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# Urban sustainability and traditional neighborhoods, a case study: Bursa, Turkey

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## Abstract

The objective of the present study was to focus on the urban sustainability potential and traditional residential areas of historical cities based on the compact city concept. The study includes four sections. In the introduction, the important role that the cities play in sustainability was discussed with an emphasis on the significance of traditional housing areas in urban sustainability. In the second section, whether the compact city form is suitable for historic urban quarters was investigated with an empirical study conducted in Bursa, Turkey. In the study, home and home environment were considered as a transactional whole, which defines and defined by a set of cultural, social, and psychological factors, hence, a transactional theoretical approach was adopted. The study utilized observation and ethnological research methods in conjunction with surveys conducted with the residents of historic quarters in Bursa, which is one of the most historical cities in Turkey, a developing nation. The case study findings and policy recommendations on sustainable urban development in historic cities were addressed in the final section of the present study.

**Keywords:** Urban Sustainability; Compact City; Traditional Neighborhood; Turkey; Bursa

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## 1. Introduction

Globalization introduced major social, cultural and economic transformations in urban areas. However, a city is a space that entails more than the physical environment, more than a space where individuals live and work. Previous studies stated that the city is an imagination, a metaphor and a symbol, in a way, a valuable cultural and historical document that includes different elements and political remains of different periods (Short, 1996; Kleveland, 1999). In historic cities, past and the present is intermingled, providing a type of eyewitness for the past and individuals are the participants of the whole city where the spaces reflect deep traces of the impact of transformation; population growth and rapid urbanization. Rising housing demand and sprawling of both formal and informal new housing neighborhoods change the urban character particularly in traditional residential areas. Urbanization reflects the significance of sustainable urban development that should be considered as an act balancing the present, the future and also the past. The sustainable city is not a novel phenomenon. It is as old as the urban history, where cities could develop and maintain a balance between internal social and economic activities and external natural and agricultural environment (Levine et al., 1999). This development process was defined as sustainable urban development in the 20<sup>th</sup>. UIA Congress as; *“a local, informed, participatory, balance-seeking process, operating within an equitable ecological region, exporting no problems beyond its territory or into the future”* (Zeng Jian et al., 1999).

The “compact city” could be defined as a high density city with mixed use and where promotion of growth is limited to the existing urban areas and the development beyond the borders of these areas are not encouraged (Thomas and Cousins, 1996). Both in the present study and literature on sustainable forms, the compact city, namely creation of sustainable urban environment via centralization and containment, is considered as one of the sustainable approaches as opposed to sprawl and low-density development. Urbed (1998, p. 15) argued that *“Policies to attract people back to cities have the potential to kill three birds with one stone. They could reduce the loss of countryside and promote more sustainable patterns of development, while at the same time addressing the root cause of urban decline by making the inner city into somewhere which people no longer wish to escape.”* According to Heath, in European Communities’ Green Paper on the Urban Environment (CEC,1990) and other sources, limitation of residential development to existing urban areas has certain benefits and positive effects on the quality and vitality of these residential areas (Heath,2000). Furthermore, it was suggested that a sustainable city “must be of a form and scale appropriate to walking, cycling and efficient public transport, and with a compactness that encourages social interaction” (Elkin et al., 1991).

The studies undertaken in the last decade also support the need of compact settlements for sustainable urban development. The reflection of European Union Regional Policy division promotes compact cities for its Europe 2020 strategy. In their report “Cities of Tomorrow”, it is envisioned that cities of tomorrow will improve the compactness and attractiveness of city centers. Cities that are facing a great number of environmental challenges are seen as the contributors of both problems and solutions. And again compactness of cities is promoted for energy efficiency and green growth (European Union, 2011). Another report declared by the OECD on compact city policies presents the potential outcomes of compact city

implementations and defines the three main characteristics of compact cities as; *dense and proximate development patterns, urban areas linked by public transport systems, accessibility to local services and jobs*. This report puts stress on the benefits of compact city policies in terms of ecology, economy and community (OECD, 2012).

According to Lee et.al.(2015) in order to achieve livability via concentration of employment and habitation, a compact city should include not only physical but also social requirements of the community at well-constructed urban centers. This proposal in fact was satisfied by cities in the history. However, Haughton and Hunter argued that a sustainable city is not a function of an ideal version of past settlements or could not be alienated from its unique cultural, economic and physical identity for the sake of the latest demands for urban change (Haughton and Hunter, 1994). The discussion leads to the next debate in line: the significance of historic cities for sustainability within the framework of the compact city. Jenks et al. stated that the compact city vision was dominated by densely developed city center model that is available in several European cities. Non-residents of these cities consider them as ideal residences where they could experience the vitality and variety of urban life (Jenks et al., 1996).

In historic cities, demands of development and preservation caused pressures that led to a consensus that historic cities could not reproduce without the intervention to and regulation and administration of their physical and social textures, which are the foundation of their locality, specificity and economic success. Urry argued that the character, history, buildings, culture and uniqueness of a location is more significant in an increasingly competitive global market without spatial and temporal barriers (Strange, 1997; 1999). As a result, the extent to which sustainable development policies could resolve the abovementioned disagreements became a point of interest. Previous studies stated that, historic or not, compact or not, the city is a holistic system with complex relation between its parts. The need for further scientific and objective information led to studies that conducted local and strategic measurements and monitoring. Albeit, further research is required to test the sustainability claims about historical cities and the social acceptability of the compact city concept.

The present study considers that there is a close correlation between the sustainability of historic cities and identification of their local and cultural values, which could be best achieved by the form of a compact city. The present study was based on the premise that the compact city, which is accepted as a urban form for sustainable urban development, is the most adequate approach for the sustainability of historic cities. The possibilities provided by this urban form could accommodate substantial residential growth without interrupting the original identity of historic cities and generate vital and viable urban centers. However, it should be kept in mind that consensus on this urban form by urban residents is a prerequisite for social equality and choice, as well as fulfillment of the environmental criteria of sustainability. If this fact is neglected, the urban population, who could afford to leave the city, would leave and only the most disadvantaged would remain. And, this would hardly be considered as sustainable.

In order to discuss this proposal, two empirical studies undertaken in two different traditional neighborhoods in Bursa are compared by means of the similarities of their physical and spatial characteristics and the differences in the opinions of the residents. The cases are analyzed in terms of urban

compactness indicators adapted and developed from the research of Burton (Burton, 2002). The framework devised by Burton, interprets the compact city as the moderately sized and self-contained city and describes it as the high-density and the mixed used city related as the product, and also intensified city related to the process. Burton identifies different aspects of these three categories of compact city in terms of their influences on sustainability. In previous studies Burton, et al. put stress on the need of testing the feasibility and social acceptability of the compact city and explain their intensification research as a potential model (Williams, et.al., 1996). Burton also shares the results of their research involving the relations between urban compactness and social equity. In this study, dimensions of compactness are classified as density, mix of uses and intensification with their subcomponents (Burton, 2000). Since the framework of this research allows for a consideration of suitable indicators for a traditional city like Bursa, it was chosen as an appropriate framework for the analysis of these two particular cases.

The aim is to determine whether the differences in the location and physical characteristics of the settlements are effective for the changes in the ratio of acceptability of the compact city form and if socio-cultural and physical changes caused by the urbanization process are important factors or not. The empirical study made in the context of this paper, tried to test the social acceptability of the compact city in a historic city. The evaluation is based upon information gathered from archival documents and the authors' observations and a detailed survey. The study and its details are briefly explained in the following section.

## 2. Case study

In the case study, two empirical studies with a similar conceptual framework were conducted. The first was a scientific research project conducted by the first author with a collaboration between Uludag University and Bursa Metropolitan Municipality and was titled "*A Proposal of Site Management Plan for Hisar, Osmangazi / Bursa*" between 2011-2013. The second empirical study has been undertaken in the scope of another scientific research project carried out by the second author funded by Scientific Research Projects Commission of Uludag University, titled as "*The Physical and Spatial Analysis of the Traditional Civic Architecture Forming the Unique Identity of Bursa*" between 2013- 2015 November.

The case study was conducted on housing environments since "home" is considered as the universal core of human well being. Furthermore, the global centrifugal and centripetal trends finally impact the physical, psychological and social survival, daily work and livelihood of ordinary people, families and friends, homes and residences, close neighbors and community. Therefore, it is necessary to develop housing systems and residential approaches that mirror the dynamics of contemporary society, which entails continuously evolving transactions between the individuals and the housing environment (Altman, 1993). Thus, the present study aimed to determine the factors behind the variations in the compact city acceptability ratio and whether the changes caused by urbanization were significant. The findings of the present study would help identify the methods that would raise awareness about urban sustainability. Alternative developments in the urban form to achieve urban sustainability in historic cities, in particular the traditional residential environments, were discussed. The present study findings could also provide data on individuals' views on

sustainability work. Study data could be utilized to develop sustainability policies for historic cities in Turkey. The study is based on transactional approach theoretically, where home and home environments are considered as a transactional entity that is defined by and defines a set of cultural, social and psychological elements. The study utilized observation and ethnographic research methods and the empirical research included detailed surveys.

## 2.1. Description of case study areas

Bursa is one of the valuable cities that could reach our times without losing its importance, in Turkey, as show in Figure 1. It is the first capital of the Ottoman Empire and has always been an important focus point in social and historical aspects due to its location's being suitable for settlement, natural structure's favoring agriculture and military strategic importance. By its unique characteristics it was nominated as a World Heritage Site in June, 2014. The nomination was titled "Bursa and Cumalıkızık: The Birth of the Ottoman Empire" and included eight component sites of urban social complexes (*külliye*) and the village of "Cumalıkızık," a village in the vicinity. Bursa receives significant immigration both from the region and other regions in the country, experiencing a rapid industrialization and it has one of the highest population increase rate in Turkey. These facts pressure the fertile plains nearby and affect the urban development (Cahantimur, 2012).



**Figure 1.** Bursa in Turkey

Facing urban problems of various aspects during the rapid development process, but on the other hand, promising a great future, Bursa has very suitable features for the case study. This historic city includes not only urban but also rural traditional neighborhoods in which, both ecological and socio-cultural dimensions of urban sustainability can be examined fruitfully. The traditional rural settlements, once being the nearby villages of the city, are the neighborhoods of the Metropolitan Municipality today, as show in Figure 2.





**Figure 2.** The Traditional Rural Settlements of Bursa (adapted from google earth)

In Figure 3 the traditional zones of the inner city, which are still being used as residential areas are seen. They illustrate the characteristics of compact city form with their mixed used building stock and transportation network.



**Figure 3.** The Traditional Urban Settlements of Bursa (adapted from google earth)

They all are in the center of Bursa within a walking distance to all of the public utilities and connected to the newly developed parts of the city with public transport alternatives. They also have a congestion of facilities, traffic and urban land-use alternatives that don't exceed the carrying capacity of the city.

The neighborhood of "Hisar", the oldest settlement area of the city which includes traditional housing pattern preserved to the best level till our days is selected as one of the sample traditional settlements. In

Figure 4, surrounded by the old city walls, the neighborhood's location to the West of the center on a hill overseeing the city can be seen.



**Figure 4.** Location of Hisar in city center (from Metropolitan Municipality archives)

As a result of reconstruction and modernization projects conducted in the area, a wide highway was built through the neighborhood of Hisar. However, the neighborhood still preserves its urban texture that includes narrow roads and blind alleys and unique identity due to the morphology of the built environment that differentiates Hisar from other quarters, as seen in Figure 5.



**Figure 5.** A View from Hisar (from Cahantimur's archive)

This neighborhood was registered as "Urban and Archeological Site" by the High Council of Immovable Monuments and Antiquities in 17.02.2000 with the decision numbered 7712.

The area includes not only many examples of traditional Turkish houses but also some valuable public buildings like small mosques and public baths, one soup kitchen and some tombs of important religious men

of Ottoman Empire. The founder of Ottoman dynasty Osman Gazi's tomb and the conquer of Bursa Orhan Gazi's tomb are also in this area. In and around the area there are many ongoing archeological excavations in order to expose the remains of different historic periods. One of these remains belongs to the Byzantine palace which had been used as the first palace of Ottoman State in the 14<sup>th</sup> century.

The neighborhoods of Reyhan and Tuzpazarı that are very near to each other are selected as the other sample area of the case study. In Figure 6, these neighborhoods showing the similar morphological characteristics which were developed at the north of the historical center of the city can be seen.



**Figure 6.** Location of Reyhan in the city center (adapted from google earth)

The center of Bursa was registered as “Urban, Archaeological and Natural Site” by the High Council of Immovable Monuments and Antiquities in 1979 with the decision numbered 10.888. Being at the historic center of the city Reyhan and Tuzpazarı, together with their monumental buildings and traditional houses, were registered with this decision.

Most of the traditional buildings in the area were constructed in the late 19<sup>th</sup> century and at the beginning of the 20<sup>th</sup> century. The Hans, public baths, and mosques, which are valuable examples of monumental buildings located in this area, are dated from the 14<sup>th</sup> century till 16<sup>th</sup> century. All of these buildings whether monumental or civil examples, comprise and support the historical identity of the city as seen in Figure 7.

However, some parts of them were collapsed during the operations of opening new roads in the Republican Period. Today, being surrounded by wide motorways, the area includes not only traditional houses, but also many commercial activities besides religious ones as seen in Figure 8. The usage change from residential to mostly commercial brought about some spatial and social problems that affected the unique characteristics of the area. However, both of these two areas of the case study - Hisar and Reyhan-Tuzpazarı are in the buffer zone of the Hans' Area nominated as a World Heritage Site in Bursa.





**Figure 7.** Traditional Turkish Houses in Reyhan (from Beceren Ozturk's archive)



**Figure 8.** Views from today's situation in Reyhan (from Beceren Ozturk's archive)

## 2.2. The fieldwork

The suitability of the compact city form for Hisar and Reyhan with their physical and social conditions is evaluated in two steps. Firstly, making observations in the areas and examining archival documents, data related with physical environment, history and social demography of the settlements have been obtained. The conclusions of these qualitative and quantitative environmental analyses are evaluated by means of the main criteria of the compact city form in order to understand if these settlements are suitable for intensification that is vital for a compact city.

In the second stage, the local residents' acceptance of the compact city form was examined using a detailed survey. The survey included four main sections that also contained demographical questions to identify socio-cultural and psychological properties of the area and others to determine the perceived physical and socio-cultural requirements of sustainable urban development. Analysis of the data were made under eight headings including demographic and socio-economic structure of the respondents, residence period of the respondents, types of social interaction in the areas, residential and transport preferences, neighborhood satisfaction, expectations from the living environment, level of conservation consciousness of the respondents. For the final results of the present study, in particular, the responses to questions that aimed to assess urban sustainability based on socio-cultural factors related to the identity of the site, belongingness and residential satisfaction were critically important.

These surveys were conducted to the people both living in traditional houses and living in newly constructed buildings in the same environment, half and half as the total number of survey. Age and

education level of the interview subjects were also significant in the analysis of their responses. The questions aimed to test the acceptance of significant changes in the physical and socio-cultural qualities due to the intensification of the environment. For instance, population increase, increase in the number of vehicles, functional changes in the built environment, new employment opportunities, new public spaces, alternative solutions to parking and traffic problems, etc. SPSS software was used for data analysis.

### **3. Results and discussion**

Physical, historical and socio-demographic data on the study area were collected with an archive search and observations. Housing design in both Hisar and Reyhan-Tuzpazarı neighborhoods include mostly timber houses with traditional Turkish features on narrow streets and some blind alleys, small squares with a mosque or a central giant plane tree. The structure contributes to a social lifestyle. The traditional houses are mostly owned by their inhabitants. Part of these owners inherited the houses, while others are newly acquired due to the poor previous state of the houses and these new owners restored the houses and moved in. The residents are generally small business owners or middle-income employees. Approximately 35% of the respondents were 25-44 years old and 38% of them were 45-64 years old. 45% of them had secondary education, 32,5% of them had high school education and 22,5% were graduated from university. The neighborhood of Hisar, being in a walking distance to the city center and the neighborhoods of Reyhan-Tuzpazarı being at the traditional center of the city, include a lot of facilities and social opportunities. However, the rapid urbanization process destroyed some of the physical and socio-cultural values especially in Reyhan-Tuzpazarı due to its being at the center of the city and including shopping units more than Hisar. Table 1 summarizes the comparative analysis of the two case study areas by means of the suitability of their physical and spatial characteristics for compact city criteria.

As a result of the conducted surveys, it has been determined that most of the residents of traditional houses in Hisar are absolutely satisfied by the location of their neighborhood within the city, relations with their neighbors, social life and houses and that they would not prefer to reside in another neighborhood or another house despite their houses' being underdeveloped due to lack of funds. It had been determined that, the inhabitants of this traditional environment have powerful identity and attachment feelings. On the other hand, in Reyhan-Tuzpazarı most of the traditional houses are being used as shopping units and the users are mostly tenants. Only a few traditional buildings are used as houses by their tenants. Both the shopkeepers and the residents are satisfied by the location of their neighborhood. Some of the residents are a little worried about the low density of people at nights because this situation increases the probability of urban violence. Although the neighbor relations are good both between the shopkeepers and the residents of the houses, the attachment feeling of them to their neighborhood is lower than the residents of Hisar. The fewer number of local people living in Reyhan-Tuzpazarı should be the reason.

As another result of the conducted surveys in both of the areas it had been determined that people living in them are almost conscious about the cultural and historical values of their environment and agree to the idea of preservation and revitalization. They mostly think that municipality authorities have begun to do some restoration studies in and around these neighborhoods but they are insufficient in terms of both

quantity and quality. However, they are ready for any kind of cooperation and want to participate in the implementations of the authorities for the benefit of their environment. All of these results show us that the residents of Hisar and Reyhan-Tuzpazari have the tendency to accept the requirements of the compact city form in order to achieve sustainability of their neighborhoods. Majority of them agree to the idea of restoration and maintenance all of the houses and continue to use them efficiently. Because they feel that they belong to their neighborhood and don't want to go anywhere else although most of them don't have a well-qualified house. They accept the intensification of the areas within the limits of their carrying capacities and want to benefit from this process especially by means of the socio-cultural and economic opportunities that will emerge.

**Table 1.** Comparison of the characteristics of the case study areas

COMPACT CITY CRITERIA		HISAR	REYHAN-TUZPAZARI
HIGH DENSITY	Density of Population	Net density 250 person/ ha	Net density 120 person/ ha
	Density of Buildings	Traditional buildings : 3 story Modern buildings : 5 story Occupancy rate ~ % 40	Traditional buildings :3 story Modern buildings : 4 story occupancy rate ~ %60
MIX OF USES	Horizontal mix of uses (within streets and neighborhoods)	Housing district Some shopping units on the ground floors some small office buildings One local hospital One primary school One lyceum Some religious buildings Some monumental buildings	Mainly shopping district Some residential units on the upper floors Some religious buildings Some monumental buildings Office buildings around
	Vertical mix of uses (within buildings)	Some of the buildings include shopping units on the ground floors	Some of the buildings include residential units on the upper floors
INTENSIFICATION	Increase in population	Reuse of empty traditional houses is possible New developments could increase the population	
	Increase in built-form	New units could be developed on vacant and derelict open land infill on backland and gardens is possible	Development of new units on vacant and derelict open land is possible
	Increase in mix of uses	Empty traditional houses can be converted to retail stores	Living over the shop can be increased. New housing units can be built

#### 4. Conclusions

Literature review and empirical research conducted in the present study demonstrated that the urban sustainable development form of compact city approach was adequate for sustainability of Hisar and Reyhan-Tuzpazarı historical neighborhoods in Bursa. The empirical study demonstrated that the possibilities of the urban form would enable the urban space to accommodate substantial residential growth without changing the original identity of the environment and could recreate a vital and viable city center (Cahantimur, 2013; Beceren Ozturk, 2015).

Table 2 summarizes the results of the study about suitability of the compact city form for these two neighborhoods. The study findings demonstrated that raising the awareness of the people about sustainability and allowing them to adopt the sustainability principles before any sustainable urban development project implementation would be a positive approach. This participative approach is critical in providing for the social and psychological requirements of sustainability, as well as the physical requirements. We can conclude that, this study can be an example for future studies to obtain sustainability in especially historic cities together with their residents. We should put stress on that; considering the socio-economic problems of developing countries the participation of the local people gains more and more importance.

It is satisfactory that in Turkey, especially in Bursa, the founder member of Historic Cities Association of Turkey, the municipalities' consciousness about this necessity has been rising. However, although there are many good faith attempts and theoretical studies, the implementation processes still have problems. Insufficiency of monitoring process causes some exceptional actions. It would be possible to redirect the implementations in favor of local people by empowerment of citizens especially in monitoring processes.

**Table 2.** The suitability of intensification for the cases

EFFECTS		HISAR	REYHAN-TUZPAZARI
LOCATIONAL CHARACTERISTICS	Density	Being surrounded by the historic city walls lets the area to be a dense and safe housing district	Being very close to the historic trade center of the city causes the area to be denser in daytime than at nights.
		Being very close to the city center relations with the main transportation axes are effective	Being a crossing point between the historic trade center and central business district relations with the main transportation axes are effective
		Public transport facilities are sufficient	Public transport facilities are sufficient

	Mix of Uses	Being a housing district very close to the city center causes the area to have only key facilities other than residential use.	Being a retail district in between historic and contemporary city centers let the area to include many kinds of uses and make it suitable to include many more
	Intensification	Having clear boundaries the area is suitable to be a denser and accessible housing district together with the key facilities	The central location of the area, its facilities and accessibility make it easier to intensify the population and built-form of the area
SOCIO-CULTURAL CHARACTERISTICS		Being a traditional housing district the local residents of the area have powerful identity and attachment feelings to their neighborhood  They accept the intensification of the area and want to benefit from this process by means of its socio-cultural and economic opportunities	Being a retail center for many years the area has only a few local residents. Instead it hosts many tradesman  They accept the intensification of the area and want to benefit from this process by means of its economic opportunities
URBANIZATION PROCESS		Because of the locational and Morphological characteristics, the area is conserved within its boundaries and doesn't affected by the rapid urbanization process too much  However, immigrant housing sprawls outside the historic city walls, very close to the traditional urban texture  Partially being a tampon district of the UNESCO Heritage Site; Covered Bazaar and Hans' District increased the tourism potential of the area and accelerated the intensification process	Because of the locational characteristics, the urbanization process caused the area to loose many of its unique characteristics except some of the monumental buildings and traditional houses.  Some high-rise social housing blocks very close to the area affected its identity and also changed the demographic features  Being a tampon district of the UNESCO Heritage Site; Covered Bazaar and Hans' District increased the tourism potential of the area and accelerated the intensification process

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