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Abstract: *In shaping the contemporary era of architecture, the essential roles have been the primary criteria for architectural insight, among which the most important are the development of settlement types and the emergence of new building types specific to the time. The main problem is the description of the town planning crisis inherited from the 19th century, a fixation of town planning structures developed until globalization at the end of the 20th century. Objectives are the increase of population and the formation of megacities, challenges of planning regulation, and regionalization of the world, which have changed the capacity of transportation means. The state of the art is the urgency of systematization of mega settlements and the crisis of overcrowding of the population. Besides different building types, in a new sense, megacities, megastructures, and corporate and regional communication buildings have been formed. In the conclusion, climate change and newly developed environmental conditions are emphasized.*

Keywords: *Contemporary city planning, types of 21st century settlements, metropolises, cosmopolitan cities, suburban layouts, megacities, small cities of great and limited capabilities.*

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Introduction

Although all the above-mentioned aspects have been continuously developing over the past two centuries, there are still many critical and unresolved issues with landscape and city planning. They are eager to be resolved; otherwise, they obstruct the planning regulation of the settlements more and more each day. The state of the art of the study is the determination of contemporary settlements, including the new megacities [1], as well as comparatively small cities having great and limited financial capabilities. The main problem of the presented study is the critical study of the new cities created and the performance of their detailing from the point of contemporary architecture (CA). Objectives of the study include the following aspects: a/ A glance at urban planning and the formation of preconditions for new settlement types in the XXI century. b/ Description of town planning regulation of overcrowded mega settlements. c/ Documental study of existing and newly formed cities in the XXI century and their differences.

Materials and Methods

Methodically, at first, the above-mentioned classification of megacities performed by UNESCO over the past decades of the XX-XXI centuries has been analyzed. The new settlements of the XXI century have been described, along with qualitative details about them. The properties of the existing and newly listed cities from the period were matched in a comparative method.

In conclusion, the new types of settlements from the XXI century are derived. The latter is the novelty of this research, which focuses on the following cities of the CA era, such as Singapore, Mumbai, Shanghai, Guangzhou-Dongguan-Shenzhen, New York, Hong Kong International Finance Center, Vienna, Los Angeles, Frankfurt, Dubai, Yerevan, and others. There is plenty of research held considering the new landscape and city planning situation formed in the XXI century. They are possible to be grouped in the following profiles of activities, such as formulation of relevant data banking of the study, analysis of landscape and city planning

studies related to preconditions of CA consolidation, planning regulations held, and documental studies of the settlements from the XXI century.

Results and Discussion (clarified in the following a, b, and c factors)

a. The landscape and city planning studies related to the preconditions of CA consolidation¹

The preconditions of modern city planning go back to XIX century developments (1800 onwards), which is after the London reconstruction and Haussmann's remodeling of Paris² [2], as well as Barcelona, Vienna, Berlin, the undertaking of facts of industrialized cities, etc. The XIX and XX centuries were full of theories, including linear cities, organic town planning, and the garden cities of Ebenezer Howard and other scholars of the field, etc. In the 1920s, the ideas of modernism began to surface in urban planning, particularly promoted by the "Congrès internationaux d'Architecture Moderne" from 1928. The influential modernist architect Le Corbusier presented his scheme for a "Contemporary City" for three million inhabitants in 1922^{3,4}. In 1925, he exhibited his Plan Voisen^{5,6}. In 1935 Le Corbusier reformulated his ideas on urbanism, eventually publishing them in the "La Ville radieuse" (the Radiant City), etc.⁷ [3]. However, it is important to notice that "contemporary" urban planning was in the role of a reaction against town planning modernism from the 1960s and early 1970s. As well as the facts of New Urbanism and its charter, which mentions "It is an approach for successfully reducing environmental impacts by altering the built environment to create and preserve smart cities that support sustainable transport in order to concise the measures of sprawling suburbs"⁸. These facts, wanted or not, lead the attitudes to increase the existing cities into megacities. The mentioned fact happened very urgently within the end of the XX century and promoted a planning crisis. Actually, according to records of city space use, this runs out of legislative control in the XXI century. Consequently, there came into existence plenty of ways of reforms that converted into different types of mega and minor settlements associated with the XXI century, which have the following 6 aspects of preconditions:

1. The initialization of historicism in architecture, which was promoted by the Rational South's activities from 1960 [4]; the development of postmodernism and deconstructivism in architecture by Francois Leotard and Jacques Derrida [4]; and the spread of international style and Hi-Tec architecture, which urged the change of the modernist career into postmodern.
2. The settlements caused changes in the planning and landscape. The main reason for this precondition is the result of overpopulation. In fact, at the pass of the XX-XXI centuries, 50 megacities have been formulated, 33 of which are from India and China. However, the population of megacities, as usual, started from 5-10 million and has now arrived at 30-40 million. Such famous cities are Tokyo-Yokohama, Shanghai, Guangzhou, and others, forming a zonal development of 3 megacities in the area.
3. The next precondition is in behalf of forming a new regional world network, which was formed because of the overcrowding of the population of certain cities, as well as the world trade reform declared in the 1995s. That is because of the increase in transferred cargos and the need to create super large airports, which led to alterations in the regional network of transportation in the world.

¹ Compare the matter with: Landmarks Architects, "What are the 5 Major Trends in 21st Century Architecture?", as well as "What are the 5 rules of Modern Architecture?" etc.

² History of urban planning. Wikipedia. https://en.wikipedia.org/wiki/History_of_urban_planning.

³ Le Corbusier, From here to modernity. Available at: <https://www.open.edu/openlearn/course/info.php?id=9851> Accessed on February 10, 2006.

⁴ Ville Contemporaine. Wikipedia

⁵ Hoog, The weird plan for Paris. 2023. Available at: <https://www.youtube.com/watch?v=BP2qaqojsEY>. Accessed on January 10, 2024.

⁶ Compare: Plan Voisen. Wikipedia.

⁷ La Ville radieuse - Wikipedia

⁸ History of urban planning. Wikipedia.

4. The other preconditions led to alterations in the system of megacities are in behalf to environmental alterations, urging to adapt of new measures of problematic architecture focusing on sustainable, eco, energy-conservative, green architecture, world climate changes, etc.
5. No less important precondition for the alterations in the planning is globalization, such as clustering attitudes, as well as the rise of new capitals on the Asian continent, changes in computer and digital technologies, etc.
6. In addition to the above-mentioned is the formation of different types of cities having different financial capabilities, which became urgent because of the rise in the environmental problematic architecture trend of research from the end of the XX century.

b. Megacities' planning regulations or town-planning reconstruction undertakings

Bearing in mind the content of the megacities' list mentioned above and comparing it with several lists of cities from CA, as well as the information provided from the study of CA preconditions, it is possible to fix the supply of the following regulation orders of the megacities by the means of adding megastructures or satellite cities to the existing areal context.

In reality, by means of megastructures, it is possible to investigate the reasons for the enlargement of the settlements in their various aspects. The existing agglomerations are increasing or decreasing according to the potential of the free area surrounding them. The mechanism used is the optimization of population density. In this way, regional world centers have been created that control the delivery of enormous transfers, as well as the overcrowding of the population. This is all taking place by means of recombination of free spaces among the existing settlements. Hereby, for this reason, the megastructures are used as auxiliary satellite city parts to free the residing territories. Indeed, the megastructures are self-sufficient city parts helping to unload the density of the existing cities; meanwhile, the satellites are possible business centers, neighborhoods, skyscrapers of different functions, or some other additions helping to unload the overpopulation in the area. A good example of the mentioned is Moskva-City, the nearby Russian capital, Moscow⁹.

c. Documentary study of contemporary settlements in CA

There are plenty of methods to study and classify the cities in the world. In order to do a comparative analysis of the cities, it is reasonable to use the table accompanying the information available for each city in Wikipedia. In this way, it is possible to rearrange the list of the cities mentioned above into the following kinds of settlements. Hereby, principal analysis should be carried out according to the number of inhabitants in the area, the demography of the population, the residential density, and UNDESA (United Nations Department of Economic and Social Affairs)¹⁰ [5] or the sustainability of the environment. Matching the indicated information, there are the following types of CA settlements that meet in the world.

1. The first group of cities, of course, are the technically developed settlements. Important examples are Dubai, Brisbane from Australia, London from the UK, Madrid from Spain, New York from the USA, Singapore from the Republic of Singapore, Taipei from China, Amsterdam from the Netherlands, etc. These cities are usually called smart cities. As a typical example, see Singapore¹¹ [6] (Fig.1).



Fig. 1. *Singapore as technically developed settlement*

⁹ City of Capitals. https://en.wikipedia.org/wiki/City_of_Capitals.

¹⁰ United Nations Department of Economic and Social Affairs. Wikipedia.

¹¹ Singapore. Wikipedia.

2. The second group of cities is formulated as a result of an uncontrolled, overcrowded population having high residential density. These are usually called megacities, having 5-10 million, which gradually extended into 30-40-56 million. Here, the population density begins at 2000 inhabitants and so on. The critical part in such cities is the 30-50% part, which increased in a disorderly way. Due to the drive, the attention here is the existing high level of air pollution. Renowned megacities are Mumbai, Bangkok, Thailand, Cairo, Chengdu in China, Hyderabad in India, Istanbul, Lahore, Tehran, etc. As a typical example for the study, see Mumbai¹² [7] (Fig.2).



Fig. 2. The planning situation of Mumbai mega city.

a. The irregularly developed part of Mumbai, **b.** The regularly planned part of Mumbai

3. Apart from the former, there are other megacities formed from existing central and other peripheral cities, converting the area into one enormous settlement, usually called intermediary cities. Renowned examples of the type are Shanghai, Beijing, New Delhi, etc. As a typical example for the study, see Shanghai¹³ [8] (Fig.3).
4. Parallel or twin cities are special types of intermediary cities having a certain area composition. Such renowned examples are Paris-Defiance, Tokyo-Yokohama, "City of Bela Horizonte, capital of Minas Gerais" in Brazil, Minneapolis and St. Paul of Minnesota, and so many others. As a typical example for the study, see Guangzhou¹⁴-Dongguan-Shenzhen from China (Fig.4), or Tokyo-Yokohama¹⁵ from Japan.

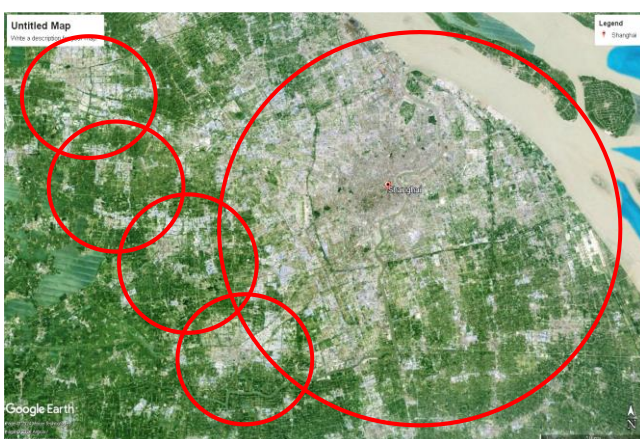


Fig. 3. Shanghai as intermediary mega city



Fig. 4. Guangzhou-Dongguan-Shenzhen from China as joined cities in one

¹² Mumbai. Wikipedia.

¹³ Shanghai. Wikipedia.

¹⁴ Guangzhou, Dongguan, Shenzhen (Wikipedia).

¹⁵ Both of the cities from Wikipedia.

5. Megacities have vertical urbanization, including individual cities. This type of settlement is renowned as a "conurbation". They are, as usual, agglomerations consisting of the combination of many metropolitan cities, each of them having a high-rise concept. New York is a typical example of a conurbation, including 30 urban centers (Fig.5), where the population of each is more than 25 million, such as New Jersey and Pennsylvania. Other renowned examples are Puerto Rico, including the Caribbean area, and the coastal part of San Francisco, which includes metropolitan cities of San Francisco, San Jose, and Oakland, etc. As a typical example for the study, see the conurbation of New York¹⁶. See the added high-rise buildings in the existing environment.
6. Cosmopolitan settlements are a special type of conurbation that consists of several large corporations. A striking example of the type is "Hong Kong International Finance Centre". Whereas Hong Kong is usually named a cosmopolitan or global city. It is an uncial example to be presented individually as a typical example¹⁷ [9] (Fig.6).

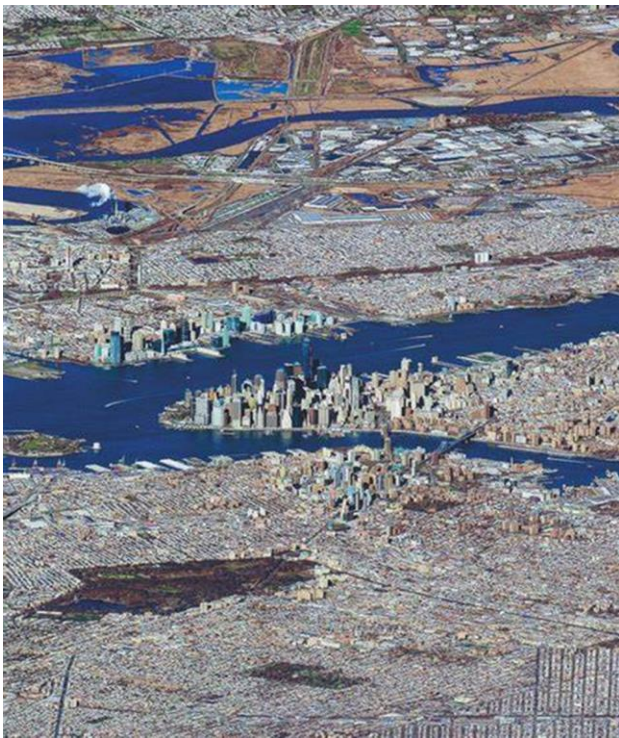


Fig. 5. New York as vertical conurbation city



Fig. 6. Hong-Kong or cosmopolitan city having global center

7. Individual cultural republic cities. These are cities that have special traditions within the world culture. Among them, special indication has world historical capitals: Athens, Rome, Venice, Milan, Florence, Antwerp, Brussels, Vienna, etc. For a typical example, see the Austrian capital Vienna^{18,19} (Fig.7).



Fig. 7. Vienna as Cultural republic city

¹⁶ Conurbation. Wikipedia.

¹⁷ Hong Kong. Wikipedia.

¹⁸ UNESCO World Heritage Centre; Historic Centre of Vienna inscribed on List of World Heritage in Danger.

¹⁹ Vienna. Wikipedia.

8. The metropolis cities of the USA and Europe are the continuation of the former cultural republics, which have a civilizational indication in the world. From the USA, such renowned cities are New York, Los Angeles, Chicago, Dallas, Houston, Washington, etc. As a typical example for the study, see Los Angeles²⁰ [10] (Fig.8). What concerns the European metropolises, striking examples are the political and business capitals, such as Berlin, London, Paris, Frankfurt, Rome, Madrid, Barcelona, Amsterdam, etc. As a typical example for the study, see Frankfurt²¹ [11].

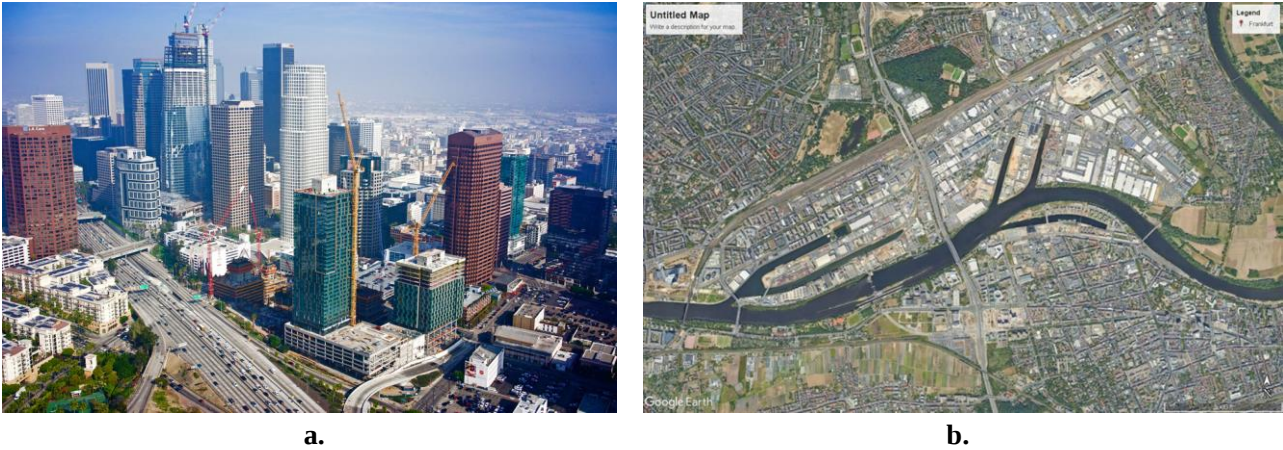


Fig. 8. *The American and European instances of metropolis cities.*
a. *Los Angeles metropolis-city in the USA, b.* *Frankfurt metropolis-city in Europe*

9. The realm of small cities. These are mainly divided into two groups. The first group includes cities as new metropolises from Asia. Besides great centers of East Asia, the cities of the UAE caught important attention, which in a short time converted into leading centers of contemporary architecture. Such as Dubai, Abu Dhabi, Kuwait, Doha, Oman, etc. Being comparatively not big cities, they have great financial capabilities, which gave new progress to the architecture of the 21st century. As a typical example for the study hereby included the city of Dubai²² [12] (Fig.9).

The other types of cities included are the settlements having limited financial capabilities. Special instances of them are the cities of the former Soviet Union or the UIC countries. They are being scientifically efficient. Because of limited capital, their architectural implementation preferably underwent a multi-cycle regeneration trend. Such cities are Yerevan, Tbilisi, Kishinev, and Vilnius, etc. The study of them kept in touch with Yerevan capital of Armenia²³ (Fig.10).



Fig. 9. *The realm of minor but rich cities as Dubai*



Fig. 10. *Limited income minor cities as Yerevan*

²⁰ Los Angeles. Wikipedia.

²¹ Frankfurt am Mine. Wikipedia.

²² Dubai-Wikipedia.

²³ Yerevan-Wikipedia.

Conclusion

1. For almost half a century, beginning in the 1980s of modern architecture, the development of settlements passed certain accomplishment periods, including the following phases: a/ the spread of megacities, b/ regulation attempts of existing megacities and their trends, c/ development of the cities regarding the climate changes and other environmental regulations, and d/ formation of original types of non-megacities, which include planning methodologies of regeneration.
2. In the context of contemporary architecture, besides the above-classified megacities, notable are agglomerations consisting of system settlements centered by 1, 2, or many cities (e.g., Shanghai, Guangzhou, Dongguan – Shenzhen, Tokyo–Yokohama, etc.).
3. The planning regulations of the megacities in the XXI century were performed on behalf of the creation of megastructures of various sizes, as well as satellite-like new city parts or individual skyscrapers or groups of skyscrapers of conurbation style.
4. Because of environmental developments, small cities have been created that have great and limited financial capabilities. The first took the role of an oriental metropolis in contemporary architecture, such as the cities of the UAE. The others adopted the development way of regeneration, such as the small cities of the former Soviet Union, on the example capital of Armenia: Yerevan.

Conflict of Interest

The author declares no conflicts of interest.

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