographic Annals 2015 - tables; 04\_population\_forecast\_RD/2015 ; Tab. 23. Population forecasts according to sex and age.

Considering many variable factors influencing the growth or drop of population in the global or local scale, often appearing quite unexpectedly, long-term forecasts are certainly burdened with a high error rate. A new situation of migration movements, new political decisions (e.g. the 500+, family-oriented programme of the Government of the Republic of Poland) can significantly influence the change in the demographic situation in different regions.

**Table 3. Poland – Population of provincial cities in the years 2014-2050 – forecast of the Head Statistical Office<sup>10</sup>**

City *	2014	2020	2030	2040	2050		%
<b>Warsaw</b>	<b>1,728,664</b>	1,748,046	1,755,502	1,752,184	1,768,418	+ 39,754	<b>+ 2</b>
<b>Cracow</b>	<b>759,275</b>	759,220	749,307	728,035	710,464	- 48,811	<b>- 6</b>
<b>Łódź</b>	<b>705,249</b>	668,406	606,824	542,732	484,845	- 202,404	<b>- 29</b>
<b>Wrocław</b>	<b>631,201</b>	625,538	611,359	591,353	577,658	- 53,543	<b>- 9</b>
<b>Poznań</b>	<b>544,984</b>	526,063	488,226	443,721	402,076	- 142,908	<b>- 26</b>

\* Population in the cities in 2015: Warsaw – 1,735,442; Cracow – 761,873; Łódź – 703,086 ; Poznań – 544,612 <sup>11</sup>

In Poland over the last 60 years the number of towns and cities increased from 748 in 1950 to 908 in 2010 and to 915 towns and cities in 2015.<sup>12</sup> Municipal rights in Poland are granted by the Council of Ministers. Municipal rights can be granted to units with the population of at least 2,000 inhabitants (this condition is not strictly observed if other requirements are fulfilled); compact urban architecture – a market square, streets, pavements, technical infrastructure – sewerage, wastewater treatment plant, pipelines; cultural, educational and healthcare centres, and 2/3 inhabitants employed outside agriculture. In this period, the population of towns and cities increased from 9,605,000 in 1950 (40%) to 23,216, 352 in 2014 (60.3%). Nevertheless, after 1999, when the population of towns and cities reached the highest value (in absolute numbers) – 23,700,550 (61.9%), in the years 1999-2010 the population of the country dropped by 63,266 inhabitants, and the population of towns and cities by 486,167 people.<sup>13</sup> This situation should be connected with the process of urban sprawl and the seeming disurbanisation or suburbanisation –the phenomenon of moving of more well-off people and people of moderate means beyond the borders of towns and cities, to neighbouring communes, where the prices of plots of land and real estates offered by developers are lower. Maintaining their relation to the city as the market of jobs and services, inhabitants of the suburban areas urbanised this way try to improve their housing conditions at the expense of inconvenience connected with transport. Uncontrolled city sprawl evokes a number of negative phenomena, such as territorial expansion of cities, comprising open areas and arable lands or forests located in the vicinity of cities, increased load on the traffic systems, increased emission of exhaust fumes, and the consumption of energy. The architecture that emerges from this situation is not

<sup>10</sup> <http://repozytorium.uni.lodz.pl:8080/xmlui/bitstream/handle/11089/6008/2014-11%20Przysz%C5%82o%C5%9Bc%20miast%20wojew%C3%B3dzkich.pdf?sequence=1&isAllowed=y>  
Szukalski, Piotr. *Demografia i Gerontologia Społeczna. Biuletyn Informacyjny / Demography and Social Gerontology. Information Bulletin*, 2014, No. 11; Institute of Sociology, University of Łódź, [pies@uni.lodz.pl](mailto:pies@uni.lodz.pl)

<sup>11</sup> <http://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-demograficzny-2015,3,9.html>

<sup>12</sup> Official Journal of 29 October 2015, item 1636.

<sup>13</sup> *Demographic Annals 2011* ..., op cit., tabl. 1(128), p. 457, [in:]

equipped with all the necessary services, connected with the management of the residential environment, it lacks in the urban character, in public spaces, such as parks, squares, piazzas, etc. The economic effects for the city comprise reduced revenues from taxes to the municipal budget, and increased costs connected with the need to extend the infrastructure and transport systems. This process occurred in the United States of North America in the 1920s, in Western Europe in the 1970s, and in Poland after 1989.<sup>14</sup> In Poland there is a deficit of effective legal tools that would enable to fight the detrimental processes that are connected with the phenomenon of city sprawl.

Comparing the proportions of the populations of cities and of rural areas in Poland, we will see that after 1991, when the population of our cities reached 62% of all inhabitants of Poland, we have been observing a flow of some of city inhabitants to the suburbs and to the neighbouring communes (Table 4-a).

**Table 4-a. – Poland – population of cities and the countryside.**<sup>15</sup>

	POPULATION							
	1960		1991		2000		2014	
<b>POLAND</b>	<b>29,795,200</b>	<b>%</b>	<b>38,144,000</b>	<b>%</b>	<b>38,253,955</b>	<b>%</b>	<b>38,478,602</b>	<b>%</b>
<b>CITIES</b>	14,401,000	48.3	23,648,000	62.0	23,670,259	61.9	23,216,352	60.3
<b>COUNTRY SIDE</b>	15,394,200	51.7	14,496,000	38.0	14,583,696	38.1	15,262,250	39.7

The increase of the population of the countryside is a sum of the increase of the population of the entire country and the flow of people from cities in the disurbanisation process (Table 4-b).

**Table 4-b. Poland – population of cities and the countryside – people flow.**

	POPULATION				
	1991		2014		GROWTH / DROP / PEOPLE FLOW
<b>POLAND</b>	<b>38,144,000</b>	<b>%</b>	<b>38,478,602</b>	<b>%</b>	<b>+ 334,602</b>
<b>CITIES</b>	23,648,000	62.0	23,216,352	60.3	- 431,648
<b>COUNTRYSIDE</b>	14,496,000	38.0	15,262,250	39.7	+ 766,250

In the long run, the territorial expansion of cities seems to be an inevitable necessity. Certainly, it should be a controlled supervised process, controlled by legal and planning instruments in the interest of the contemporary and future generations in compliance with the concept of sustainable development of cities. In this context, the concept of a compact city and the pursuit of the optimal use of the already urbanised areas is definitely one of the strategies of solving the

<sup>14</sup> See e.g.: Gyurkovich J., *Na krawędziach miast/ On the Edge of the Cities* [in:] ULAR5: *Między Miastem a Nie-Miastem / Between the City and Non-City; Odnowa Krajobrazu Miejskiego / Urban Landscape Renewal*, materials from the International Scientific Conference of the Faculty of Architecture of the Silesian University of Technology, Gliwice 2010., pp. 57-65; and: Litwińska E., *Modelowanie struktur metropolitalnych w aspekcie zjawiska Urban Sprawl / Modelling of Metropolitan Structure in the Aspect of Urban Sprawl* [in:] *Czasopismo Techniczne / Technical Transaction 1-A/2010*, Publishing House of the Cracow University of Technology, Cracow, 2010, p.

<sup>15</sup> <http://stat.gov.pl/obszary-tematyczne/roczniki-statystyczne/roczniki-statystyczne/rocznik-demograficzny-2015.3.9.html>  
Demographic Annals 2015 - tables; 02\_population\_condition-population\_RD'2015

contemporary and future urbanisation problems. Simultaneously, the disurbanisation process observed stands for the need to think about cities and towns as a network within the structures of metropolitan systems – with a polycentric layout, in which the main link – the hub city – cooperates with a network of smaller towns which are independent in territorial terms, but which cooperate with each other and with the hub city itself.

**Table 5. Poland – forecast for subregions for the years 2014-2050.**<sup>16</sup>

SUBREGIONS	POPULATION			
	2013	2015	2050	GROWTH / DROP / PEOPLE FLOW 2015 / 2050
CRACOW	707.788	717.762	806.089	+ 88.327
ŁÓDŹ	385.035	386.012	371.397	- 14.615
POZNAŃ	618.750	634.693	821.425	+ 186.732

In the period of time subjected to the forecast, Cracow as a compact city loses 51,409 inhabitants, but the subregion of Cracow wins 88,327 inhabitants, so the balance is positive and it reaches nearly 37,000 inhabitants. The subregion of Poznań can boast a slightly higher positive balance, reaching 46,111 inhabitants – Poznań loses 142,621 inhabitants, but its subregion wins 186,732 inhabitants. Łódź and its subregion lose the total of 214,865 in this period of time, to the benefit of other regions and cities.

The creation of metropolises exhibiting a network layout obliges to maintain the attractiveness of the hub city, to utilise and develop its unique functions, important for the centre – such as the high culture (museums, theatres, philharmonics, etc.), science – including higher education, research institutes, technology parks, specialist research centres and laboratories, specialist healthcare centres – university hospitals, diagnostics and prevention centres. It is necessary to secure the development of jobs, especially in technologically advanced innovative production plants, in the aforementioned specialist centres, and in services, and in cities which take advantage of the marketing potential of their historical heritage – in the services for the tourist traffic. In this respect opportunities of many cities and towns are diversified. A good example here is Cracow, which annually attracts 10,000,000 tourists, who support over 20% of the city inhabitants. This magnet of the hub city, together with the better and better use of the potential of smaller towns in the region, also of their landscape- and climate-related values, allows for the improvement of living conditions of the region inhabitants, as well as the population stabilisation and development.

### Łódź - a city of extensive transformations

Cities which have lost their economic potential, like Łódź after the fall of industry, lose their inhabitants, who emigrate in search of jobs and better living conditions. A necessary activity, undertaken by the municipal authorities and consequently implemented, is a change of the

<sup>16</sup> <http://stat.gov.pl/obszary-tematyczne/ludnosc/prognoza-ludnosci/prognoza-dla-powiatow-i-miast-na-prawie-powiatu- oraz-podregionow-na-lata-2014-2050-opracowana-w-2014-r-5.5.html> ; Forecast for counties and cities with country rights and subregions for the years 2014-2050 (drawn up in 2014)



profile of the city from an industrial one to the city of culture, science, and high technologies, a city with an attractive programme and a broad offer of public spaces and facilities, which can attract tourists with their unique offer, and stimulate the economy of the entire region. The already implemented investments change the appearance of the city, and can certainly contribute to reversing of the negative trend of shrinking of the population, observable today and revealed in forecasts. The historical heritage of the Art Nouveau architecture exhibiting unique values and an enormous potential of the post-industrial heritage constitute substantial assets in the struggle for the development of the city.

'Manufaktura' in Łódź – Poland's largest shopping centre in the buildings of the former Cotton Plant of Izrael Poznański adapted to new functions, constitutes yet another example of revitalisation of vast areas in Łódź, after the launch of the revitalisation process of Piotrkowska street.<sup>17</sup> All historic structures of industrial architecture exhibiting unique values have been preserved here. New structures maintain the dimensions of the historic development. Transformations of the transport system conducted at a great scale, construction of a new railway station, and bringing together of the city slashed by railway in the city centre are definitely investments which foster the concept of the renewal of the city and considerable improvement of its spatial and functional values.

From amongst the investments implemented at the moment, connected with the change of the appearance of the city, one of the most significant is the revitalisation of a post-industrial complex of the former EC1 heat and power plant, located within the territory of the New Centre of Łódź, in the direct vicinity of the reconstructed Łódź Fabryczna Railway Station, which will be an underground station for the line of high-speed rail, enabling to link the parts of the city located on both sides of the railway line. The revitalised area comprises 40,000 square metres and is divided into two sectors: EC1-East, and EC1-West, which are to create the City of Culture. EC1-East combines cultural and artistic functions – a film art centre with a sound theatre, a library, and an art gallery. EC-1 West is the Science and Technology Centre, with a planetarium and a 3D cinema. The revitalisation of the facility completed in 2015 enables to equip it with the planned thematic routes: *Energy Processing* (in the museum part of the heat and power plant), as well as *Microworld and World*, and *Development of Knowledge and Civilisation* (by 2017).<sup>18</sup> After revitalisation, this complex transforms the post-industrial area into a space for science and culture, connected with the identity of this place in a special way – its functional tradition and unique spatial values of the preserved and adapted structure, enriched with attractive new forms of the contemporary architecture, inscribing in the climate of the place, and creating an intriguing atmosphere.<sup>19</sup>

*In the created new architectural space of the city, there still must appear interesting spatial projects, in order to maintain the interest in the discussion about architecture, because the*

<sup>17</sup> Design: Virgile&Stone from London, and Sud Architektes from Lyon; implementation 2002 - 2006; investor APSYS Polska.

<sup>18</sup> [http://budownictwo.wnp.pl/lodz-zakonczyla-sie-rewitalizacja-kompleksu-ec1-zachod,259416\\_1\\_0\\_1.html](http://budownictwo.wnp.pl/lodz-zakonczyla-sie-rewitalizacja-kompleksu-ec1-zachod,259416_1_0_1.html)

<sup>19</sup> <http://www.bryla.pl/bryla/56,85301,15635143,stara-elektrownia-zamieniona-w-ikone-miasta,,1.html>; Authors of the design: designers from a Poznań-based studio of Home of Houses, and a Łódź-based consortium created by Biuro Realizacji Inwestycji "Fronton" and the company of Mirosław Wiśniewski Urbanistyka i Architektura.

*process of construction takes place in long time intervals...*<sup>20</sup> This project definitely satisfies this postulate.

Transformation of degraded post-industrial areas in cities offers a chance for the recovery of these areas for the benefit of the city and its inhabitants, development intensification, introduction of attractive urban architectural and spatial solutions and functional programmes, adjusted to the needs of the place, and therefore revitalisation of a part of the city. Such operations improve the quality of the transformed areas and stimulate positive changes in the adjacent territories. They foster economic activation of the area, attracting new users, keeping city inhabitants thanks to the creation of a top quality urban living environment, offering attractive public spaces, non-virtual places of get-togethers and social life, cultural facilities, services and trade outlets, workplaces and places of residence in city centres, preventing territorial expansion. They can definitely foster the fight against the processes of abandoning the city and they serve its development.

**Figure 1-3. 'Manufaktura' in Łódź – Poland's largest shopping centre in the buildings of the former Cotton Plant of Izrael Poznański adapted to new functions.**



1.

<sup>20</sup> Olenderek, Joanna., *Rewitalizowana publiczna przestrzeń miejska Łodzi jako obszar znaczących dokonań twórczych; dialog współczesnych z historią / Revitalised Urban Space of Łódź as an Area of Significant Creative Achievements; Dialogue of the Contemporary with History*, [in] *Czasopismo Techniczne*, z.15, Series Architecture 7-A1(35), Cracow, 2010, p. 221



# 11<sup>TH</sup> CTV

back to the sense of the city



2.



3.

Source: photo 1-3: the Author, 2015

**Figure 4-11. The revitalisation of a post-industrial complex of the former EC1**



4.

# 11<sup>TH</sup> CTV

back to the sense of the city



5.



6.



7.



# 11<sup>TH</sup> CTV

back to the sense of the city



8.



9.



10.

## 11<sup>TH</sup> CTV

back to the sense of the city



11.

**Source:** photo 4-11: the Author, 2015