

# A model suggestion for determining physical and socio-cultural changes of traditional settlements in Turkey

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## Abstract

The processes of change observed in many field today such as urbanization, urban transformation and globalization which all are caused by socio-cultural, technological, economic, ecologic and politic factors have great influence on people, relationships, living environments, houses and cities. Existing as a loop these dynamics interact with each other and structure the new parts of the city as well as transform the old / traditional settlements. It is seen that traditional life style and buildings have changed and/or decreased in terms of functional incompetence and dilapidation in accordance with these transformations and changing requirements of the century. It is possible to state that the traditional housing areas, as an important component for cultural sustainability and worth of historical heritage have transformed accordingly in terms of socio-cultural and physical ways with their users.

Some questions occur at that point like “How can we find out if a settlement has changed?”, “How can this change can be formulated?”, “What is the rate of the change?”. It is aimed to answer these questions using a method for comparison of traditional settlement parameters with new settlement parameters in Turkey and put forward the physical and socio-cultural changes.

## Keywords

Model suggestion, Change process, Socio-cultural factors, Traditional Turkish settlements.



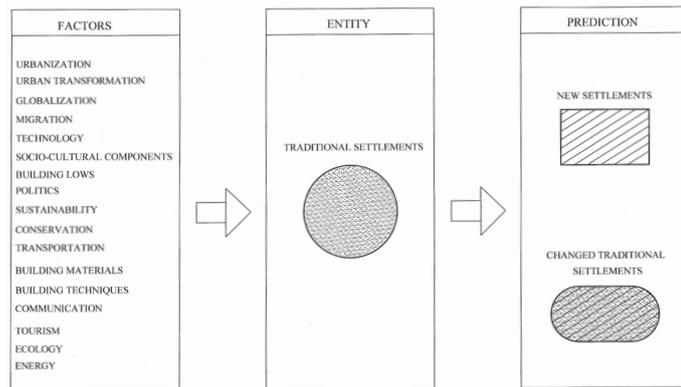
## 1. Introduction

The processes of change observed in many fields today have great influence on people, relations, environment, houses and cities within the world. As an important component for cultural sustainability and worth of historical heritage, the traditional settlements are also affected by these changes together with their users. It is known that the existence and continuity of traditional settlements are at risk because of the monotony and uniformity being widespread. Besides the physical changes like becoming worn-out and dilapidated, the cultural losses also threaten the traditional environments in terms of usage and expectations. Although new structures and settlements mostly designed according to technological innovations and requirements of modern life style are needed for sheltering, the conservation and permanence of traditional environments are vitally important in order to keep our values and cultural entirety and to be able to transfer them to the next generations. Besides physical and spatial re-arrangements generally observed during change processes, the importance of cultural components and socio-cultural factors as family structure, life styles and user needs should also be considered. Within the scope of environment behavior studies, analyzing change processes of traditional settlements in terms of both physical and socio-cultural ways through a model suggestion in Turkey is aimed in this study.

The model consists of three stages and is supported by questionnaire following field study. Two stages are constituted with a theoretical background of traditional Turkish settlements and their components; while one stage includes data obtained from field study. This model can answer following questions: 1. How can we find out if a settlement has changed? 2. How can this change can be formulated? 3. What is the rate of the change?

## 2. Model background

Giving clues in order to understand physical and social environment, models are simple and are summarized versions of facts. Thus all sciences use models for analyzing issues. Turgut



**Figure 1.** The frame of the conceptual model (Author).

(1990) has classified the model types used in environment behavior studies such as performance based models, perception and informatics based models, behavioral models, environmental models as a symbol of verbal-nonverbal communication, ecological models, ethological models, socio-cultural models and environmental preference models. However, Ünlü (1986) asserts conceptual models for identifying dynamic relations of human-environment interactions and claims that with given certain parameters, these models can be used for indicating future performances. Be inspired from the model about design idea of user requirements of changed cultural environments by Ünlü (1986), the frame of the conceptual model is shown in Figure 1.

In this framework the factors and parameters of change are gained by literature review and organized as shown in the first column. Traditional settlements in the middle column are the effected entity. The third column indicates the interaction of factors and traditional settlements as a prediction.

### 2.1. Factors of change process

As a brief information we can say urbanization is a specific factor occurs in changing process and it is simply defined as the increase in the number of cities. Being a demographic event it can be also considered as the increase in number of people living in cities. Thorns (2004) states that more than half of the earth population live in cities because of the opportunities which are the main reasons of migration such as the attractiveness of social, health, education and gainful employment

formations in the new settlements. The physical and social environment perception of house holders also changes within migration. According to Shauckland (2007) the changes in cities arise from the requests of modern lifestyles. Families desire for house and business in better conditions than they have and high pay with more qualified living standards in sample. Payne (2006) emphasizes that migration from villages and poverty to cities and welfare is an inevitable situation for people and their children to reach better life conditions.

Globalization being the other factor in changing process is a concept used to explain the changing quality of the world within social changes and transformation. It is a holistic phenomenon composed of economic, social, politic, cultural and ecologic processes related to each other and continues to shape the world according to Thorns (2004). Giddens (1988) evaluates globalization as a result of modernization and defines it as the intension of relationships worldwide. Claiming that independency of time from space is the pre-condition of globalization; he mentions the reality of social interaction which occurred far apart independently from space. It can be said rapid transmission of information, communication and capital as the main reason for that at this point. Urban transformation process is another factor variety from macro to micro scales and induces change process. Defined as transforming into another shape of a city completely or partially, it requires various applications in terms of both meaning and economic-social-physical-administrative dimensions for any country or city or district.

It is a reality that urbanization, globalization and urban transformation phenomenon experienced in changing process effects societies and living environments within the factors of culture, environment, ecology, economy, politics and technology etc.. In addition to them building laws and local authorities, tourism, conservation and sustainability concepts, evaluations in building sector, building materials and technologies can be mentioned to enlarge and explain these changes,

we think. As seen above the keywords “demographic event”, “migration”, “requests of modern lifestyles”, “social changes” and “culture”, we remark that they are all related to socio-cultural factors based on people. Because socio-cultural factors consist of every routine of people involved in daily life -language, religion, music, poem, rituals, beliefs, social values and norms, behavior and interaction of people, tradition which all are explained within culture concept being the earnings of the past. Thus socio-cultural component of change factors with user dimension are in demand within this study.

## **2.2. Putting forward socio-cultural components of houses**

Rapoport claims that buildings especially houses are not only physical artifacts but also cultural ones. Architectural forms and house formations are effected by many values such as cultural values and choices (Rapoport, 1969, 1989); rules, norms and social relations (Mazumdar and Mazumdar, 1994); symbolic meanings (Rapoport, 1969, 1982; Lawrence, 1985; Low, 1988). Cunningham (1972) argued that houses are composed of divisions, form, symbol and arrangements as a model of universe. Similarly, Errington (1979) found out that the Buginese houses represented the world in a symbolic way and reflected inter group relations. Indian houses were designed according to their religious rituals with holy rooms where prays were said in (Mazumdar and Mazumdar, 1994). Snyder (1976) also mentioned about houses as a socio-cultural concept besides being a shelter. Claiming that houses reflected cultural manners, values, beliefs, social and economic organizations; he studied user satisfaction. Approaching houses with their users brings out satisfaction naturally according to him. All these samples indicate that house phenomenon is not only a physical formation but is also a socio-cultural concept within culture just as Traditional Turkish House.

Traditional Turkish House is known and qualified as “planned and formed in harmony with life culture and customs of Turkish family” and “fulfilled

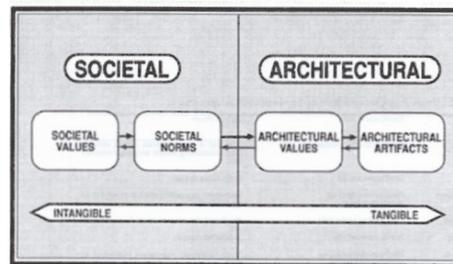
the requirements of Turkish individuals for centuries” (Eldem, 1968). The buildings are in harmony with natural topography in order not to prevent the sunshine and landscape of each building (Arü, 1998) besides the height of the buildings, with their distance to nest house and bay-window sizes are determined by common consent. The houses are generally designed as 2 or 3 floors. The first floors are closed to the street for privacy; requirements are fulfilled by usage of gardens and yards. The other floors are planned using bay-windows to contact and expand over the street, get more daylight and air besides their esthetical value. The houses composing the traditional pattern become specific with their private and semi-public usage by means of their front gardens. Users as another characteristic feature of traditional houses were mostly extended families consisted of 2 or 3 generations living under the same roof. (Erurun, 1989; Yürekli and Yürekli, 2005; Günay, 1999; Bektaş, 2007).

The intangible concepts belonging to daily life performances and complication of architectural solutions needs to come into focus. As it is difficult to put forward the socio-cultural factors effecting a design, Mazumdar and Mazumdar (1994) presented a socio-physical model of culture and architecture relation as shown in Figure 2. This model indicates the links between social values, social norms, architectural values and architectural artifacts that selected and designed by culture. Four levels of interrelated values, preferences and choices can be seen lying on a continuum with tangible at one end and intangible at the other. Social values are more conceptual; shared beliefs and ideas held by culture. They provide general guidance about life and role of users. Social norms are more specific notions about behaviors. Architectural values are more definitive preferences and ideas about physical forms. Architectural artifacts are elements and components of building including forms, shapes, size, materials, structure and objects.

Al-Soliman (1991) used this model and presented the social changes in Saudi Arabia at the beginning of 1970's.

**Table 1.** General planning and design differences between traditional and modern houses (Al-Soliman 1991).

	Traditional House	Modern House
Pattern	Attached to other houses	Detached & must maintain certain setbacks from surrounding streets and neighborhood's lots.
Size	Small in size and lot	Large in size and lot
Open Space	Has a private, open-air courtyard or more	Surrounded by a garden which is enclosed by an eye-level wall
Structure	Load bearing adobe walls	Reinforced concrete structure & cement block wall
Roofing	Wood, straw and clay	Reinforced concrete
Windows	Minimum street windows providing light to non-family spaces	Large climatically unprotected windows at all sides
Equipment & Amenities	The traditional house lacks, or is poorly equipped with, all the amenities, fixtures, equipment & installations usually available in modern house.	
Uses of Rooms	Rooms in the traditional house had no specific names & are not designed for specific uses as in the modern house.	
Safety	Compared to the modern house, the traditional is somewhat unsafe structurally & is poorly protected against fire, dust storms and rain flooding.	
Users	Single or multi (extended)	Single family



**Figure 2.** Socio-physical model of culture and architecture relation (Mazumdar and Mazumdar, 1994).

The changes were on religious values, neighborhood relations and family values in terms of socio-cultural issues as well as on economic, educational and technological issues in terms of socio-economic ways as he mentioned in Table 1. He indicated that the houses were designed according to the new design parameters of modern period and traditional period was given up.

With a similar approach while configuring the model, Traditional Settlements are required to be explored. The status of traditional settlements both in the past and today is an important criterion to determine the “change”. In another words, it is necessary to put forward the previous and existent situation of something in order to understand how it has changed. The traditional settlements are handled within the context of Traditional Turkish House through Ottoman Empire Period and Culture as accepted by literature while the new ones are evaluated according to contemporary approaches.

### 2.3. Traditional settlements in Turkey

Traditional Turkish cities are homogenous settlements where various social and ethnical groups live together in a harmonious way. The basic principles of the settlements are the unity with natural environment in terms of direction, climate and topography with the enrichment of the characteristic silhouette (Arü 1998). Traditional settlements have “old and historical” pattern characteristics such as grid plan, organic-curvilinear, radial and mixed according to Kahraman (2000). Arü (1998) states that traditional Turkish Cities have unconstrained and organic pattern. The settlements are composed of multiple units -districts- joining together. Districts are the smallest administrative units where the basic elements of cities such as house and street systems; economic, social and cultural facilities gather. Neighborhood mentioned with the same meaning with district is another specific quality of traditional life. Neighborhood is significant in Turkish tradition. It represents mutual support and helping, besides visiting, keeping secrets; sharing social values like religious days, wedding, funeral, birth and circumcise ceremony (Nirun, 1991). These values are all supported with hospitality. Hospitality means welcoming guests, treating them well, make them comfortable as if they are in their own house. Therefore, a special space decorated better than the other rooms is designed in the house for guests. The neighborhood relations were sustained in guestroom or daily used room, kitchen, yard or garden of the houses; strengthened with lower garden walls and passages with the next door thus the relations are experienced within confidence and unity. Social and economic cooperation, toleration, sympathy and the unity between neighbors is the genuine of the system called “Neighborhood Unit” by the planners of today (Bektaş 2007). According to him district has a focal point or center that is proportionate to its size; this center is secondary to that of the center of the city as a whole. Here exists at least one mosque, a grocery store, a butcher shop, a barber, a shoe repair shop, a bakery, a cof-

fee house. As district grows in size its center accommodates also other functions, school, health center, soup kitchen, guest house, public bath, fountain and others.

A spatial organization for the private and public area within the yards, gardens, non-end streets and squares were seen to prevent alienation. The streets as being one of the important elements of city form had organic shape in Ottoman cities refereeing defense. The various alignments of houses within direction changes of streets besides land form and human scale also had a role in shaping city form. Similar proportions of houses are observed in street layout besides garden walls that create unity together. The streets are narrow and shady. This is quite an important solution for hot climates but not suitable for today’s vehicles. Traditional city is for pedestrians actually; claims Bektaş (2007) mentioning that fountains appear frequently for thirsty folks. Oktay (2001) emphasizes that organic pattern and streets which are spatial identifiers of traditional Turkish settlements and has social meanings (playing children, gathering at fountains, chatting in front of doors, etc), is a significant part of daily life.

Researchers mentioned that Traditional Turkish House come into being with its “sofa”-hall and yard. Such that hall is the main spatial organizer (Eyüce 2005; Eldem 1968; Bektaş 2007). Houses are defined with their rooms and sofa arranged according to them besides economic and social status of owners’. Similar characteristics especially house plan and location of hall (sofa) are seen even on far away Turkish houses in different geographies. (Eldem 1968; Günay 1999). House plan types constitutively are without hall, with external hall, internal hall or central hall. (Eldem 1968, Bektaş 2007). Halls can be thought as passages between rooms and household gather here. They use halls frequently in a day. The rooms always emanate serenity. A room can shelter a family and provide all necessities for life such as sleeping, bathing, relaxing, eating and so on. In a room at least four people can sleep on the mattresses laid on the floor. Lots of people can sit down and chat. They

are not limited by the number of chairs available. Rooms are in use 24 hours (Bektaş 2007). The room is the most isolated space and is characterized by also its walls such as storage, washing unit, fireplace. The size of the house is determined by the number of rooms not by measurement (Yürekli and Yürekli 2005). The biggest room of the house is called the master room “baş oda”. It belongs to owner of the house and is the eldest parents’ room. It is also used as a guest room. There may be other function-specific rooms such as prayer room, library, presentation or council room appropriated according to the owners’ social status or job. Presentation room evolved into “selamlık” or salutation room as a whole independent form the house (Bektaş 2007).

The houses are generally designed as 2 or 3 floors. The ground floor is mainly made of stone and is used as a service floor. A barn, storage areas and winter room exist here. (Yürekli and Yürekli, 2005). Generally, window usage isn’t observed in this floor related to privacy. The upper floors are made of timber generally and include other rooms. For instance, guest room and the other rooms are on the mezzanine. It is accepted that the upper floor is the main floor of the building and it has a typical plan. Besides, ceilings are different; quality of details and ornaments are related to social status of the owner (Yürekli and Yürekli, 2005). Garret is used to dry vegetables and fruits under eaves within proper ventilation. The roofs are designed with wide eaves both for protecting the building from air conditions and for esthetical value. The windows are positioned in a way not to obstruct the view while standing or sitting. Their proportions are one by two. A window is placed in a location that allows a view of what you care to see. It is not installed at locations that would allow a view of the inside from the outside. Sometimes an entire wall may end up being windowless. The house door has two wings and is wide enough for a horse cart, phaeton or a loaded horse. The belief is that the size of the door reflects the size of the owner’s heart. (Bektaş 2007). The most striking feature of the Turkish houses is that their design starts inside and

evolves from inside to outside. In other words, functionality is considered first. Flexibility is among the most important principles. The houses are capable of growing with the family one unit at a time; or can be divided up later on. In recent eras old houses managed to continue their existence by divided up (Bektaş 2007). Ethnical groups living in an environment and having various traditions and life styles causes multi-cultural societies (Gönül, 2001). Thereby multi-cultural usages in traditional houses have a significant role in spatial organization and flexible house plans. Houses with their adaptable character can be a source for new ideas. For instance, the layered functions of the walls of the rooms can be a tromp wall and interpreted as different elements and functions (Yürekli and Yürekli 2005).

#### 2.4. New settlements in Turkey

The cities and settlements in Turkey become estranged from the sense of traditional space and pattern in consequence of the changes. New settlements occur within the growth of cities on the one hand, the existent ones become insufficient to satisfy requirements of migrant population on the other.

Eyüce (2005) states that traditional architecture faces various changes by time. Some of these changes can be considered as beneficial while some are not. Özbek (1998) mentioned that user preferences and relations become different such as life styles and structural innovations related to modernization after industrialization. Daily life dynamics such as transportation, infrastructure, social equipment sufficiency and urban space cannot afford requirements of increasing population in traditional settlements. Besides dwindling of parcels, increasing of land price, multi-floor structuring, the density of uncontrolled and unlicensed construction to gain benefit also has unfavorable influence on city identities (Kaygusuz, 1993; Velioglu and Tavşan, 1993; Arü, 1998). At the same time the streets lose their significance in terms of social relations such as gathering, socializing and communicating activities; and they are considered only as an access to houses. Oktay (2001)

criticize that spatial hierarchy through street-house relation began to disappear. Monotone and widened passages appear instead of narrow but attractive streets where dead-ends and social facilities are observed. She also states that vehicles take the place of traditional street usage. Thus vehicle roads without having spatial and esthetical values can not integrate with the buildings like they could in traditional settlements. For instance, billboards and signboards cause complexity in perception of the streets (Velioğlu and Tavşan, 1993; Firidin Özgür, 2006). As a result, it can be said that traditional Turkish settlements become old and the organic pattern of cities loses their characteristic through the change process and rapid-unplanned development.

Similarly district and accordingly neighborhood concepts lose their traditional qualities too. Arü (1998) claims a reason for that such as unity concern wasn't considered while re-structuring relevant to modernization after fire demolish in some regions. The districts become only an administrative unit deprived of their social and spatial meanings (Firidin Özgür, 2006). It is observed that a formation of a community within house consumption and produced life styles are offered, for the high-income group as a result of social segregation and isolation (Firidin Özgür, 2006; Bayramoğlu Alada, 2007). These users have difficulty to interact with citizens, streets as well as the city. Thus districts are generated like "small cities in a city" instead of having place "in the whole of a city". They are also fictionalized with an identity apart from the city (Firidin Özgür, 2006). Therewithal relevant to business life, economic possibilities, educational status, urbanization, entertainment and recreation functions; traditional neighborhood perception and understanding caused changes on expectations, relations, rituals and actualization of neighborhood (Gündüz and Yıldız, 2008). It can be said that these changes may cause social disintegration; loneliness, dissatisfaction, isolation, alienation, various disease both mental and physical.

Urbanization and migration rela-

tively increases population and housing demand. Due to rapid production and modern expectations house plans are effected as well user profiles. Plan types are adapted from western countries; new life styles take place inside the houses. Entrances and corridors take place of traditional hall (sofa) usage while accessing to the rooms. Rooms become single-functioned and specialized as kitchen, dining room, bedroom, bathroom, parent's room, working room, living room, storage etc. Thus every member of the family prefers to spend time in their own room. One more reason for that is the change of family structure; traditional extended family transformed into elementary family because of some reasons such as migration, death, educational, economical and social status (Sağdıç and Pulat Gökmen, 2001). Gür (2000) states that each factor effect people, also effect the house. She thinks that developing technology, increasing mobilization, life styles and working women causes change in family structure and size and effects house-family relations. Improvement of infrastructure and technology brought new equipments such as television, washing machines, bathtub, multimedia systems and their usage areas in the houses.

Houses designed with at least 5 floors took the place of traditional houses. The ground floors are designed for commercial usage frequently while the others are for residence, office, studio variously. Eyüce (2005) states that wide spreading of apartment blocks is the most threatening reality for traditional settlements. The windows and bay-windows are used for different purposes; wide and opened to landscape in terms of transparency and esthetic value sometimes with nostalgic approach. The building complexes are separated within walls from each other along a street in districts today thus users cannot contact with each other and with the environment. Thus these typologies are considered as being apart from the traditional ones in terms of esthetical, physical and functional values during change process. In addition to these, unplanned structuring and parcel/land problems also make the buildings become discordant with

the topography, climate and direction through standardization.

Gaining these information, the parameters of traditional and new settlements in Turkey are shown in Table 2.

### 3. Composing the model

The questions asked at starting point of this study are aimed to reveal the changes in a tangible way. To find out if a settlement has changed, the status both in the past and in present are enucleated. A model is designed in order to formulate the change. Finally, a field study is done to determine the rate of the change. Thus a three staged model as shown in Figure 3 is composed as we mentioned.

Stage 1 is prepared according to findings in Table 2. These findings are gained through a literature background and presented in a hierarchic scale as city, district, street and house. And then they are used to compose parameters of socio-cultural factors related to user; and physical factors related to house and district. Socio-cultural and physical factors with their parameters are accepted as independent variables of the model. The questionnaire is prepared according to first stage which also includes user identification part as determinant. The data of stage 1 can explained as follows:

- Age is an indicative factor that plays a significant role in environmental choices. We believe that older people have emotional connections with their living environments and the changes can be determined with their witnesses. Thus age is taken in consideration as an independent variable.
- Gender also effects environmental choices according to different life styles of men and women.
- Marital status shapes expectations from environment.
- Place of birth indicates belonging, owning and unity parameters. Requirements, choices and expectations are also determined by educational status.
- Profession and total income reflects economic status of users and plays role in satisfaction.
- Family structure puts forward the user change related to its socio-cultural content.
- Neighborhood and belonging pa-

**Table 2.** Indication of findings of traditional and new settlements (Author).

	FINDINGS OF TRADITIONAL SETTLEMENTS	FINDINGS OF NEW SETTLEMENTS
CITY	-Organic pattern -Harmony with nature & environment (topography, climate, direction)	-Inorganic & diffused pattern, Unplanned settlements -Aim for maximum structuring on small parcels, Discordance and demolition of nature -Building lows
DISTRICT	-Common living areas: mosque, square, coffee house, bazaar, baths, fountain, etc., in district -Different religious and ethnical groups -Profession groups -Sincere neighborhood relations	-Social units in building complexes, shopping malls -Income groups, family status -Social classes within profession and income level -Poor neighborhood relations
STREET	-Organic, expansion to the square -Dead-end and narrow streets -Usage for pedestrian -Garden walls and house alignment	-Inorganic, only access to houses, usage as a parking area -Expropriation and extended streets -Usage for motor vehicle -Walls of building complexes, height of houses
HOUSE	-Multifunctional rooms -Hall (Sofa-Hayat) -Closeness to outside & oriented inside -Usage of house's garden and yard -Specific house-street relation -Uniformity of roofs and eaves -Local materials and builders -Windows and bay windows for privacy	-Single functional rooms -Entrance hall and corridor -Oriented both inside and outside -Usage of green-open area of settlements if exists -Undetermined house-street relation -Various materials and designs of roofs and eaves -Contemporary materials and fabrication -Arranged and widened windows for esthetics and usage

rameters come up with migration and satisfaction status as well as privacy as an socio-cultural, behavioral and psychological components.

- Meaning of house and district according to users can also determine change because of including emotions.
  - Usage of room and house emphasizes functionality such as multi-functioned usage, hall presence, spatial arrangements, material and structure techniques, direction to inside or outside.
  - Relation of house with land, street and nature are considered for understanding physical environment and interactions. Besides the components of building such as windows and roof are investigated.
  - Physical borders and pattern indicate the physical characteristics of district and settlement.
  - Streets are significant to put forward the change as mentioned previous
  - Social facility types and locations show both physical formation of buildings and social interaction of users.
  - Users with various profession and religion, besides ethnical orientation is meant by location of groups.
- Stage 2 is also prepared according

		STAGE 1	STAGE 2		STAGE 3					
USER IDENTIFICATION	PARAMETERS	DEPENDENT VARIABLES		SURVEY DATA	RATE					
		TRADITIONAL SETTLEMENTS	NEW SETTLEMENTS	FIELD STUDY	Traditional	New	Combination			
	Age	-	-							
	Gender	-	-							
	Marital Status	-	-							
	Place of Birth	-	-							
	Total Monthly Income	-	-							
	Time to live in City	-	-							
	Time to live in Settlement	-	-							
	Status and Reason of Migration	-	-							
INDEPENDENT VARIABLES	SOCIO-CULTURAL FACTORS	USER	Educational Status	Primary School, High School				Associate-Bachelor's-Master Degree		
			Profession	Farmer, Merchant, Civil Servant, Housewife	Employee, Engineer, Doctor, Lawyer, Scientist					
			Profession of Family Elder	Farmer, Merchant, Civil Servant, Housewife	Farmer, Merchant, Civil Servant, Housewife					
			Family Structure	Extended Family	Elementary Family, Singles, Single Parents					
			Neighborhood	Sharing, Loyalty, Unity	Poor relations, Discrepancy					
			Belonging / Alienation	Loyalty, Belonging	Alienation, Citizenship					
			Privacy	Strict percept of women, Women are at house	Flexible percept of women, Women are at work					
			Satisfaction	Pleasure in the district	Searching for quality of life and habitability					
			Meaning of House and District	Spiritual connection, Ownership, Integrity	Consumption, Marketing tool, Prestige					
			PHYSICAL FACTORS	HOUSE	Room Usage	Multifunction, Yard usage for wc, kitchen	Specialized, All in the house			
	House Usage	Men-women sit separately, Floor arrangement			No gender separation, Privacy for day-night usage					
	House-Land Relation	In harmony with topography and surrounding buildings			Maximum usage of land, Unplanned structuring					
	House-Street Relation	Entrance to house from street and garden			Only one entrance to house					
	House-Nature Relation	In harmony with climate, Usage of yard and garden			Green-open areas of building/settlement					
	DISTRICT	Physical Borders			No visual borders, Mukhtar	Visual borders, Surrounding walls				
		Pattern			Organic pattern / Historical -Old urban pattern	Inorganic and diffused pattern				
		Streets-Roads			Dead-end, narrow streets, Pedestrian and phaeton usage	Widened streets, Vehicle usage				
		Types of Social Facilities			Mosque, Bazaar, Turkish coffee house and bath, Fountain	Shopping mall, Sport complex, Recreational area				
		Location of Social Facilities			In district square, street, yard and garden	In building complex, in city somewhere randomly				
		Location of Groups	In the same district and related	In different district, Unrelated, Polarization, Isolation						

**Figure 3.** Model for determining physical and socio-cultural changes of traditional settlements in Turkey (Author).

to findings in Table 2 but this time the statements are written more clearly. The reason of this is to reflect briefly all information given in conceptual part. One can think this part as an interpretation and evaluation of the findings. Traditional and new settlements are accepted as dependent variables of the model because the statements might be different under alternative circumstances. A comparison can be seen in the second stage.

Stage 3 depends on survey and questionnaire. When the column is filled properly according to results obtained from field study, current situation shall be displayed. And then the rate boxes can be marked according to the statement which they match with; traditional column or new one? Some instances may include both statements and then combination box shall be marked. Thus the changes can obviously be seen and third question shall be replied.

### 3.1. Testing the model

We tested the model in Kaleiçi Settlement where is known as the first settlement of Edirne. It is located inside the curve of Tunca River flowing to Meriç and founded by Romans on approximately 50 hectares at the end of 2nd century and was surrounded by castle walls. It had a significant role in

colonization politics of Roman Empire. Kaleiçi was the only settlement with its Byzantine, Genovese and Jewish population when Edirne had been conquest. According to researchers we can learn that Islamic, Jewish and Greek districts of Edirne had been recorded by the end of 17th century after Turkish districts showed up at the beginning of 16th century. Kaleiçi means "inner part of a fortress". Thus first dwellings and urban structures took place inside the walls; and then outer of them by time as the city developed and grew. We are informed about a rehabilitation done at 1902 after a natural disaster, fire, demolished the settlement unfortunately. The region was mended like the original as possible; having grid plan system with stone pavements which is another significant character of the settlement besides their unique population in terms of cultural union. The settlement is still tetragon shaped; surrounded by old city walls that not exist anymore; the same perpendicular roads crossing each other; consist of two districts and has a few Jewish and mostly Turkish population today (Peremeci, 1940; Darkot, 1965; Bayık, 1973).

Maps of the settlement has been examined and revised according to survey and field study. 191 traditional buildings were ascertained: 42 hous-

STAGE 1		STAGE 2		STAGE 3						
USER IDENTIFICATION	PARAMETERS	DEPENDENT VARIABLES		SURVEY DATA	RATE					
		TRADITIONAL SETTLEMENTS	NEW SETTLEMENTS	FIELD STUDY	Traditional	Combination	New			
	Age	-	-	Average 41 Women-60 Men						
	Gender	-	-	61 Women, 58 Men						
	Marital Status	-	-	Married, Single						
	Place of Birth	-	-	Edirne- Average						
	Total Monthly Income	-	-	500-1500 tl						
	Time to live in City	-	-	31-60 Years						
	Time to live in Settlement	-	-	1-45 Years						
	Status and Reason of Migration	-	-	Migration from various cities,Economic-family reasons.						
INDEPENDENT VARIABLES	SOCIO-CULTURAL FACTORS	USER	Educational Status	Primary School, High School				Associate-Bachelor's-Master Degree	Primary School, High School	
		Profession	Farmer, Merchant, Civil Servant, Housewife	Employee, Engineer, Doctor, Lawyer, Scientist	Housewife, Retired, Self-employment, Unemployed					
		Profession of Family Elder	Farmer, Merchant, Civil Servant, Housewife	Farmer, Merchant, Civil Servant, Housewife	Farmer, Merchant, Self-employment					
		Family Structure	Extended Family	Elementary Family, Singles, Single Parents	Elementary Family					
		Neighborhood	Sharing, Loyalty, Unity	Poor relations, Discrepancy	Sharing, Loyalty, Unity					
		Belonging / Alienation	Loyalty, Belonging	Alienation, Citizenship	Loyalty, Belonging					
		Privacy	Strict percept of women, Women are at house	Flexible percept of women, Women are at work	Flexible percept of women, Women are at house					
		Satisfaction	Pleasure in the district	Expectation for quality of life and habitability	Pleasure in the district, Expectation for quality of life					
		Meaning of House and District	Spiritual connection, Ownership, Integrity	Consumption, Marketing tool, Prestige	Spiritual connection, Ownership, Integrity					
		Room Usage	Multifunction, Yard usage for wc, kitchen	Specialized, All in the house, Separate wc-kitchen	Specialized, All in the house, Separate wc-kitchen					
	PHYSICAL FACTORS	HOUSE	House Usage	Men-women sit separately, Floor arrangement	No gender separation,Privacy for day-night usage	No gender separation,Privacy for day-night usage				
		House-Land Relation	In harmony with topography and surrounding buildings	Maximum usage of land, Unplanned structuring						
		House-Street Relation	Entrance to house from street and garden	Only one entrance to house	Only one entrance to house					
		House-Nature Relation	In harmony with climate, Usage of yard and garden	Green-open areas of building/settlement	Green-open areas of settlement					
		Physical Borders	No visual borders, Mukhtar	Visual borders, Surrounding walls	No visual borders, Mukhtar					
		Pattern	Organic pattern / Historical -Old urban pattern	Inorganic and diffused pattern	Organic pattern / Historical -Old urban pattern					
		Streets-Roads	Dead-end, narrow streets, Pedestrian and phaeton usage	Widened streets, Vehicle usage	Narrow streets, Vehicle usage					
		Types of Social Facilities	Mosque,Bazaar,Turkish coffee house and bath,Fountain	Shopping mall,Sport complex,Recreational area	Mosque,Bazaar,Turkish coffee house,Shopping mall,parks					
		Location of Social Facilities	In district square, street, yard and garden	In building complex, Somewhere in city randomly	In district, street, yard and garden					
		Location of Groups	In the same district and related	In different district,Unrelated,Polarization,Isolation	In the same district and related					

Figure 4. Model for determining physical and socio-cultural changes of traditional Kaleiçi settlement in Edirne (Author).

es, 53 buildings (with different functions), 32 abandoned buildings, 24 parcels (new building or empty), 40 houses (without users; left or for rent; under restoration). The questionnaire form was fulfilled within face to face interviews to all users of 42 traditional houses related to complete inventory method (Atik, 2011).

The questionnaire form contains three parts with 78 questions. In the first part demographical and socio-economic 15 questions were asked such as age, gender, birth place, marital status, educational level, profession and income, family structure, migration, and previously aboded place. Optional -mainly closed ended- questions were asked besides open ended ones giving an opportunity for interpretation in this part. Frequency and percentage distribution tables presented the results (Atik, 2011).

In the second part behavioral questions were asked such as satisfaction of house, district and Kaleiçi settlement besides accessibility and necessities of users. 27 questions include abode period and reasons, moving reasons, thoughts about transformation, neighborhood relations, mutual activities, privacy, belonging and safety issues. Optional -mainly closed ended- questions were asked besides open ended ones giving an opportunity for interpretation in this part. Frequency and

percentage distribution tables were presented. Besides chi-square independency testes were used to determine the relation between independent variables and second part questions (Atik, 2011).

Satisfaction towards to physical, social, cultural and political dimensions was questioned in the third part to determine attitudes and opinions of users within 36 statements. Five point likert scale was used in this part and evaluated within SPSS statistical pc programmer and frequency-percentage distribution tables. And then these statements were rendered down into three stages as “house satisfaction”, “district satisfaction” and “Kaleiçi satisfaction”. Using t-testes they were evaluated with firts part questions to put out differences. The reason of differences if any was determined within Tukey tables (Atik, 2011).

In addition to these research, we evaluated the rate of the socio-cultural change in Edirne-Kaleiçi traditional settlements as low; shown in Figure 4. This means the change is acceptable according to users. Adaptation is observed, user satisfaction is achieved and a district culture like traditional concept as possible as it can be, desired to sustain despite changes. We evaluate the rate of the physical change as high. This means change is not acceptable in terms of traditional pattern unity.

Considering the politic and economic dimensions of change we found out the discordance of the buildings –high, contrary to typology or abandoned-damage the pattern and perception (Atik, 2011).

#### 4. Conclusion

Traditional settlements which are providing cultural sustainability with its physical and social meanings, are at risk to disappear as consequences of change. The change process may not be prevented but can be managed. Physical changes are observed at first sight however social ones must also be taken in consideration with their socio-cultural dimension. The point is to be able to adapt the changes while protecting the values and norms of our culture and traditions despite political and economic dimensions. In this study, it is considered that The United Nations 2030 Sustainable Development Goals are important and a leader in order to ensure access for all to adequate, safe and affordable housing and basic services; to enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries as mentioned in goal 11.

The factors that effect change process and consequences have also effect the design criteria in traditional settlements. During process, data of traditional settlements neither become integrated with design phase nor with designers. Thus requirement of these phases cannot be afforded by socio-cultural based data and new data. The model suggestion is qualified to unite this malfunction related to strength efforts to protect and safeguard the world's cultural and natural heritage; to provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women, children, older persons and persons with disabilities according to UN 2030 goal 11. In addition, the following goals are aimed in this study through the usage of this model:

- to determine the physical and socio-cultural changes in traditional settlements
- to put out the rate of change

- to avoid undesirable consequences of change process such as extinction
- to guide designers, planners and local authorities for what should be in consideration to reduce negative effects
- to provide unity within variable user expectations except habitual design phases
- to take precaution before being subjected to change
- to sustain traditional settlements in terms of physical and socio-cultural dimensions

Even if new settlements and structures designed according to the necessities and technological innovations are needed, the conservation of traditional environments has vital importance in order to hand them down to next generations. As interaction and attraction between people and environment go on in endless way, user satisfaction through respect, privacy, sensibility and unity must be provided for healthy societies. User requirements both physical and social are important for spirit and continuity as people and their satisfaction are the key of much success, we think.

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