

## METROPOLIS - WHICH WAY TO THE FUTURE?

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**Key words:** Metropolis, City, Society, Planning

### Abstract

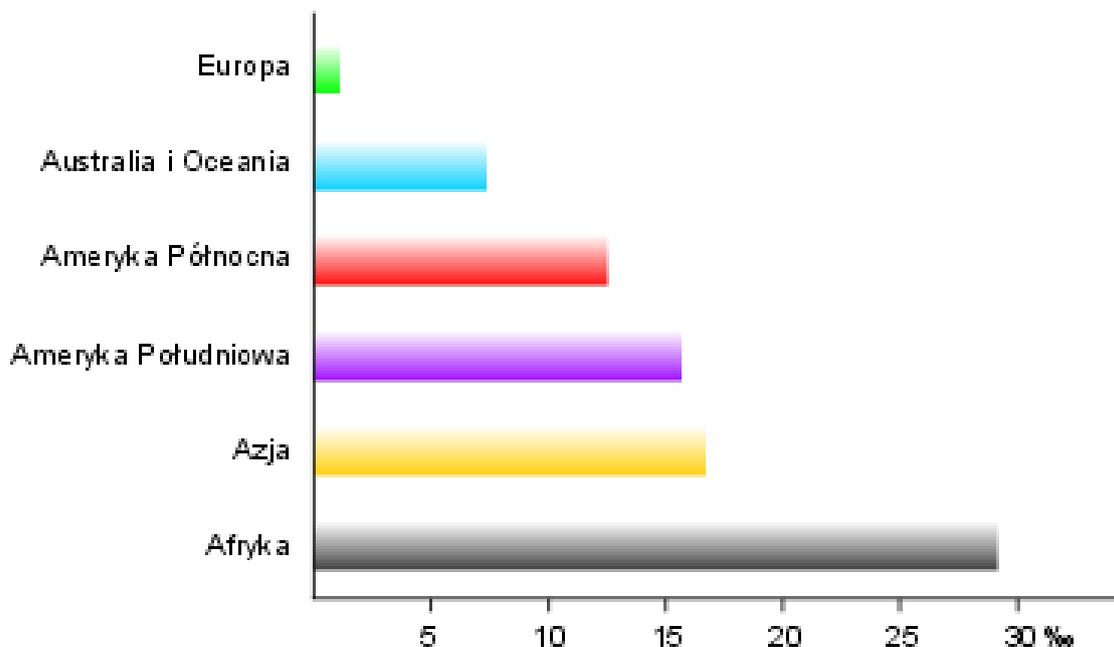
There are two new persons born each and every second on Earth, persons that will need space to live, just as we do. Should we build new cities, then, without question? The “population of a single day” is going to require territory, which, according to today’s standards, equals the area of France or Ukraine (Zipser). Therefore villages, cities and especially metropolises require much more space for expansion. Things become problematic when metropolises are faced with a lack of space to expand. Metropolises behave like cancerous tumors – they try to possess or occupy any urban structure within their reach, including agricultural lands and forests. Is it even possible to plan such a rapid growth? Certain cases point to the fact that it is indeed possible, while others – that it is not possible at all. Thus, we are faced with the question of what should we do when the development of metropolises outpaces even the fastest planning processes? In these cases, metropolitan authorities need to anticipate problems related to infrastructure, transportation, as well as unemployment and rising crime rates. The metropolitan way of life causes not only spatial, but also social problems as well. The subdivisions within the social structures of metropolises are transformed in accordance with the quality of their spatial structures and vice versa. The question as to who “owns” the public spaces of metropolises is more important than the real ownership of the land they are built upon. Public spaces become an expression of their respective metropolises through the image of their urban and architectural forms. The inhabitants and people “that are coming in” can only identify themselves with and respect the rules of the space that they live, work and relax in only under the condition of the existence of spatial order. Contrary to those metropolitan areas that have been abandoned or are underused, the social aspect of reusing land that has once been converted from an agricultural form of use, or any other for that matter, plays an important part in the appropriate creation of social and spatial balance in the development of public spaces, as well as modern metropolises, oriented towards innovative technologies.

## Introduction

It is exceedingly difficult to imagine the future urban form of a metropolis in light of the fact that the pace of population growth around the world is quite rapid, and the time required for it to increase by a billion inhabitants is systematically becoming shorter and shorter. The dynamic increase of the population of India, according to current forecasts, is going to cause substantial changes in the balance of power between the various economic world powers. In light of the depopulation of Europe, we can easily attempt to compare the future relations between the metropolises of India and China, and those of Europe. The latter are probably going to resemble small villages in comparison with the mega-metropolises of Asia. A certain basis for this assumption is being provided by comparing the birth rates of Africa and Europe, as well as the information regarding the mega-metropolises that are being designed in China, which can potentially be inhabited by around up to 250 million inhabitants.

**Fig.1. Population growth by continent.**

Przyrost naturalny według kontynentów



Source: <http://www.edukator.pl/Liczba-ludno-ci-wiata,4808,offset,1,object,4764.html>

In 2015, Tokyo-Yokohama had a population of 37,84 million people and a land area of around 85,5 km<sup>2</sup>. By the end of 2014, the population of Poland reached the level of around 38,48 million, with a land area of 312 679 km<sup>2</sup>, according to information published by the GUS (General Statistics Office) on its website. A brief look at these two sets of data allows us to draw the appropriate conclusions. The U.S. Census Bureau has provided estimates that on the day of the 1<sup>st</sup> of January 2016, the world population should be somewhere around 7,3 billion, which constitutes a 1,08% increase from the year 2015. When thinking solely in economic terms, the construction of cities with a very high population density per unit of space is more efficient than

the construction of extensive cities, due to a lower cost of the associated technical infrastructure and its increased effectiveness. The comparison between the quality of life of the residents of dense metropolises and those which are more spread out, as well as in regards to the preferences and the possibility of choosing a place to live, is difficult to make without access to specialist research. However, we can risk making the statement that the ability to freely choose one's place of residence is reserved only to a select few that are wealthy enough. The majority of society simply lives in the area where they can find a job, with other factors often being a lot less important, while matters of the aesthetics of the future place of residence are barely even considered by most average families.

### **The problem of the territorial expansion of metropolises**

When asking the question about the possible level of the concentration of a metropolis, we cannot expect to be given an easy answer. The advancement of technology has made it possible to construct tall buildings that were deemed impossible only yesterday, while tomorrow brings the hope of even more spectacular achievements in this regard. The steady rise in land prices in the centres of metropolises causes them to change their spatial structure into a polycentric one, which allows a multiplication of sub-centres, at the same time increasing the possibility of increasing the density of the built environment in larger and larger areas. It is probably impossible to predict the limit to this growth, not only in terms of territory, but also regarding technology. However, the problem of psychology remains unsolved, and which boils down to the issue of the individual perception of personal space, understood as the minimum distance to a stranger that does not elicit a feeling of emotional discomfort, which is then followed by physical discomfort. This border changes depending on culture, and is interpreted differently in a situation involving a casual stroll around the public spaces of a city and in one of a crowded metro train.

The tolerance of people to reducing their personal space is an individual matter. However, it is being very intensely tested, ultimately being meaningless in a situation where space is limited. A large part here is being played by conditions related to one's culture, which can determine the mutual relations between individuals and social groups, and these are of paramount importance within metropolises, where the type of social ties typical of an agrarian model of society are practically absent. This topic, however interesting and broad, is not the focus of this paper. There exists another, different problem, which boils down to the issue of the spreading out of the built environment of metropolises. The cause of this phenomenon is the growing speed and efficiency of rail-based transport. By transporting large amounts of people in a short amount of time, efficient means of rail transport are a factor which acts against the verticalisation and concentration of the built environment, leading to its spreading out, and thus the occupation of more and more land. The situation that arises from this phenomenon resembles a self-perpetuating mechanism, where the concentration of the built environment is simultaneously accompanied by its spread. Within the areas that are less dense, the locations of the transportation hubs become new sub-centres, which provide further development stimulus and the construction of higher structures within their borders.

When plotting a three-dimensional graph of the intensity of the built environment of a metropolis, we would obtain a form roughly resembling a group of tents, starting from a normal tent, moving on to a circus tent and then to an entire complex of interconnected (usually along radial lines that go out from the centre) tents, each larger than the other, surrounded by smaller ones. This image of the metropolitan form requires complementation in the form of green areas, that are usually situated along rivers and larger forested areas and open waters. The larger the scale of a metropolis, the more difficult it is to define its borders. The only elements that directly halt the spread of a metropolis are clear geographic obstacles, like large rivers, lakes, mountains or the coastline. Even the ownership structure, by changing over the course of time, is not capable of fully stopping this process. The increase of the territory of metropolises is becoming more dynamic - when viewed from the point of view of the surrounding areas, a metropolis behaves like an aggressor, or using a medical comparison - like a cancer, which develops at the cost of other tissue, causing a remodelling of its surroundings in a manner which is impervious to natural disasters, rebuilding itself after they had passed.

### **The development of metropolises - planned or unplanned?**

In order to avoid distant examples, let us evoke the case of Krakow. There is no doubt that Krakow is a metropolis<sup>1</sup>, it also does not develop in an unplanned manner. However, can we truly say that its development is entirely planned? By looking at the information provided on the website of the Office of Spatial Planning of the Krakow City Hall<sup>2</sup>, we can see that only 48,2% of the area of Krakow had a zoning plan in effect during the first quarter of the year 2016. That is less than half, and that is after 13 years since the "old" plans were scrapped in 2003, which covered 100% of the area of the city! Provided that the development of zoning plans is going to proceed at its current pace, it is estimated that we are going to reach a level that we have already had before the year 2003 in the year 2029. This begs another question: how, then, is space itself is going to be transformed and how is the spatial structure of the city going to look like by that time? The inhabitants, in addition to some areas of the city, pass away in terms of the form of their use. The growing advancement of technology makes some forms of activity obsolete, some which have a tradition going back a couple of centuries.

The areas and buildings that are left behind them become sites of new development, which radically changes not only the functional, but also the spatial structure of a metropolis. This is an important challenge for urban designers and architects, who, in the name of the public good, should shape space in a manner that is harmonious and logically coherent with its surroundings. Areas such as these, provided that they had not been polluted by chemicals or industrial waste, are turned into residential areas. When this is done in accordance with an enforced zoning plan, then all is well and good. However, experience has provided us with nothing to be optimistic about. The multi-family residential developments that are built on the basis of administrative zoning decisions do not properly complement the spatial structure of a city. By analysing generally available satellite imagery or birds-eye view photography, even the casual observer can tell apart the areas of Krakow that have been developed on the basis of

<sup>1</sup> Podhalański B. The Integration of Metropolitan Spaces, Monograph 443, Politechnika Krakowska, 2013

<sup>2</sup> <https://www.bjp.krakow.pl/?id=412> retrieved on 01.05 2016

administrative zoning decisions by using only two criteria: the density of the built environment and the amount of greenery within a housing estate.

The typical element that makes these housing estates stand out is the lack of new buildings with schools and kindergartens - they are mono-functional, used strictly as "bedrooms", and as such, they act like parasites on the surrounding older structures, which are also inhabited by younger people. The lack of educational buildings and at times of even the smallest commercial spaces in these (often walled off) estates causes a needless increase in the demand for transportation on the scale of the entire metropolis, as well as nearly unsolvable problems with providing parking spaces for cars. The number of cars is practically twice as high as the amount specified in the zoning decisions - the modern standard is two cars per family, especially when its members work in different areas of the city and when there is a need to drop the children off at a school, and the time required to get to one's place of work makes it impossible to use only one vehicle to that end. The spread of the built environment and the shifting of its development (especially regarding single-family houses) to areas in the adjacent towns leads to a situation, in which the time lost to travel great distances negatively influences the living standards of those persons that are attempting to flee from the hustle and bustle of the city. Instead, they expose themselves to even more hustle, caused by the vehicles that are seemingly perpetually stuck in traffic jams, which makes it impossible to fully take advantage of what the city's cultural life has to offer. Furthermore, there is, paradoxically, less time for family life. In comparison to the phenomenon that is currently observed in German metropolises that are of a similar size, Krakow has not yet shown evidence of a "return to the city".

In exchange for the pleasure of losing a quarter of a day's time in their cars, the inhabitants of German cities opt to live inside cities and use public and pro-environmental transport, as well as electrically powered modes of individual transport and simply walk around the centres of metropolises. As it turns out, this approach is healthier and less costly, and with benefits to families. Perhaps it would be good to propagate the spread of this trend to Krakow? In order to achieve success, it is imperative that an efficient system of rail transport be organised. The current one, despite being quite good, can soon prove to be insufficient. Another key element is the provision of park and ride infrastructure.

### **Are metropolitan public spaces being taken over?**

This is an important question. In those countries of Europe where the concept of property is respected in its myriad forms, we do not see the phenomenon of the "chair in the street", which is common in Mediterranean culture, and which shows a symbolic taking over of a fragment of a public space for private use. It is also a manifestation of one's presence, of the existence of an individual within a given space, of "domesticating" that which is considered public and borrowing a part of it for a private purpose.

**Phot. 1 A chair in the street in Beirut.**



**Source:** Madrigal José M.P., Eastern Mediterranean Heritages. Statements and Perspectives.

Surprisingly, this custom has spread to Poland in a quite distinct manner, which can be effortlessly observed in the courtyard of the campus of the Cracow University of Technology. It proves that the customs of the Mediterranean culture are constantly and dynamically influencing those of the countries of the Baltic Sea.

**Phot.2. The "chairs" blocking a parking space in a semi-public space in the courtyard of the Cracow University of Technology**



**Source:** Phot. by the Author

However, we are yet to see (perhaps due to the weather) evidence of another popular custom, common in Portugal, of the senior citizens spending their time in the streets. This custom is an interesting social phenomenon, allowing senior citizens to participate in the life of the local community in a manner which is comfortable for them. This phenomenon is also very practical, especially in a socially diverse environment and the widespread anonymity of metropolises, as it forms a sort of neighborhood watch over public spaces and, indirectly, the dwellings of these micro-communities. However, the issues of the main public spaces of metropolises are more important than local problems.

The problem of these spaces is the manner of constructing their attractiveness, as well as the conflicting forms of their use. Under normal circumstances the central spaces of historical cities are areas of unrestricted pedestrian traffic, creating, along with the surrounding cafes and restaurants a certain "teatrum populorum", which allows people to see other people and be seen by them in turn. It would be very difficult to show a public space in a historical European city that is used in a different manner. This custom cannot be changed even by difficult circumstances, like the Aqua Alta of Venice,

**Phot.3. People walking in the water during Aqua Alta on St. Mark's Square arcade, Venice**



**Source:** Phot. by the Author

which does not hinder the tourists in their contemplation of the beauty of the architectural and urban form of the Square of St. Mark from the perspective of their water-drenched tables. Perhaps it is even a manifesto of the impact of mass tourism, as tourists are the main users that currently reign over all of the public spaces of metropolises.

**Phot.4. Tourists sitting on chairs in the water during Aqua Alta on st. Mark's Square, Venice**



**Source:** Phot. by the Author

The number of tourists that visit Krakow each year - 10 million (more than Venice and Seville) - is thought provoking. Probably each and every one of them has been to the Main Market Square for at least a moment. The question is what is there in that space, apart from the beauty of architecture and the harmony of the medieval urban layout that could possibly surprise them? Perhaps it is not falling down on the ground while looking at the trumpet of the *hejnał* player, glimmering in the sun in the open window, playing the melody that is world famous by now, having stumbled upon the holes in the pavement surrounding the Basilica of Virgin Mary, as enduring as the city itself?

## Conclusions

The physical beauty of the public spaces of the historical city centres of metropolises and the ceaselessly played out theatre of events within them that proves their attractiveness, cannot be replaced, thankfully, by any form of virtual reality. Therefore, the efforts that are being undertaken on the urban and architectural scale should make the use of these spaces easier

and ensure that it is done on equal terms by all, while preserving the appropriate functional and spatial relations. We can, however, imagine the entirety of the area of the Main Market Square in Krakow covered in tables, chairs and umbrellas, which could even be economically feasible, but would this be the same space which so many people from all over the world travel to?

The preservation of balance and harmony in terms of both function and space in an equal manner in the entire area of modern metropolises is impossible. Regardless, there is a need to strive to balance out the divergent interests of the parties that participate in the development of the spaces of metropolises in a manner that is logical and functional, wherever possible.

The simpler the laws and the more transparent the rules that govern the management of resources, the more efficient the transport system and the economy itself, the more harmonious and proper the social relationships become and the manner of the management of metropolises becomes more friendly to their inhabitants. These actions regulate their creativity, their willingness to work and facilitate improvement in the quality of life in their everyday environment.

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