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High-rise buildings have a significant impact on cities and their metropolitan areas in a variety of ways, most notably on cities with extensive historic built heritage, like Istanbul. Many of these buildings can be regarded as iconic structures, constructed using state-of-the-art technologies and demonstrating the economic power of the city and the country. Using Istanbul as an example, this paper discusses the role of high-rise buildings, their effect on inhabitants' lives, and drivers of the high-rise boom in historic cities, regardless of the contentious necessity of high-rise buildings in an urban environment.

Introduction

Behind the ambition to build tall is the symbolic and iconic value of the tower, which is closely related to the wealth and power of nations. A high-rise building is without a doubt a significant symbol of a city. Although it may cause problems in the urban context, developing cities compete with each other on the global stage to have the tallest and most iconic high-rise buildings in the world. Acting as symbols of economic activity, high-rise buildings are often seen as beacons of economic and political power (Kostoff 2001). They also have the capacity to capture public imagination (Höweler 2003). No matter what their functions are, they cannot be ignored (Abel 2003). The introduction of a new, large-scale building into a city is an intervention within the existing urban context, one which alters the preexisting urban conditions.

Having a traditional skyline, Istanbul's character has been strongly impacted by the erection of high-rise buildings in the past few decades, whether these have been built in the historic core or not (see Figure 1). It is unfortunate that many recently erected high-rise buildings, especially in the Bosporus region, are not in harmony with the silhouette of Istanbul. Even though they are some distance from the historic core, some of the high-rise buildings negatively impact the historical silhouette due to the special topographic character of the city. This paper discusses the impacts of high-rise buildings on the built heritage and historical skyline of the city, and presents how the historical silhouette of Istanbul has changed over time. Additionally, the conditions that have led to the construction of high-rise buildings in the region, and their effect on city inhabitants and infrastructure are described.

Istanbul's Unique Context

Istanbul, located in the northwest of Turkey within the Marmara region, is a highly developed city with a Mediterranean climate. The geography of the city is hilly, with several high peaks. The Bosporus Strait, which connects the Sea of Marmara to the Black Sea, divides the city into the European and Anatolian (Asian) sides, making Istanbul the

Figure 1. The skyline of Istanbul oriented by contemporary high-rise buildings.

only bicontinental city in the world. The European part of the city is further divided by the Golden Horn, a natural harbor bounding the Peninsula, where the former Byzantium and Constantinople were founded.

The city has sustained massive population growth. In 1950, it had a population of 1,116,477 residents. The number of citizens almost tripled during the 30 years between 1980 and 2010, and it currently has a population of 14,377,018 residents, in an area of 5,343 square kilometers, according to the Turkish Statistical Institute (TUIK 2014). The rate of annual population growth in the city is currently 1.55–2%, mostly due to migration from the rural areas of the country. The population density is 2,767 people/km^2, which far exceeds Turkey's overall population density of 101 people/km^2.

Development of Istanbul's skyline

Istanbul, with its strategic location on the Bosporus peninsula, has been associated with major political, religious, and artistic events for more than 2,000 years. The city served as a capital for the Eastern Roman, Byzantine, and Ottoman empires. The outstanding universal value of Istanbul, based on its unique integration of architectural masterpieces, reflects the meeting of Europe and Asia over many centuries, represented by its incomparable historic skyline, formed by Byzantine and Ottoman architecture. The skyline was built up over many centuries and encompasses the Hagia Sophia, which reflects the architectural and decorative expertise of the 6th century, the Fatih complex, the Topkapi Palace, the Süleymaniye Mosque complex, and the Sehzade Mosque complex, which reflect the climax of Ottoman architecture in the 16th century. The Blue Mosque and the slender minarets of the New Mosque were completed in the 17th century (see Figure 2).

The historic roots of the dominant vernacular architecture in Istanbul go back to attitudes about modernization and rapid urbanization that developed in the 20th century. With the establishment of the Turkish Republic and the transfer of administrative functions to Ankara in 1923, the city lost its importance for a while, and its population decreased to 650,000 in 1923 – only half its population in 1914. Consequently, the government was forced to rethink the urban planning of Istanbul. The French architect and town planner Leon Hénri Prost (1874–1959), who was responsible for the Paris Regional Plan of 1928–1939, was brought in to design the Istanbul Master Plan (1936–1958). Prost's planning approach was to build large roads and boulevards, and destroy the old city fabric, which he considered unsuitable for a modern nation. The construction of new residential blocks started the city's reshaping, which created differentiation in terms of building hierarchy and organization (Tekeli 2010). Rapid, initially uncontrolled urbanization and the threat of pollution arising from industrialization jeopardized the historical and cultural heritage of the old city center.

Figure 2. The historical skyline of Istanbul oriented by minarets and domes. © Salih K.

High-rise building construction in Istanbul

High-rise building construction, which is occurring at a rapid pace in many cities of the world, has also accelerated in Istanbul. High-rise building construction entered the agenda of the city in the 1950s. One of the significant barriers to the first wave of construction in Istanbul was its seismicity; the city is located on the North Anatolian Fault. Despite this barrier, the rapid population growth that began in the 1950s has been an instrumental factor in spurring high-rise building construction in Istanbul. Table 1 shows the rapid population growth in the city. Through the second half of the 20th century, the city's sociocultural and political importance grew, its economy expanded, and many institutions underwent changes in scale, context, and appearance. Buildings that reflected technological progress and the fashionable architectural trends of the day endowed the city with a new urban landscape and new image (Batur 1996). New forms of urban development, such as apartment ownership and housing cooperatives, also led the city's expansion to new areas. From the beginning of the 1950s to the mid-1970s, high-rise hotels and office buildings averaging 25 stories in height were built in Turkey (Usta & Usta 1995). Istanbul also saw the construction of a handful of high-rise buildings of less than 20 stories by the early 1970s, including the 17-story Marmara Etap Hotel, the 21-story Odakule Office Building, and the 17-story Karayollari Headquarters.

The late 1970s and 1980s saw an escalating number of high-rise buildings with more than 20 stories. The commercial district of the city moved towards Besiktas, Zincirlikuyu, and Maslak from Eminönü, the first business district. New urban centers, occupied by multinational businesses, were developed. New programs and needs drove changes in the architecture. At the beginning of the

Years	Population of Istanbul	Population of Turkey	Istanbul population as % of Turkey
1950	1,116,477	20,947,188	5.33
1955	1,533,822	24,064,763	6.37
1960	1,822,092	27,754,820	6.57
1965	2,293,823	31,391,421	7.31
1970	3,019,032	35,605,176	8.48
1975	3,904,588	40,347,719	9.68
1980	4,741,890	44,736,957	10.60
1985	5,842,985	50,664,458	11.53
1990	7,309,190	56,473,035	12.94
2000	10,018,735	67,803,927	14.78
2010	12,782,960	73,722,988	17.98
2014	14,377,018	77,695,904	18.50

Table 1. Population growth in Istanbul and Turkey. Source: Turkish Statistical Institute 2015.

Figure 3. Sapphire Tower (2010). © Murat Germen

Figure 4. Selenium Twins (2010). © Igor Butyrskii

Figure 5. Metro City Millennium (2000).

Rank (#)	Name of the building	Year of completion	Height (m)	Function
1	Skyland Office Tower	2016	284	Office
2	Skyland Residential Tower	2016	284	Residential
3	Sapphire Tower	2010	261	Residential
4	Metropol Tower Istanbul	2016	250	Mixed-use
5	Maslak Spine Tower	2014	202	Mixed-use
6	Anthill Residence 1	2010	195	Residential
7	Anthill Residence 2	2011	195	Residential
8	Varyap Meridian A Block	2012	188	Residential
9	Renaissance Tower	2014	186	Office
10	IS Bankasi Tower	2000	181	Office

Table 2. List of the 10 tallest buildings completed or under construction in Istanbul. Source: The Skyscraper Center 2015.

1980s, military influence in the Turkish government influenced the symbolic power of the city. Architectural competitions for government buildings were organized. However, in the second half of the 1980s, Turkey was under the influence of the neo-liberal economic system, with its attendant social and physical affects. Tall buildings were then introduced into the silhouette of historic urban areas, which have fortunately retained their character up to the present time, despite the fact that they have never had examples of monumental architecture, with the exception of religious buildings (Caglar & Uludag 1995). The most remarkable high-rise buildings erected in this period in the new commercial districts were the Yapi Kredi Plaza, which consists of three blocks of 22, 23, and 24 stories; the 22-story Spring Giz Plaza, the 25-story Nova Baran Business Centre, the 18-story Swiss Hotel, and 33-story Istanbul Princess Hotel.

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By the 1990s, architects began searching for new forms of high-rise architecture, taking up the mantle of Postmodernism. Novel, arbitrary forms began to appear in the city. Instead of applying one particular style, designers focused on environmental, emotional, historical and cultural backgrounds, as well as new and not-so-well-defined aesthetic attributes. In the same era, monumentality and symbolism, coincident with the arrival of advanced technologies and improved detailing, appeared in high-rise architecture in Turkey. From this period, the most remarkable examples, most of which are commercial buildings, are the IS Bankasi Headquarters, which consists of three blocks (two blocks of 27 stories and one block of 52 stories), the 34-story Suzer Plaza, and the 34-story Tat Twin Towers in Istanbul.

The 21st century began with the rapid erection of high-rise residential and mixed-use

Figure 6. Sisli Elite Residence (2000). © Igor Butyrskii

Figure 7. Maslak Spine Tower (2014). © Iki Design Group

Figure 8. Varyap Meridian A Block (2012). © Varyap

Figure 9. Renaissance Tower (2014). © Glass & Sabah

developments, incorporating residential and retail functions in a single tower. Such projects were driven by citizen demand for luxury living spaces near the workplaces of the developing central business districts, such as Maslak, Kozyatagı, and Atasehir.

Kozyatagı and Atasehir are relatively new business districts on the Asian side of the city, which developed after the 1990s as the city's economic fortunes increased. In Table 2, ten of the tallest buildings in Istanbul are listed. According to the Council on Tall Buildings and Urban Habitat (CTBUH) database (The Skyscraper Center 2015), there are currently 43 high-rise buildings taller than 150 meters in Istanbul, 33 of which are completed and 10 of which are under construction. Fifty-six percent of these buildings have residential functions, whereas 21% are mixed-use; the rest have office and hotel functions. The tallest completed building in Istanbul and Turkey is the Sapphire Tower, which has 55 floors and is 261 meters high, and was completed in 2010. The Selenium Twins (2010), Metro City Millennium (2000), Sisli Elite Residence (2000), Maslak Spine Tower (2014), Varyap Meridian Residence A Block (2012), and Renaissance Tower (2014) are some of the most notable and iconic high-rise buildings in Istanbul completed in the last decade (see Figures 3–9).

Effects of high-rise buildings on the city

Istanbul, being the leader in high-rise building construction in Turkey, is already a significant historic and traditional city. It is blessed with a special topographic character, which enhances its skyline (Sev 2000b). The late 20th and the early 21st century saw an escalation in the number of high-rise buildings and drove rapid changes in the skyline of the city. Although not located in the historic district of the city, these high-rises all had an impact on the skyline, and dramatically changed the silhouette of the Bosporus, partly due to the topography of the city, which served to accentuate their height (see Figure 10). A residential development, the Onalti Dokuz complex with 37-, 32-, and 27-story residential towers, built near the Marmara coast in the Zeytinburnu district is a well-known example of this condition (see Figure 11). The Onalti Dokuz complex, rising behind the minarets of the Süleymaniye Mosque, damaged the

Figure 10. Panoramic view of Istanbul's historic peninsula from the confluence of the Bosphorus and the Sea of Marmara. © Ben Morlok.

Figure 11. View of Onalti Dokuz complex behind the minarets of the Süleymaniye Mosque. Source: Avrupa Gazzette.

iconic panorama of the historic silhouette of the Mosque when viewed from the Bosporus. Turkey's top administrative court has upheld a ruling imposing the destruction of the complex, but the ruling has not yet been implemented (Hurriyet Daily News 2014).

Finding a balance between change and preservation is a delicate issue in historic cities. UNESCO has already warned the Turkish government in the last decade about the effect of large-scale projects on the historical silhouette of its cities. The peninsula is at risk of being eliminated from the World Heritage List unless Turkey leaps into action to preserve the silhouette of Istanbul.

In the current situation, Istanbul's policy stance toward its skyline consists mainly of restrictions, but without much elaboration on what is desirable. The president of the Turkish Republic, Recep Tayyip Erdoğan, has given orders to relevant ministries to preserve Istanbul's historic skyline, and has issued instructions to the Istanbul municipalities to come up with plans to preserve the historic skyline, even as new high-rise buildings loom behind the city's centuries-old mosques and minarets. The measures to protect the city's skyline could also include demolishing existing buildings where necessary.

A management plan is currently being prepared, which is intended to address traffic and transport, urban regeneration and tourism management in the city, and provide a proper framework for ensuring that construction and infrastructure projects respect the outstanding universal value of Istanbul.

On the other hand, demand from abroad is one of the important reasons for the growth of contemporary high-rise buildings in the city (see Figure 12). Although Istanbul has some serious challenges, including some neighborhoods choked with traffic and pollution, and the city's infrastructure struggles to keep up with its population growth. Luxury-home buyers are attracted by comparatively affordable prices, and are thus pouring into the city from the Middle East and Europe. In the Sapphire Tower, approximately 40% of the residents are from overseas, attracted by the views and amenities of the building. According to the latest Knight Frank global house price index, the average price of prime properties across Turkey rose by 13.8% between the first quarter of 2013 and the first quarter of 2014, making it one of the best-performing property markets in the world (Bloomfield 2014).

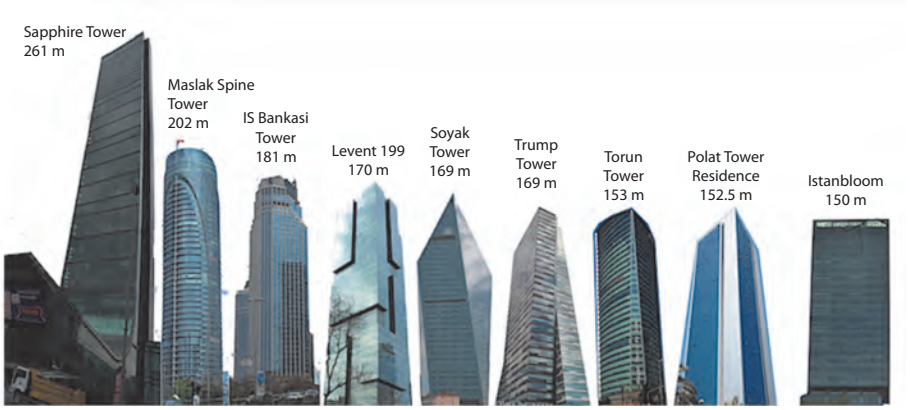

Figure 12. Contemporary high-rise buildings of Istanbul constructed in the last decade. © A. Esra Yenerkol.

Government policy has been an important driver of the recent high-rise building boom. High-rise building projects in Istanbul and throughout the country have surged under the rule of the Justice and Development Party (AKP) currently in power, which has set forth an urban transformation policy (Hurriyet Daily News 2014). The government has attached importance to the development of the construction sector, in order to ensure economic development. Accelerating internal migration was one of the main reasons for this change in the economy. According to Business Monitor International's estimate for the size of the construction sector in Turkey, it will increase from US$19.3 billion in 2011 to US$48.4 billion in 2020 (Sak 2011). The sector's average annual real growth rate during the period 2011–2020 is expected to be around 6% (Sak 2011). Many of the contemporary high-rises, such as Sapphire Tower, Renaissance Tower, and Maslak Spine Tower, are investment projects of large national enterprises of the country, which are supported by the government for playing important roles in the economic development of the country.

Many of the developed world cities with high populations and large metropolitan areas face economic and social problems, as is the case in Istanbul. Rapid urbanization and an increase in urban density, accompanied by land value escalation, are the main reasons behind these economic and social problems, as well as the motivators of high-rise construction in many growing cities in developing countries. Although the emergence of high-rises is in full swing in Istanbul, unfortunately the infrastructure of the city, such as the inefficient transportation system and undersized sanitary system, is not equipped to cope with the boom.

From the perspective of some metropolitan inhabitants, high-rise buildings are foreboding gated communities, isolated from the rest of

the city, symbolizing capitalist power. This conception often generates unhealthy and unstable societies within the existing socioeconomic regimes. According to the responses of 300 inhabitants to a 2007 survey, 80% think traditional architecture is more unique, culturally more representative and economically more supportive of the city; 28% of the respondents do not wish to live in high-rise buildings, while 22% said they were likely to live in tall buildings (Unlu et al. 2007).

The Paradox of High-Rises

Metropolises in developing nations, such as Istanbul, have been faced with rapid increases in high-rise and iconic building construction since the dawn of the 21st century. Although commercial buildings defined the skyline of the city until the end of the 1990s, residential and mixed-use construction gained momentum by the 2000s. The success of the first wave of projects in the early 2000s led many real estate investors to develop mixed-use high-rises. In the context of Istanbul, these buildings serve a number of functions that create a distinctive skyline, and project a new image for the city. They form key landmarks, comprise tall building clusters that denote a functional area, demonstrate a growing economic position, and set a precedent for maximizing densities and proximity to transport. That they precede the needed infrastructure in many cases has been a cause for disparaging commentary that is not always well-informed.

In this seismically active city, people working and living in these prestigious towers feel safe in the knowledge that these buildings are designed and built with state-of-the art technology. However, a proportion of the public opposes these buildings on the grounds that they create problems of natural ventilation and light, in addition to running an inadequate number of elevators. Tall buildings are also cited for increasing traffic congestion and parking problems, straining an infrastructure that did not anticipate their presence.

For a portion of the public, living or working in a high-rise residential building is prestigious. A high-rise building is often seen as an icon of an economically and socially developed society. However, it is clear that, with more people living in taller buildings, there is a need to extend research beyond physical and engineering concerns to consider livability. The impact of high-rise buildings on the built environment and on the citizenry must be considered with equal emphasis. ■

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