

Habitat between density and urban growth: The urban living in the Asian Megacities

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Abstract

Urban growth and urban population are the most important issues to consider for sustainable planning and urban design for this century. The problem requires a general understanding on the global scale, considering rapid urbanization as a result of the dynamics of immigration from rural to urban areas. Since the 1950s, cities never seized to grow and we are living not in the city or in a metropolitan area, but in mega-urban areas or megacities, where the population is more than tens of millions of people. In the contemporary urban environment, more than half of the entire population live in Urban areas, which can be considered an urban explosion. The research and the studies focus on Asian Cities because of their importance. Their unique context and vast area are interesting assets to understand the network in between and the future balance with the rest of the planet. On the vision of the next urban future, if we are looking at the map of the megacities in 2030, 2050 and 2100, high concentration, large urban areas and high population density will be in that region.

The approach requires a multidisciplinary approach to address the problem because it is not only to understand how to plan and redesign our cities but is an emergency of urban living. A critical analysis through data and graphics comparison of the urban growth is the method used to work on a different scale of the urban habitat, in order to create a mapping of urban living. The mapping of the current state of emerging cities linked to the new economy. The focus on some of the most important cities of the area selected for the different position, development, morphology, character and network with the region and the global scale. The research is a reflection on urban studies and environmental impact of the urbanization.

How we can have livable cities? The time and process of design does not match same rapidity as the urban change, therefore, our cities urgently require a different vision to create a livable environment and sustainable condition for the urban living of more than 10 billion of people we are expecting in the future.

Keyword: Urbanization; Urban Habitat; Megacities; Asian cities; Density.

1. Introduction

At the threshold of this new millennium, considering the urban era, this was the scenario: “Virtually all population growth from now until 2030 will be concentrated in the urban areas of the world. By 2007, the number of urban dwellers is also expected to exceed the number of rural dwellers for the first time in history. In 2000, 2.9 billion people live in urban areas, comprising 47 per cent of the world population. By 2030, 4.9 billion are expected to live in urban areas, or 60 per cent of the world” (United Nation, 2000). The world population may growth to 8.9 billion in 2050 (Figure 1).

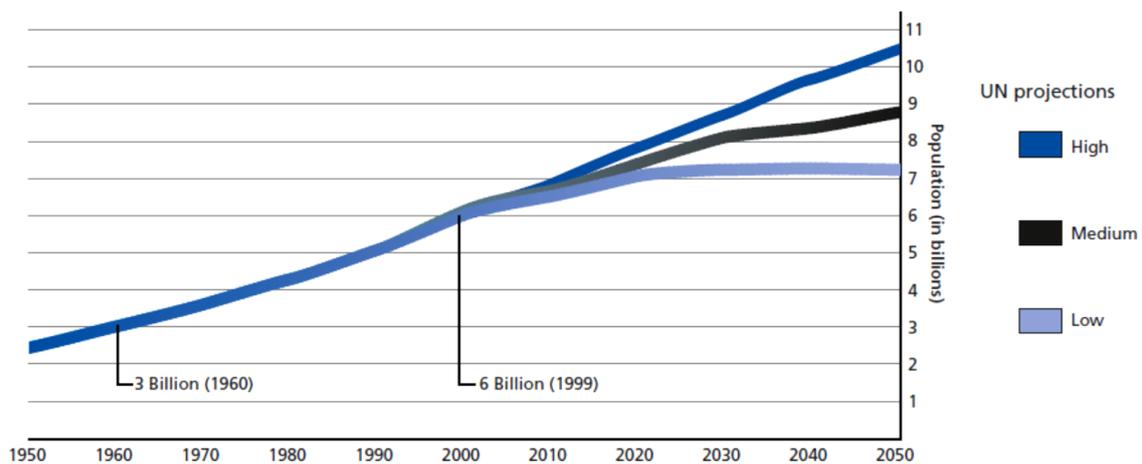


Figure 1. World Population Growth, Actual and Projected, 1950-2050.
(United Nations. 1998. World Population Prospects. The 1998 Revision)

That vision seemed to open the century of the urban era, in fact, in 2007 there was the historical overtaking of the urban population on the rural population, this datum marks in an important way our planet and sustainable urban future. Since the crossing point in 2007, the urban population has continued to increase rapidly, at the same time the rural population has grown only marginally and we consider the third millennium as the urban millennium (Figure 2).

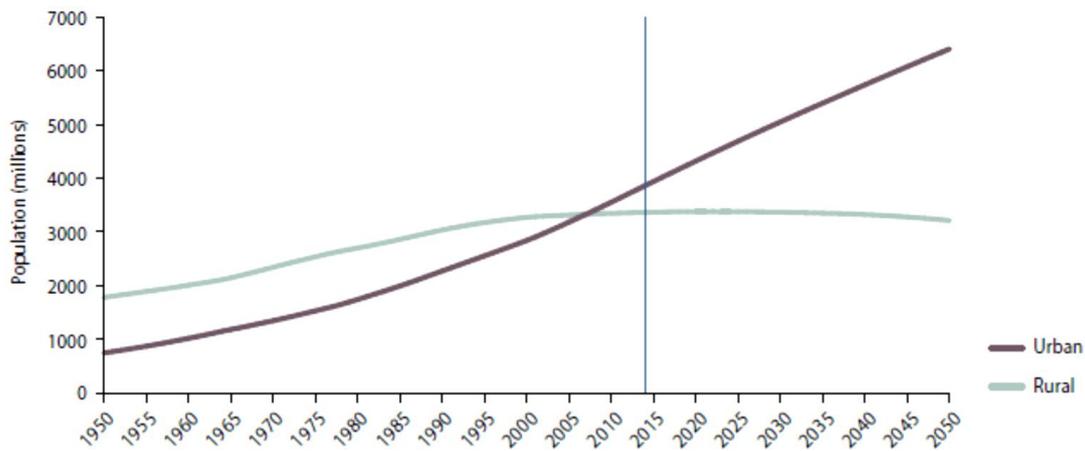


Figure 2. Urban and Rural Population of the world,1950-2050.

(World Population Prospects. United Nation 2014)

In 2008, the world definitely crossed an invisible but momentous milestone: the point at which more than half the people on the planet—roughly 3.2 billion human beings—live in cities, large urban areas and megacities. The combined impact of a growing population and an unprecedented wave of migration from the countryside means that over 50 million people, we can compare with an equivalent population in France, actually are living in the world’s cities and suburbs each year. More than at any time in history, the future of humanity, our economy, and the planet that supports us will be determined in the world’s cities. Urban centres are hubs simultaneously of breath-taking artistic innovation and some of the world’s most abject and disgraceful poverty. They are the dynamos of the world economy but also the breeding grounds for alienation, religious extremism, and other sources of local and global insecurity. Cities are now both pioneers of ground-breaking environmental policies and the direct or indirect source of most of the world’s resource destruction and pollution. (World Watch Institute, 2007).

Urbanization, a phenomenon through which there is a consistent increase in the number of people living in cities, a demographic and physical growth of cities, is an inevitable phenomenon, which can

also be positive. This dynamic generates a high concentration of people in the same area, whose consequences generate a state of urban poverty, an increase in informal areas and social upheaval in the cities. The contemporary urban scenario seems threatening, given its size and speed, outlining an inextricable development. In any case, it is important to consider that no country in the industrial age has ever achieved significant economic growth without urbanization (UNFPA, 2007).

The UNFPA's studies (2007) defined very clear this movement of people: “The urban transition is the passage from a predominantly rural to a predominantly urban society”. If we are reading the urban growth from the past, we can see through the data that urban living is a very recent development, for most of our history, urban past experience, humans lived in low-density rural settings. Simultaneously, we have to consider the world population, because it is not only the problem about immigration from the rural to the urban area, but there is a consistent increase of the total population, especially from 1950 (Figure 3).

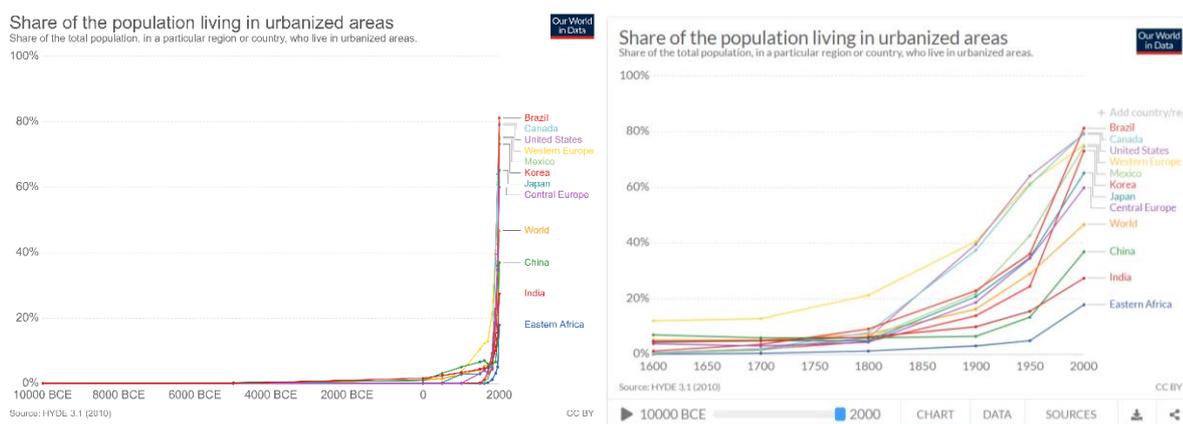


Figure 3. Population living in urbanized areas.

(Klein Goldewijk, K. , A. Beusen, and P. Janssen, 2010

<https://ourworldindata.org/urbanization>)

Actually, urbanization is a problem with a large and complex dimension. It is not in an urban level, but the mega-urban scale in which it is taking place, the vastness and rapidity that omits a possible control and planning of our emerging cities, I would say exploded. The human dimension of this dynamic is a very sensitive topic, the aim of these studies.

The research is focused on the studies of the main problems of contemporary urbanization such as a high density of population in large cities and megacities. Basically is orienting on the general understanding of the topic in a global scale, considering urban growth through the interpretation of the data of the urban population and urban growth, in particular, urban density, which one is the indicator to work on the comparison between different urban areas. Asia appears the densest area, where new megacities concentrate. The largest, the fastest growing urban area. Specific case studies are selected to work on some aspect of the rapid urbanization and take a multidisciplinary approach to the large subject of this research. This investigation is a work in progress of the course Urban Habitat, created and proposed from the author as an elective course in the bachelor program at Architecture at Girne American University and support to the urban field. The aim is basically to support the present study of the urban future, in a fundamental skill for the next generation of architects, urban designers and planners especially in an institution where the students are from various countries and emerging cities.

2. The contexts of the Urban growth

Reviewing the updated data about the urban area, the 2018 Revision of the World Urbanization Prospects is published by the Population Division of the United Nations Department of Economic and Social Affairs (UN DESA) reported an increased scenario near the percentage of urban population, the report declared to have 68% of the world population projected to live in urban areas by 2050. At the same time, the future increases in the size of the world's urban population are expected to be highly concentrated in just a few countries. Together, India, China and Nigeria will account for 35% of the projected growth of the world's urban population between 2018 and 2050. Specifically, 30 years later, it is projected that the increase of population in India for around half a million new urban dwellers. In China, more than 200 million and in another region, in Africa where in Nigeria happening great immigration from the rural areas, will have more than 150 million on new dwellers. If we considered the dynamic from the last century, the period between 1950 to 2018 the world urban population has grown rapidly from 751 million 4.2 billion in 2018. Especially in Asia, despite its relatively lower level of urbanization, is home to 54% of the world's urban population, the scenario is very different in Europe and Africa with 13% each, there is a huge difference with Asia quite 30% less. (United Nations, 2018).

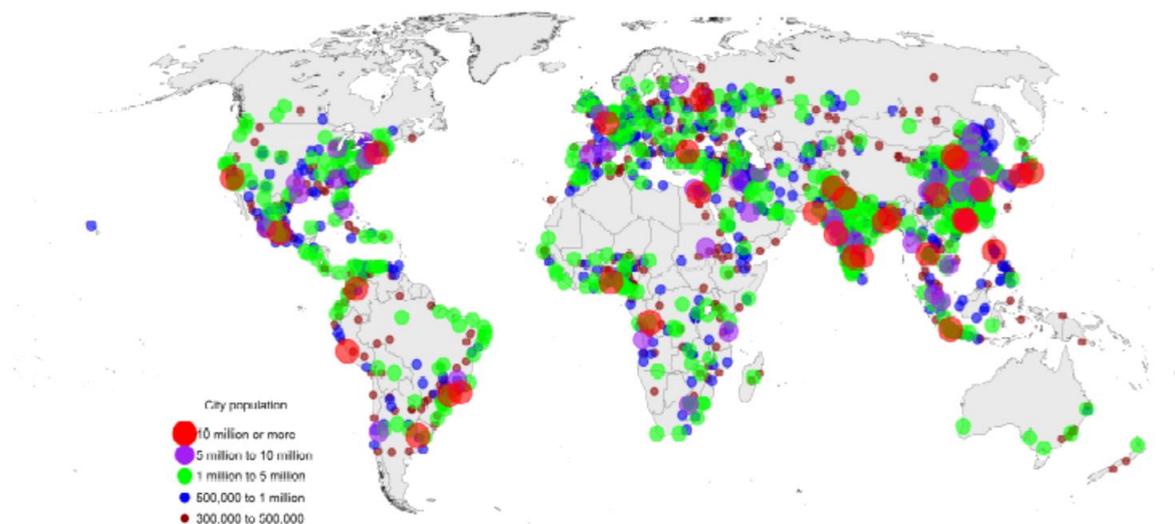


Figure 4. Population of cities by size class 2018.
(UNDESA, 2018)

The high concentration of population is in Northern America (with 82% of its population living in urban areas in 2018), Latin America and the Caribbean (81%), Europe (74%) and Oceania (68%). The level of urbanization in Asia is now approximating 50%. In contrast, Africa remains mostly rural, with 43% of its population living in urban areas, where economic development is growing slower comparing with the fast growth of Asia countries. About the dynamic in rural areas, they are affected by a negative effect of urbanization, the with population decline in some cities in recent years. Most of these are located in the low-fertility countries of Asia and Europe where overall population sizes are stagnant or declining, where the demography is decreased compared with the rapidly urbanized areas. Economic contraction and natural disasters have also contributed to population losses in some cities.



Figure 5. Megacities 1950, Cities where the population declined between 200-2018.

(UNESA,2018)

Behind the urban growth in some cities, population decline occurred in response to a natural disaster, connected and result of the rapid urbanization of the planet, the ecosystem going to respond. In the USA has been the case of New Orleans, after the Katrina hurricane in 2014 and in Japan consequences of the earthquake and tsunami of 2011.

The economic contraction has also contributed to population decline in some places. Some of the depressive areas like Buffalo and Detroit experienced population decline associated with the industry crisis. It is very interesting to compare the same map with the status of the large cities in 1950, there is a visible connection between the same locations, where 70 years later the scenario of urban decrease is opposite to the urban growth trend of the rest of the planet (Figure 5).

In most cases, however, declining or stagnating populations have been associated with persistent low fertility rates, particularly in Europe. The 52 cities with declining populations were home to 59 million people in 2018, down from more than 62 million in 2000 (UNESA, 2018).

After a brief introduction about the urbanization topics, the data of the population is necessary to process the studies on the urban geographies, to understand where are the concentrated urbanized areas, also the state of the general map of the urban world scale. An interesting map represents the cities on the range of over 100,000 habitats, the result is 4.037 cities distributed in different countries (Figure 4).

The most populated cities are distributed between the following countries: India (328), Brazil (300), USA (295), Japan (263), China (209). Considering the data 30% of the population living in these countries. An important observation is Europe is out of the classification, meaning there is a challenge on the urbanized world, consequently in social and economic aspects.

The urban future is going to take place on another side of the planet, the large and high concentration of the urbanized areas is connected with the new economy. The amount of the urban population in these cities is around 2.1 billion, considering where one-third of the global population lives.

The first observation is to recognize high urbanization in India, probably connected with the high-tech development and the results of the partnership in the BRICS and recent economic progress in the last 10 years. The left side of the figure represents only the layer of the cities. It is an alternative view to consider the urban density on a global scale. Another observation regarding the lack of Taiwanese cities even is in most dense new urbanized part of the world, there are no cities from Bosnia and Herzegovina. There also is a confusion between metro area and city population figures showing that

there are several missing cities that have over 100.000 people. Finally, the graphic representation is a selection of the high urban density. This is considered an introduction to the large mega-urban area, the megacities protagonist of this urban millennium.

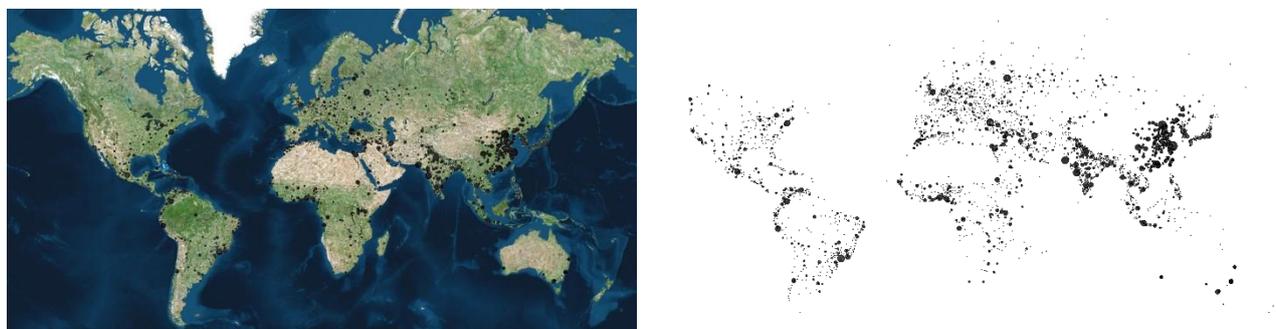


Figure 6. World map 4.037 cities.

(<https://brilliantmaps.com/4037-100000-person-cities/>

Based on UN data)

3. Urban density and megacities

The contemporary geography of the urban high density is represented by the map of the megacities, cities where the population is more than ten million people, most megacities and large cities are located in the global South part of the world. Megacities are notable for their size and concentration of economic activity, but are home to only about one in eight of the world's urban dwellers. In 1990 there were 10 cities with more than 10 million inhabitants, and these so-called "megacities" were home to 153 million people, representing less than 7 per cent of the global urban population. On 2019, there are 38 megacities in the world, one up from 37 last year. A total of 87 urban areas are indicated with 5,000,000 or more population, up from 86 last year (Demographia, 2019).

3.1 How is urban density defined?

The density of a geographic area is measured on the basis of the average number of people per unit of area (for example, the number of people per square kilometre, km²). It is therefore calculated as the population divided by the land area for that given population. But what does urban density mean? Here, again, we encounter the difficulty in agreeing on the standard boundary definition of what constitutes an urban area. The standard metric adopted (and encouraged) by the UN for urban density is the so-called "urban agglomeration population density". Urban agglomeration as defined by the United Nations (2018) as a term "urban agglomeration" refers to the population contained within the

contours of a contiguous territory inhabited at urban density levels without regard to administrative boundaries. It usually incorporates the population in a city or town plus that of the suburban areas lying outside, but being adjacent to, the city boundaries. Whenever possible, data classified according to the concept of urban agglomeration are used. However, some countries do not produce data according to the concept of urban agglomeration but use, instead, that of metropolitan area or city proper. If possible, such data are adjusted to conform to the concept urban agglomeration. When sufficient information is not available to permit such an adjustment, data based on the concept of city proper or metropolitan area are used.

3.2 How large is the area occupied from the urban areas?

In conformity with UNFPA (2007), the land area occupied by cities is not in itself large, considering that it contains half the world's population. On 2007 estimates studies, based on satellite imagery, reports that all urban sites (including green as well as built-up areas) cover only 2.8 per cent of the Earth's land area. This means that about 3.3 billion people occupy an area less than half the size of Australia. The built-up area of cities with populations of 100,000 or more presently occupy a total of about 400,000 km², half of it in the developing world. Cities in developing countries have many more people but occupy less space per inhabitant. In both developing and industrialized countries, the average density of cities has been declining quickly: at an annual rate of 1.7 per cent over the last decade in developing countries and 2.2 per cent in industrialized. If we consider the urban population, according to UNESA (2018) a minority of people living in megacities, 529 million, which representing only 6.9 per cent of the world's population in 2018. Yet, as these cities increase in both size and number, they will become home to a growing share of the population. The prospect for the next ten years is about 750 million people will live in cities with at least 10 million inhabitants, representing 8.8 per cent of the global population.

4. The Asian urban area comparison: urban habitat studies and applications

The applied part of this urban studies is focused on interpretation and analysis of different case studies from different countries, contexts, density, cultures and environments in the Asian region. The results are part of the work with students in an elective course Urban Habitat, as mentioned in the introduction. Aims at raising awareness of the main problems of contemporary urbanization such as a high density of population in large cities and megacities. The research has been exploring the new organization of space in cities, the organization of the social groups and communities, the movement and settlement

patterns of refugee people, and other emergent situations. The vision for the urban scenario including the studies and research on demography and elaboration of data, update and compared on the last half century the urbanization through urban growth and demography. Interpreting the environmental social and economic characters of a single urban area is a fundamental multidisciplinary approach to guidelines to read and understand the data and graphic materials.

The purpose of the critical analysis for the urban areas has been developed in a selected group of five megacities, including megacities are not located in the Asia region. The reason for the Asian megacities, especially in China, as priority of the studies, is related to the last urbanization and urban growth. At the same time, the intention was not to restrict the application and comparison of this large and complex urban topic only inside a single region.

4.1 Why Asian cities as a subject?

Observing between 2000 and 2018, the populations of the world’s cities with 500,000 inhabitants or more grew at an average annual rate of 2.4 per cent. However, 36 of these cities grew more than twice as fast, with average growth in excess of 6 per cent per year. Of these, 7 are located in Africa, 28 in Asia (17 in China alone) and 1 in Northern America. Among the 36 fastest growing cities, 25 have a long history of rapid population growth, with average annual growth rates above 6 per cent for the period 1980-2000. Suzhou, China, is the only city among the 36 fastest growing cities that had a population already greater than 1 million in 2000. More or less the majority of the cities had fast urbanization are located in Asia (Figure 7).

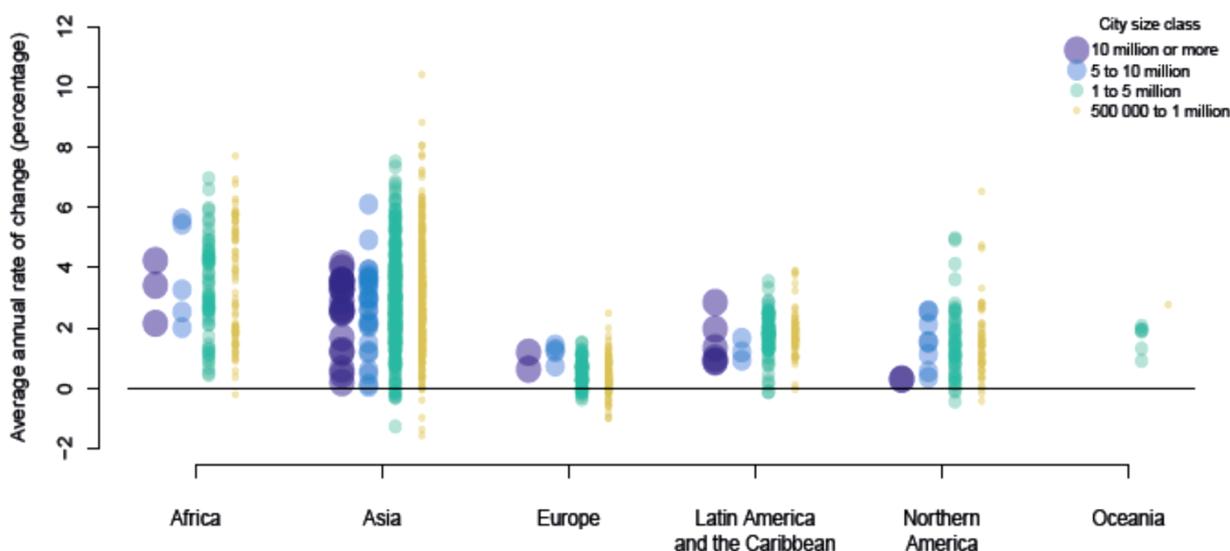


Figure 7. Most of the world’s fastest growing cities are in Asia and Africa

(UNESA, 2018)

The experimental work in the elective course, with the specific focus on Asian cities, has been developed between theory (including presentation and lectures, discussion, research, synthesis) and practice at the same time (mapping, workshop, application on context).

Anyway, the study and understanding of the statement of the global urbanization, requires a simple and clear method to approach them on this large scale. It is absolutely necessary to consider and start from the entire vision on the problem, to achieve and understand the single urban area, individual context to elaborate data and work on.

In the beginning, it is very important to read the urbanized area with impact to numbers and data. The population growth has been the first step of the studies, as a basic background to understand the dimension of the contemporary urbanized planet. Next, urban density is a key work to connect people and city, to be classified by the size of the urban areas. The timeline from 1950 to today is the most significant period to read the urban growth of the cities, the comparison in the same scale of the urban areas through satellite view or urban limit permits to study the morphology of each city related with the environment. The use of Google maps and Earth, or similar tools for virtual mapping, is an interactive application to understand the connections in the cities. The image and the portrait of the urban areas, the different faces of the urban density, is part of the urban reading and analysis.

Some of the results of this urban studies are represented on the graphic summary through important aspects of the critical analysis: environmental, social and economic to recognize the megacities.

The graphics results represent the first approach for them to the large topic of the urbanized planet, the basic requirement was to develop a research on high-density urban areas, megacities in Asian region and comparison with megacities in other locations, between data and images.

This approach has been a good experience to understand better the emerging cities, how for each group the Asian cities are predominant in the studies, and absolutely more visible, especially in terms of urban density and fast urban growth. The environmental aspects, the effect of this urbanization and high concentration of people are elaborate (Figure 8) where it is evident Kyoto, Delhi and Guangzhou are very contaminated, with a high /very high level of air pollution.

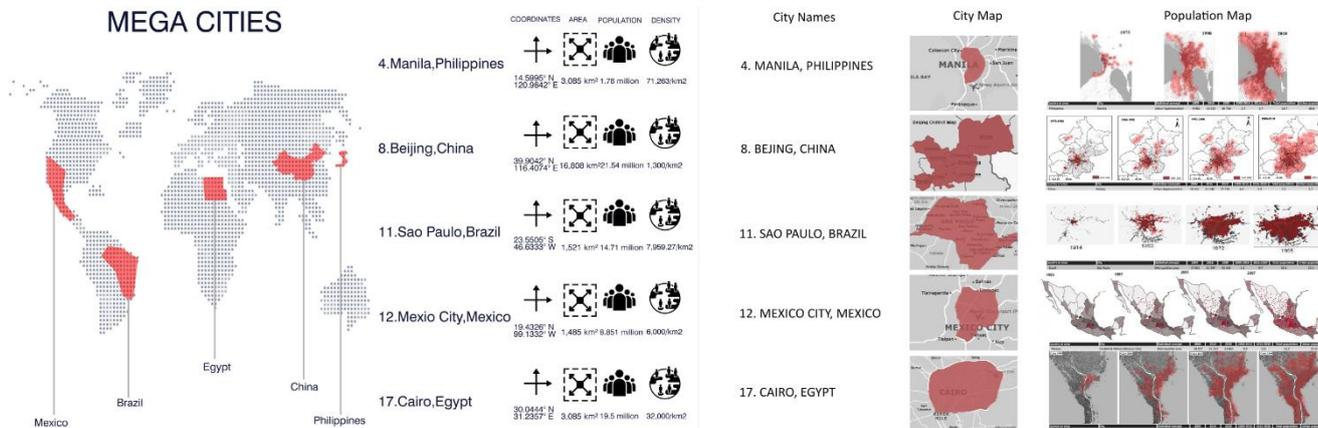


Figure 9. Megacities Atlas: New York City, Delhi, Mumbai, Kyoto, Guangzhou
 (Results of students in Urban Habitat course Ezgi Ilknur Özkan, Özge Gümüş, Omer Mercen, Samer Abu Auida)



Figure 10. Megacities Atlas: Manila, Beijing, San Paolo, Mexico City, Cairo
 (Results of students in Urban Habitat course Ezgi Ilknur Özkan, Özge Gümüş, Omer Mercen, Samer Abu Auida)

The megacities of Karachi, Mumbai, Delhi and Kolkata have an urban growth for the last 20 years, after a new economy generated created a way for a massive immigration to these urban areas, compared with Tokyo a metropolitan area, as a large urbanized area. In 1970 it was ten times larger than Kolkata, the last 20 years the urban growth is more under control and in 2019 result shows less than Karachi when in 1970 was only 100 km² (Figure 11).

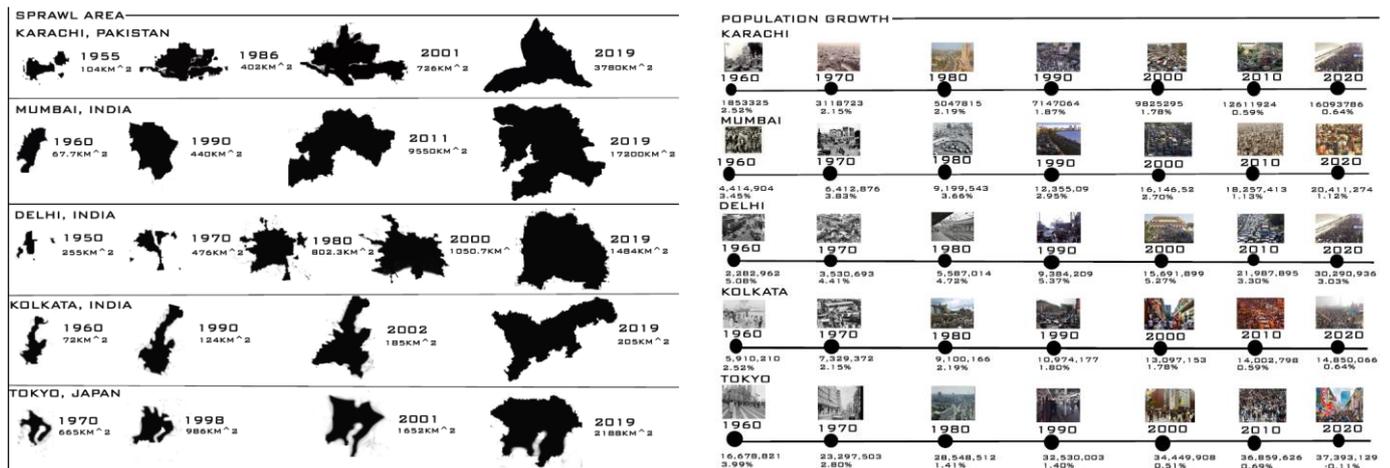


Figure 11. Megacities Atlas: Karachi, Mumbai, Delhi, Tokyo, Kolkata

(Results of students in Urban Habitat course Mohammad Saraireh, Abdulrahman, Yasmine Abdulrhman, Wesam Al Khouri, Farida Ayman)

The last two works touched the topic of the density-related with the natural environment, which is the first impact of the urbanized planet, where the ecosystem suffering and the increase of the anthropic areas generate a high level of risk for a natural disaster. Especially the reduction of the green area, the permeability and the cycle of water, in the coastal large urbanized area represent an important topic for the next urban future to guarantee a sustainable urban living (Figure 12-13).

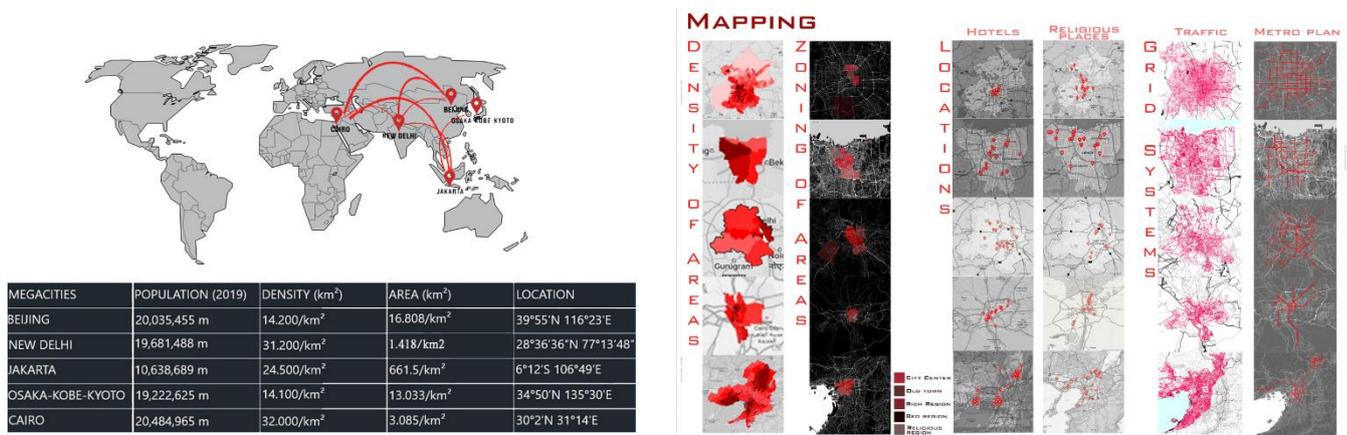


Figure 12. Megacities Atlas: Beijing, Osaka-Kobe – Kyoto, Jakarta, Cairo, Delhi

(Results of students in Urban Habitat course Sanzhar Moldoev, Renan Uler Robillard, Beraat Karayol, Shohrukh Karimov, Caner Karagun)

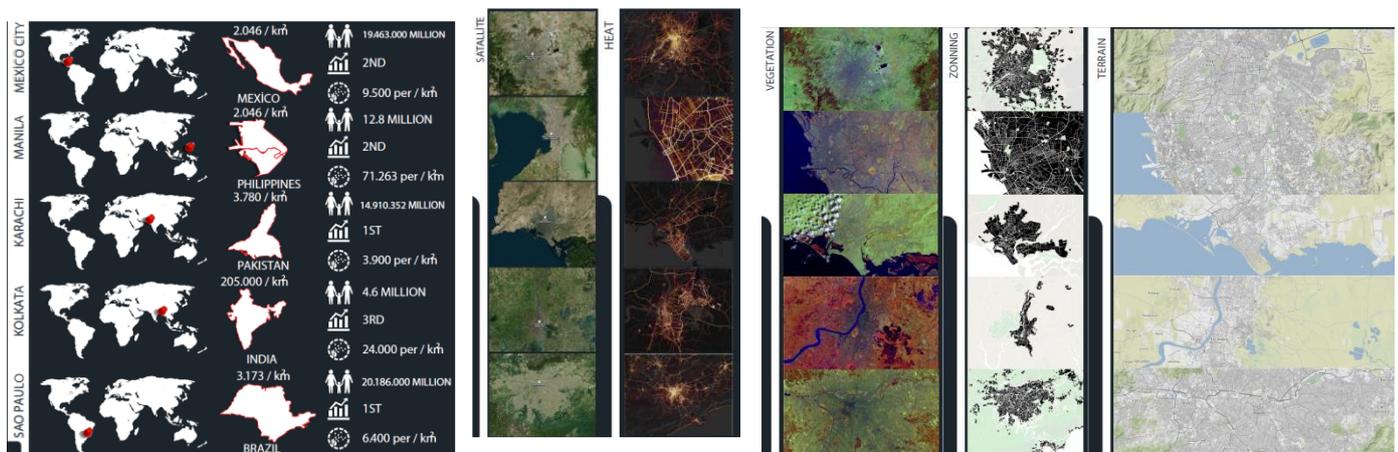


Figure 13. Megacities Atlas: Mexico City, Manila, Karachi, Kolkata, San Paolo

(Results of students in Urban Habitat course Earay Gönüldaş, Beyza Çoşlu, Çağla Boğa)

5. Conclusion

Understanding the key trends in urbanization, fast and impressive, in a large scale and dimension, is likely to unfold over the coming years. This is crucial to the implementation of a Sustainable Development, including efforts to forge a new framework of urban development. As the world continues to urbanize, sustainable development depends increasingly on the successful management of urban growth, especially in low-income and lower-middle-income countries where the pace of

urbanization is projected to be the fastest. Many countries will face challenges in meeting the needs of their growing urban populations, including housing, transportation, energy systems, and other infrastructure as well as for employment and basic services such as education and health care. Integrated policies to improve the lives of both urban and rural dwellers are needed while strengthening the linkages between urban and rural areas, building on their existing economic, social and environmental ties. To ensure that the benefits of urbanization are fully shared and inclusive, policies to manage urban growth need to ensure access to infrastructure and social services for all, focusing on the needs of the urban poor and other vulnerable groups for housing, education, health care, decent work, and a safe environment.

The human dimension for decades the health city related to the human dimension of the urban living in high density, the unseen dramas of the urban poor on the back of the brilliant images of the skylines. A common feature of almost all cities - regardless of globalization, economy, viability, and stage of development- is that the people who still use city space in great numbers have been increasing rapidly. A responsive approach will be the key to the design and planning of our urbanized planet, especially in education where there is the responsibility to prepare a new generation of the protagonist to control the future development of our planet, where everyone has the same right for sustainable urban living.

“Humanity has been given a second chance: we now need to build urban areas yet again that are at least equivalent in size to the cities that we have already built, we need to do it better, and we need to do it in a very short time”. (UNFPA, 2007).

Acknowledgment

In this paper, the results of the personal research about Urban living which has been was also supported by the work of students of the course: Urban Habitat during this Spring semester 2018/2019, at Girne American University. It Has been a pleasure to bring them to this sensitive and contemporary urban issue, because they will be the designers of the next future and it is fundamental for them to understand that complex dynamic. The multicultural environment of this university makes this study really important, because the students will work in these emerging cities and urban context, from where they are coming.

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