




Resilience of rural settlement morphology dynamics: The case of Kargalı district (village)

Begüm Demiroğlu İzgi*

Abstract

In this study, the term resilience has been examined in terms of ecological, economic, and cultural parameters specific to residential areas. Recently, changing needs and increasing the speed of change due to developing technology are reflected as internal and external threats to residential areas. Change is inevitable for each parameter over time, but it can also pose a threat to the morphology and identity of residential areas. The buffer zone to be created by the residential areas against this threat reduces the severity of the incoming impact and revises it and provides the adaptation of identity and morphology dynamics to the new situation with its resilience. In the first part of the study, the identity of the settlements and the resilience factor against change/transformation threats are explained according to the definitions in the literature. In the second part, the dynamics of rural settlement morphology are defined and the effect of rural resistance on the dynamics is presented. In the last part, a stratification analysis is made according to certain year intervals over the Kargalı district (village) of the Polatlı District of Ankara. The sample was analyzed in terms of rural area, road traces, environmental location relations, structural boundaries, landmarks, and the changes/transformations of all these morphology dynamics over time, its resilience, and adaptation/mutation processes. The effects and possible results of the resilience of rural settlements for sustainable rural settlement, which are more affected by similar internal or external threats than urban, on the dynamics of settlement morphology and resident over time, constitute the desired findings of the study.

Keywords: rural resilience, settlement morphology, rural morphology dynamics, rural adaptation, morphological resistance

1. Introduction

Shelter has been the most basic human need from past to present. With the transition to settled life in the Neolithic Period, the shelters came together permanently. Due to the increasing population and needs, settlement areas with different sizes and dynamics began to diversify. Although the abstract and concrete elements that define the settlements whose main user is human are the same, different hierarchies of demographics and dynamics have characterized different definitions of the settlement locality.

*(Corresponding author) Dr., Yozgat Bozok University, Turkey, begum.demiroglu@yobu.edu.tr

Article history: Received 23 February 2022, Accepted 24 April 2022, Published 30 April 2022

Copyright: © The Author(s). Distributed under the terms of the Creative Commons Attribution 4.0 International License



Settlements exist together with the abstract and concrete dynamics of the place where they are located. All abstract and concrete dynamics and their changes/transformations over time allow to characterize the region in terms of shape and form, and this is defined as settlement morphology. The determination of the abstract and concrete dynamics and the examination of the region within these limitations allow the stratification analysis of the changes and transformations of the settlement pattern over time.

Holling (1973) defines resilience as reorganizing the shaken balance of the system by absorbing the sudden changes and shocks that come to the existing system in the most accurate way possible (Holling, 1973). Resilience, which has been studied by many different disciplines, is also a concept that is basically valid for settlement morphology. The reactions of societies to an existing crisis and the risks as a result are also a valid definition for the resilience of residential areas (Atlger, 2003). On the other hand, the absorption ability and strength of each settlement texture differ. Because it is the most common acceptance that each region is different and subjective from each other in the global sense (Dupre & Bischeri, 2020). However, it is possible to examine the resilience of rural settlements under three main dynamics: economic, ecological and cultural. The continuous and balanced combination of these dynamics directly affects the strength and sustainability of the rural settlement (Heijman et al., 2019).

Today, settlements are divided into rural and urban areas. This dividing is made based on demographics, size of settlement, and economy. However, rural and urban titles are much more detailed when morphological examination of the regions. Both rural and urban settlements are affected by the change over time. However, studies today focus more on urban areas since the pace of change is higher in cities. On the other hand, rural settlements have the same morphology dynamics and encounter the same change factors. Rural settlements are regions with specific settlement identities with specialized morphology dynamics, like urban settlements. In fact, frequently altering urban settlements do not transform depending on a change factor. They simply adapt to the new situation. However, the same change factor can affect and deform rural areas.

Technological development, increasing population, and requirements will bring about an irresistible change in settlements. Change is a dynamic process for every rural and urban residential area. If the settlements can adapt to this process without damaging their subjective identity, the sustainability of the settlement will be ensured. There is a certain resilience to change. This resilience to the settlement texture is crucial for the preservation of identity. Using the resilience for the adaptation of all the morphological dynamics of the region ensures the typo-morphological continuity of the rural settlements and the sustainability of the identity (Walker et al., 2004).

This study aims to explain the identity definitions of settlement patterns, the equivalents of settlement morphology dynamics for rural settlement, and the change and resilience in rural settlement stratification. All these definitions were supported by stratification analysis over the years on Kargalı village in Ankara province Polatlı district.

2. Residential Identity

Residential identity is the combination of the flawless existence of the nature of the region and the built environment elements. Factors such as natural environmental factors, built environment spaces, socio-cultural characteristics of the residents of the area, economy, internal and external interventions, and politics also directly affect the formation and change of identity.

The dynamics of the built environment are an integral part of the existence of the space/settlement (Norberg-Schulz, 2019). Concrete dynamics, as well as abstract dynamics, become elements that make up spatial identity over time. Structural elements that shape the memory of space are formed regardless of urban or rural settlement. The change/transformation of these elements directly affects the identity of the user and the space.

The residence is the definition of the sense of belonging that occurs with the combination of the abstract and concrete elements that people create with the place. The residence is a combination of the natural world with tangible structures and everything else (Norberg-Schulz, 2019).

The identity of the residential area is formed by the combination of abstract and concrete components and the change/transformation of these components over time. Erdem (2012), examined the concrete dynamics that create the identity of the settlement as natural components and artificial components and examined the abstract dynamics as socio-cultural components (Erdem, 2012). Besides, the settlement identity is directly related to the time factor. With the fact that change is inevitable, all components are affected, and eventually, the identity adapts to the new order or deforms. Thus, the settlement identity consists of all the construction, destruction, writing, and erasure processes of the time (Lukez, 2007).

3. Rural Settlement Morphology Dynamics

Settlements are regions with certain morphology dynamics, whether regular or irregular. These differ based on the basic needs of users, regional characteristics, and policy. Morphology dynamics can be read more clearly for urban textures that grow and develop in a relatively regular and controlled manner. On the other hand, the morphology dynamics of the spontaneously formed rural settlements are directly affected by the economy and culture and are shaped more dependent on the resident and topography.

Erdem (2012) argues that the morphology dynamics affecting the rural area consist of three basic elements as natural identity components, artificial identity components, and socio-cultural identity components (Erdem, 2012). Although rural morphology dynamics are listed under similar titles with urban morphology dynamics, they should be handled subjectively. For instance, the morphology dynamic called "landmark" expresses a definition for both urban and rural settlement texture. However, in the rural area, in the residential area where the social network is stronger and more effective, even a specific person's house or a piece of rock that is contrary to the topography of the region can be called a landmark.

It is possible to characterize the morphology dynamics of rural and urban settlements with dynamics such as road networks, gathering places, borders, sign elements, regions, and structural elements (Lynch, 1960). Abstract and concrete settlement morphology dynamics constitute the identity of the settlement texture. As a result of changing needs, internal and external interventions over time, a change/transformation obligation occurs in all dynamics. While urban settlement patterns can absorb most of the impacts, the impact with the same intensity can radically change the morphology of rural settlements. On the other hand, dynamics also have to change due to changing life conditions, the user needs, socio-economic necessities, and policies. It is the necessity of the sustainability of rural areas to be able to resist without harming the identity characteristics by meeting the severity of the incoming impact and to adapt to the new order without being altered (Walker et al., 2004).

Rural settlement is not only a community of shelters, but also a set of social organizations and economic activities of the resident of the area (Hill, 2003). Residents in rural settlements, unlike urban residents, have a more spiritually focused action of being together. Since they are far from the city center, people need each other more because of their limited opportunities. For this reason, even the houses are built within walking distance.

Rural settlement patterns are more dependent on the regional community's commonalities such as language, religion, and ethnic values than the city itself. Each society, apart from the top political administration to which it is affiliated, also assumes the autonomous social role of the smallest unit of society to which it belongs. Even though it is not possible to analyze one by one due to the demographic density, the same is true for cities. However, in rural settlements where interpersonal social communication and collective relations are more important, this situation increases its distinctiveness.

Routine daily work, ceremonies such as funerals and weddings require more people to interact with than urban residents. Ceremonies held in a designated area such as a wedding hall in the city are held in the garden of the owner of the ceremony in the village or in the village courtyard with the help of everyone.

One of the most important parameters in the formation of rural settlements is the socio-cultural similarity of their residents. Although cultural parameters such as religious beliefs, daily routines, customs, and traditions are among the abstract dynamics of the society to which they belong, they also directly affect the concrete dynamics.

Political interventions on a national or international scale are just written titles. However, rural development decisions and other political interventions, which are not specific, but generally, are not studied in detail on the identity of each rural person, also cause the change/transformation of the local identity on an abstract and concrete scale.

Changing needs and developing technology has a direct impact on the demographics of rural settlements, accelerating the migration of local rural users to the city. For rural areas, which are the basic economic dynamics of agriculture and animal husbandry, employment provided in the city poses a threat that will cause the rural area to be abandoned and destroyed. Resistant rural settlements can ensure the continuity of the settlement by changing the existing economic dynamics with interventions such as rural tourism or new agricultural policies.

4. Resistance in Rural Settlement Morphology

Nature is in a state of escaping from all rational actions and possessiveness factors that affect it from the moment it exists (Lefebvre, 2017). Unbuilt nature is also an area that has been gradually shaped and transformed for the settlement area in the face of every dynamic that builds up and occupies the land (Lefebvre, 2017).

Lefebvre (2017) mentions the continuous dialectic of urban and rural life. This dialectic is an opposition that brings both into existence. Symbolisms and images of the rural are the primitive quality of the existence of the urban. Both settlement textures diverge primarily in terms of production systems. Simplifying the rural as gardens, cultivated areas, narrow and shallow production areas has caused the subjective identity of the rural to keep in the background from past to present (Lefebvre, 2017). The continuity of identity of these settlements that bring each other into existence and the resilience formed for this should be examined separately for each settlement pattern.

Although the settlements are classified under two categories as rural and urban, the definition of "rurbain", which expresses the mixture of these two settlements, has been used recently (Lefebvre, 2017). Even though two separate titles fail to adequately describe the subjective identities of settlement textures and examine their subjectivity, the word "rurbain" causes conceptual confusion.

Settlements are going through a forced change/transformation with the diversification of needs over time. The necessity of innovation and change directly affects both rural and urban settlement patterns. This change affects all the morphological dynamics of the settlements as well as directly affecting the identity of the settlement. Despite the constantly changing morphology structures of urban settlement patterns, the change of rural settlements is relatively slow. The speed and impact of change give different outputs for rural and urban settlement patterns. Due to demographics and cultural habits, the impact of change may be major for rural residents than for urban residents. On the other hand, the compulsory change arising from factors such as increasing needs, employment problems, and cultural exchange, which is accelerating due to the information age, affects all abstract and concrete dynamics in the rural settlement. The resilience of the settlements to the incoming threats will prevent the mutation of the region and ensure its new and controlled

adaptation. Proper handling of the change factor for the settlement can turn the region into a settlement that adapts with its identity and morphology dynamics rather than a mutant settlement.

Adapting to its new state without losing its identity in the face of the compulsory change that the settlement will face and creating a sustainable and innovative rural settlement area instead of a heterotopia order will ensure the maturation of a sustainable and resilient settlement morphology without transforming it completely. While transformation and metamorphosis will destroy the rural settlement texture identity over time, the absorbing effect of flexibility and resilience in the existing dynamics will transform the transformation with the least damage to the identity and evolve it to diversity.

There are multiple external and internal dynamics affecting rural settlements. These come within the politics that we have defined as abstract dynamics. The circumstances that the region is exposed to for development plans also play a significant role in the future identity of the region. It is possible to say that the factors affecting the rural settlement area are private rural services, public services, industry, and local rural residents (Torabi & Brahman, 2013).

Rural settlement resists the factor of change that affects it with all its abstract and concrete dynamics. If the mutation of a settlement texture is unfavorable, it is also unfavorable to not be able to adapt to the new world order and therefore not be able to preserve its current identity. The settlement dynamics are all subjective. Hence, the weights of the existing dynamics, breakpoints, and absorption coefficients of the buffer zones for the rural settlement texture should be examined by developing different approaches and methodologies. Resistance to change can result in extinction. In this case, the resilience to change and the absorption coefficient of the rural settlement pattern will be different.

A useful measure of the economic, ecological or cultural resilience of the settlements will ensure the continuity of the existing identity and dynamics by creating another set of variables without undermining the stability and system controls (Folke, 2006).

Another important reason for the disturbance to the existing system of settlements today is climate change. This threat, which cannot be prevented directly and in the short term, affects all the abstract and concrete dynamics of the settlement pattern (Mackey et al., 2016). Many scientific studies have been conducted on how climate change and its consequences affect the morphology dynamics and identities of the region, and attention has been drawn to the results (Burroughs, 2007). The threat to residential areas can be varied. Mandatory change/transformation of existing morphology dynamics may occur as a result of government policies or as a result of natural factors. Resilience against a certain threat becomes sustainable with the balance of environmental, economic and socio-cultural parameters (Dupre & Bischeri, 2020).

Rural areas are settlements with cultural patterns and natural values (ÖZHANCI & YILMAZ, 2017). Religious belief, social relations, and culture have a more stable effect on the urban resident. Although the change of abstract dynamics is slower than concrete dynamics, the change affects these abstract dynamics with different intensities over time (Rossi, 1984).

Changing rural settlement dynamics also directly affects the socio-cultural characteristics of the residents of the region, which is one of the reasons for being the first commune. Especially as a result of the intense migration from the city to the countryside, the faster socio-cultural changes of the urban residents lead to untimely encounters by the rural residents. In this case, a social adaptation problem arises in rural residents. As a result of urban opportunities and socio-cultural exchange, rural heritage dynamics such as ceremonies, traditions, and religious routines that make up the region are facing extinction. With the inevitability of change, there will be differentiation in abstract dynamics. In the developing new world order, the rural resident can resist and maintain these dynamics, perhaps on a more local scale and by changing them.

4.1. Resistance of Rural Settlement Morphology Dynamics

Lefebvre (2017) mentions three main topics related to urban and rural settlement, namely rurality, urban texture, and centrality and the balanced harmony of the dialectic between them. The first rural settlements, most of which are formed spontaneously, change towards the urban scale with all their dynamics. In this process, the three basic parts of the above-mentioned dialectic constantly affect each other. The transformation of the rural settlement pattern to full urbanization with the change/transformation can be explained as follows (Lefebvre, 2017).

1. Zero Urbanization; agricultural life and complete domination of the rural.
2. Political City; The settlement phase that dominates agricultural life and is organized accordingly.
3. Commerce City; a small-scale district formed on the commercial periphery.
4. Industrial City; settlement, where agricultural production has become insignificant, and which has grown with uncontrolled immigration as a result of industry and employment.
5. Critical City; a settlement in a state of extreme population as a result of increased migration and rapid growth.
6. 100% Urbanization

The stages of transition from the rural to the urban mentioned above are at a different speed for each residential area. Such that, the above-mentioned steps are evident for some settlements, while for some settlements, the steps are so brief that it is almost unnoticeable. But each step changes with the breaking point caused by an external factor affecting it. Lefebvre described the transformation of rural into urban under the title of "dual process" (industrialization and urbanization). Although the transformation is fundamentally opposed, the sustainability of residential areas is also in line with the unconditional necessity of change. The residential area resistance will create the absorbing effect of the region morphology dynamics at these fracture intervals. Residents, who are the most important actors in the formation of residential areas, can directly affect every breaking point of the region that changes and transforms, as well as being the party directly affected by this new situation. Residents of rural settlements, who are particularly affected by the employment problem due to the changing or unchanging nature of rural settlements, will have to adapt to the new situation by being affected by the sustainable change of settlements. The sustainable situation of the rural settlement constitutes the full adaptation process not only with the resilience of the morphology dynamics but also with the resilience of the users. In the new situation, rural settlements, which are expected to have a sustainable identity through resistance, often gain new residents (post-residents). In this case, the rural resident of the settlement and the post-resident will affect the same residential area. Thus, it can be said that the rural creates two similar resistances, concrete and abstract; rural morphology dynamics and all rural residents. While the buffer role of the resistance for the morphology dynamics creates a sustainable rural settlement texture, it can create a meta-resident from the combination of resident and post-resident over time. The resistance created against the change factor that affects the dynamics and residents over time is effective for a sustainable rural settlement (Figure 1).

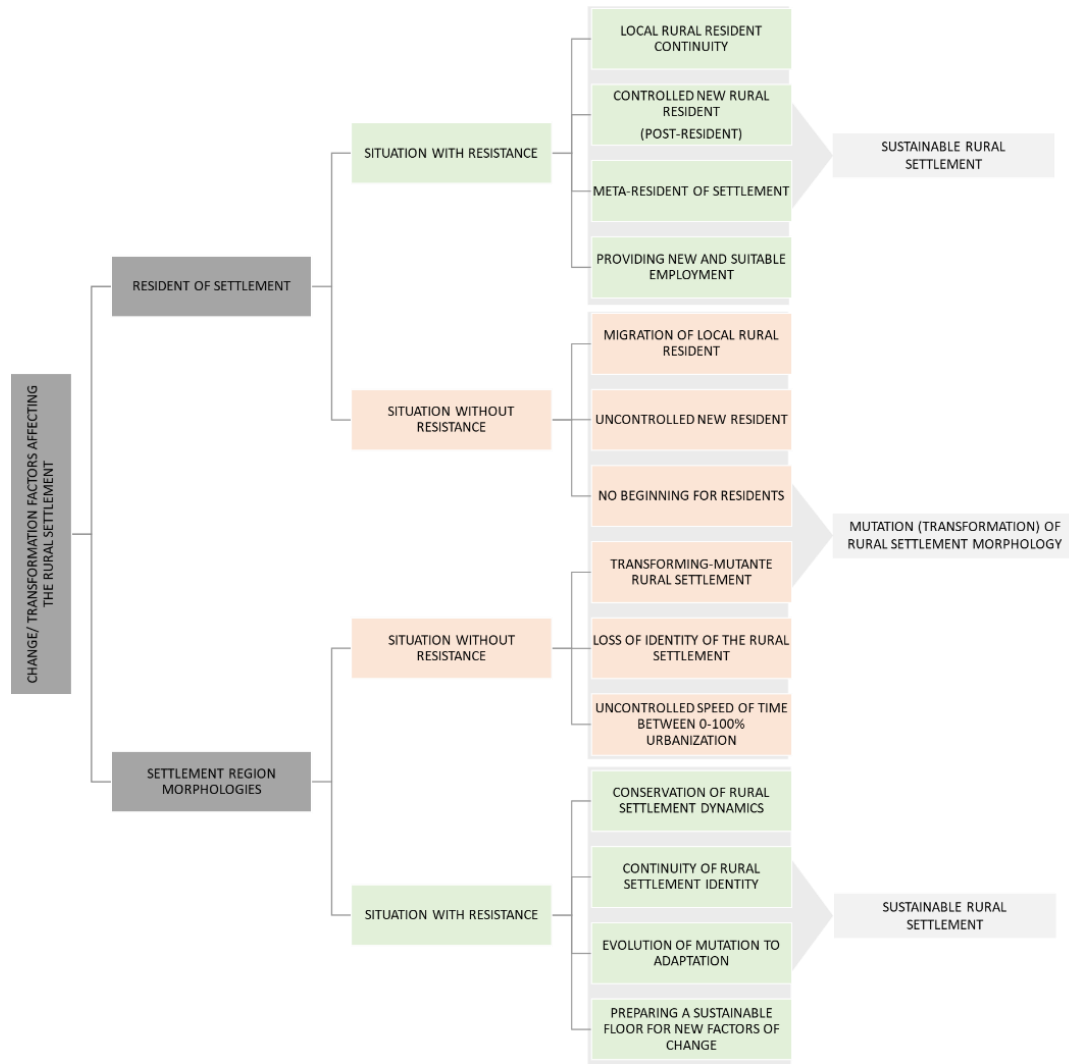


Figure 1 Change/ Transformation Factors Affecting the Rural Settlement

4.2. Rural Heritage and Conservation

Rural areas are not just settlements where subjective traditional factors and cultures come together with local architecture and whose economy is mostly land-based. Rural heritage consists of communities with subjective value judgments, traditions, economy, and architecture, where the social and cultural characteristics of the society that created them are reflected in their living patterns and housing patterns. Rural settlements are mostly defined as the primitive state of the city. Rural areas that produce, cooperate, and maintain a symbiotic relationship with nature are described as an important part of cultural heritage at the national and international levels.

The concept of rural heritage was first discussed within the framework of the concept of protection of architectural heritage in the 1970s (Madran & Özgünül, 1999). In the Amsterdam Declaration published in 1975, the scope of architectural heritage was emphasized as a concept that includes not only invaluable and superior buildings but also rural areas, which have historical and cultural characteristics, and traditional and historical local textures that form the basis of settlement (URL 1). Granada Request: Rural Architecture in Regional Planning, European Pilot Projects Program Symposium No: 5 (COE, 1977) states that rural settlements are in danger of extinction with their environment and architecture (URL 2). It is emphasized that rural settlements cannot maintain their effectiveness, especially due to intense migration from rural to urban areas and inadequate protection policies. In addition, the excessive and unconscious exploitation of the existing topography is interpreted as another situation that will lead to excessive deterioration of

the rural heritage. The decisions are taken after the "Conference on Conservation of the Identity and Attractiveness of Settlements and Natural and Natural Environments" include decisions on the protection of the natural environment in which rural settlements are located (Eres, 2009). These decisions, which define the rural cultural heritage within certain limitations, also reveal the conservation problems and solution proposals. In the definition of cultural heritage, it is explained that the identity of the community, the built and natural environment, and all the abstract and concrete cultural heritage require holistic protection (URL 3).

Rural heritage has found a place for itself in literature and conservation policies, especially with the expansion of the concepts of cultural and natural assets in Europe. Rural heritage is examined within the framework of concrete and non-concrete cultural heritage due to the subjectivity of value criteria, the unique typology, and the use of the geography it belongs to. Although this new category cannot find sufficient place in Turkey, large-scale conservation studies are among the national-scale rural development plans (Table 1).

Table 1 International Development of Rural Heritage (Gökalp, 2019)

INTERNATIONAL DEVELOPMENT OF RURAL HERITAGE	
DATE	DOCUMENTS WITHIN THE SCOPE OF WORK
1964	ICOMOS
	"Venice Charter" "The International Charter for The Conservation of Monuments and Sites"
1975	COE
	"Declaration of Amsterdam"
1976	UNESCO
	"Recommendation Concerning the Safeguarding and Contemporary Role of Historic Areas"
1977	COE
	"Rural Architecture in Regional Planning"
1979	COE
	"Recommendation 881 (1979) on the Rural Architectural Heritage"
1989	COE
	"Rural Architectural Heritage Conservation and Value Increasing"
2000	COE
	"European Landscape Convention"
2006	European Parliament
	"On the Protection of the European Natural, Architectural and Cultural Heritage in Rural and Island Regions"
2010	COE-CEMAT
	"On the Pan-European Charter for The Rural Heritage: Promoting Sustainable Spatial Development "The Rural Heritage as a Factor of Territorial Cohesion"
2017	ICOMOS – IFLA
	"Concerning Rural Landscapes as Heritage"

4.3. Sample Rural Settlement Village: Kargalı District (Village)

Kargalı District (village), which is connected to the Polatlı district of Ankara province, is a rural settlement area that later turned into a local administration due to state policies. The settlement history of the region dates back to the periods before Christ. Existing water resources constitute an important morphology dynamic for the settlement, which mostly makes its living from agriculture and animal husbandry. The region, which is a two-center residential settlement, has many agricultural and vineyard (Erdoğan, 2013).

The reason why the village was selected as the sample area is that its rural morphology dynamics have undergone a concrete change/transformation from the first establishment to the present. Housing settlement areas and transportation networks have developed and differentiated. In addition, the artificial pond that was built in the region later and the weekend houses formed around it have differentiated the rural identity. On the other hand, the housing patterns and vineyards, which have survived from the first establishment to the present day, have continued their existence despite the changes and created an example of rural resilience.

The traces of the first settlement areas of Kargalı village are on a hill in the southwest. There are building remains from the Roman Period in this area. The residential settlement, which was later moved into the southern valley, continued its mosque-centered and cluster-shaped settlement form (Erdoğan, 2013).

The oldest aerial photograph of Kargalı Village, obtained from the Harita Genel Müdürlüğü, belongs to 1944. This rural settlement has undergone changes and transformations within the scope of morphology dynamics of its environment-location, road networks, structural borders, natural and cultivated areas, and landmarks. The morphology dynamics that changed with the change factors it was exposed to over time, created a sustainable rural texture with the resistance realized by the rural.

Rural areas are in a slower change process than cities -unless there is an extraordinary effect- due to factors such as technology, infrastructure, demographic circulation, and meeting current needs. However, the results of this change have more severe reflections than cities. The selected sample village was analyzed by interpreting the upper scale maps obtained from the Harita Genel Müdürlüğü. In order to be able to read the temporal stratification, ten-year time periods were taken in which the change/transformation processes of the sample rural, which do not show great changes every year like in the cities, can be analyzed. As a result of the analysis, all the change/transformation that the countryside has undergone has been examined and no additional situation has been observed in the interim times (Demiroğlu, 2020).



Figure 2 Changes in Settlement Morphology of The Kargalı Quarter (Village) in 1944, 1955 and 1970, (HGM)

In 1944, 1955, and 1970, the village consisted of two separate residential areas, one in the south and one in the north. The settlement in the north consists of barns built for livestock and temporary accommodation houses. The vineyards in the east of the region are parceled separately and established in a higher topography than the residential settlement. In the settlement located in the south of the region, the natural and residential-limited pathways between the houses were formed on a radial plane, centered on the village square. It is observed that the vineyard area expanded towards the south in 1955 and 1970. The most important main arterial transportation network that connects the village with the district and other villages is the vehicle road in the southeast-northwest direction, which also runs along the Mucuköz Stream. In addition, the roads connecting the seasonal settlement in the north and the vineyard areas in the east are the second important

transportation axes that are actively used. The increase in the development of the vineyard area has been effective in the strengthening of the road networks reaching that region. The area and other lands between the two settlements of the region are used as natural pastures and fields. The residential settlement in the south, which continued to develop continuously until 1970, caused the nearby cultivated areas to turn into building blocks.

As a result of the increasing population and current needs, the requirements for housing have increased and natural-cultivated area dynamics have turned into built region dynamics. Natural areas, on the other hand, have been transformed into agricultural areas in order to respond to the increasing need for cultivated land. In the northern settlement area of the village, which is used only as an animal shelter and seasonal residence, the housing texture has increased and the secondary settlement feature has been strengthened (Figure 2).



Figure 3 Changes in Settlement Morphology of The Kargalı Quarter (Village) in 1991, 2008 and 2018, (HGM)

Decreasing employment in rural areas and not being able to respond to increasing needs has increased the rate of migration from village to city. Rural regions have tried to differentiate their economic resources, which are only agriculture and animal husbandry, in order to maintain their current existence. An artificial pond was built in the northwest of the village as a solution to this problem in the examined village. This situation created an artificial intervention in rural morphology dynamics. With the artificial water dynamics, a new residential focus has been formed between the northern and southern settlements.

As a result of the increasing population, the two settlement textures in the north and south have grown and approached each other at the same time. Thus, the transportation axis between the two residential areas was strengthened and a new road network was formed to reach the new settlement pattern. The main arterial road network (Polatlı-Kargalı Road) connecting the village to the district has increased its importance and residential settlements have increased around the newly formed road. The southern residential settlement, which previously used the district road track as a threshold, continued its existence by transforming its "cluster-shaped" form into a "track-shaped" form that runs parallel to both sides of the road.

New residents of settlement (post-resident) in the region use the area mostly for weekend houses or hobby gardens. This allowed post-residents and rural residents of settlement to coexist while maintaining the rural identity of the region. The vineyard settlement in Kargalı Village, which has existed for a long time, has continued to exist by increasing its importance. Today, this region has both maintained its existence in the region by adding various "wine house" facilities and added a new type to the rural economy dynamic. The residential area, which is used seasonally, has expanded, allowing the formation of mostly permanent housing structures. As a result, Kargalı Village, which has a new structural dynamic with three centers, has managed to preserve its current dynamics by changing it and has turned into a sustainable rural settlement texture (Figure).

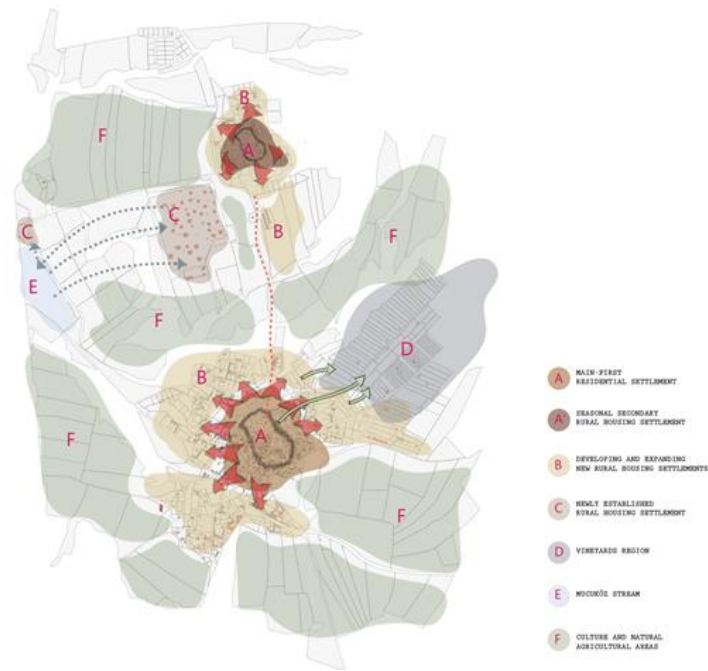


Figure 4 Temporal Change of Settlement Morphology of Kargalı District (Village)(Demiroğlu, 2020)

The settlement morphology features that most of the rural settlements have formed by irregular and spontaneous district relations are also present in Kargalı village. However, artificial morphology dynamics, increasing need, and population made it necessary to make changes in the structural dynamics of the village over time (Figure).

4.4. Kargalı District (Village) Resistance of Rural Morphology Dynamics

The changes and transformations of Kargalı village's morphology dynamics such as "environmental location relations", "cultivated and natural areas", "road networks", "built areas" and "landmarks" were analyzed in the years of 1944-2018. Due to the employment problem in rural areas between the years 1950-1970 in Turkey, there has been an intense migration from rural to urban areas in this sample village (Keleş, 1990). The rural and urban policies produced to prevent this situation and the new agricultural machinery used together with the development of technology allowed the settlement in the countryside to be sustained (Figure).

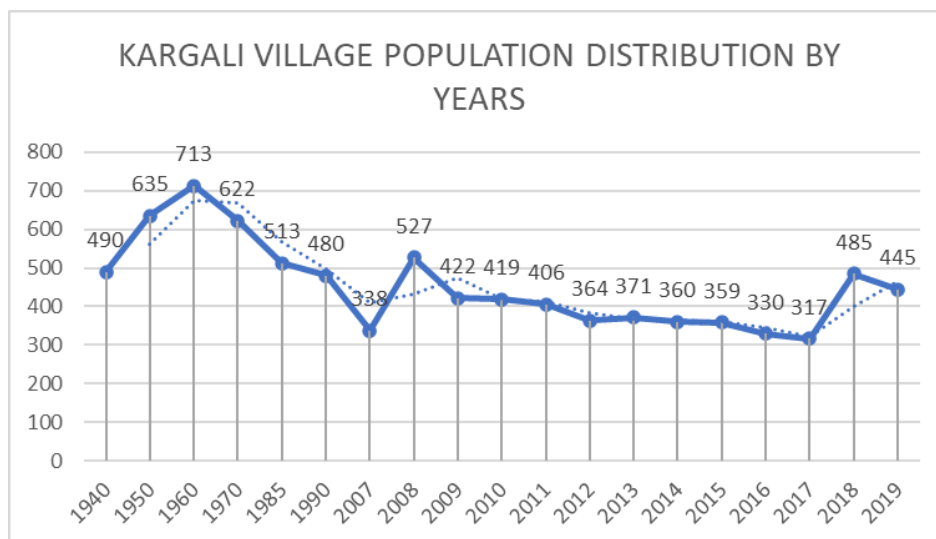


Figure 5 Kargalı District (Village) Population Distribution by Years, (URL 4)

The intense work pace of urban life and especially the hobby gardens, which are popular today, cause temporary migration of people from big cities to rural settlements. As a result, the socio-cultural, economic, and ecological balance of many rural settlement dynamics has deteriorated. Rural settlements that resist this situation provide balance by producing new morphology dynamics and by controlled change of existing dynamics. The lake, which was formed by artificial intervention in the current geographical dynamics in Kargalı Village, caused the agricultural areas around it to turn into a built environment. In addition, there has been a change/transformation in the current dynamics of the region due to the new rural resident formed as a result of migration from the city to the rural. The vineyard areas, which have survived since the first settlement in the region, existed only for rural residents on a more local scale. While the vineyard area maintains its existing texture as a result of increasing urban residents, it has been transformed into a rural tourist area for the region by changing with commercial areas such as a wine house added to the vineyard area.

The settlement formation in the south of the rural housing settlement has also changed along the strengthened Polatlı-Kargalı road and evolved from the form of a cluster to the form of a road trace. However, this situation did not destroy the rural settlement, it only changed with the effect of intense dependence on the city and continued its existence with stability.

The artificial pond built in the Kargalı village has been a completely new intervention to the existing morphology dynamics. It has also led to the formation of many weekend houses around the artificial pond, which has a transformative effect on the rural texture. The weekend house, which is external intervention to the structural morphology identity, brings with it temporary users from the city to the rural, leading to an unstable demographic increase in the identity of the rural. As a result of this formation, which is shaped as a parasite outside the existing heritage of the countryside, Kargalı village has been a factor in the deterioration of its identity and morphology. The residents of the newly formed settlement texture exist with completely different needs from the residents of the region. The local resident and the post-residents with a separate settlement are in the synthesis of two separate morphology dynamics away from holistic life. Parasitic articulations like this have irreversible consequences on the existing rural heritage texture.

Kargalı village, which belongs to its subjective identity, residential settlements, vineyard areas, agricultural areas, livestock, etc. it resisted transformations by providing revision without destroying the dynamics. As a result, today Kargalı Village is neither a village like it was in 1944 nor a settlement pattern that has completely changed from its rural settlement identity. The resistance is shown by keeping the new and compulsory changes parallel with her own identity was able to create a buffer zone for the village of Kargalı. While the residential settlements continued to exist, their formal form continued to evolve. The settlement form, which was two-centered, turned into three centers with the effect of the changing morphology dynamics. This, on the other hand, has created a sustainable user dynamic with resistance by allowing the local rural resident continuity in the resident of the region, the formation of controlled new rural residents (post-residents), and the meta-rural residents (Table 2).

Table 2 Changing, transformation, and resilience of the dynamics of the sample area over time.

Year	Socio-Cultural/Physical Dynamics	Socio-Cultural/Physical Transformation	Socio-Economic Transformation	Evaluation of the Result Within the Scope of Resilience
1944 1955 1970	<ul style="list-style-type: none"> • The structural settlement is in the form of clusters in the south of the village and in the north of the Mucuköz stream. • There are parcels where residential gardens and orchards form borders. • The village mosque, village room, fountain, and the village square surrounding them are the most important landmarks. • The vehicle road in the southeast-northwest direction, which provides access to the district center, constitutes the most important transportation axis. • The built area, which was formed as an animal shelter in the north, leads to the formation of secondary settlements with increasing residences over time. 	<ul style="list-style-type: none"> • The settlement in the south has expanded along the stream axis in the form of a road trace. • The expanding settlement pattern has contributed to the formation of new landmarks. • The development of the built environment has led to the formation of new road networks in the region. • In the area created for the animal shelter in the north, housing patterns have increased, and new transportation axes have been formed between the two housing patterns. • The area used as a vineyard area has expanded to the south but has continued its function. 	<ul style="list-style-type: none"> • Immigration to the city caused intense economic loss in the region. • The growth of cultivated areas between the first and second residential areas has led to the transformation of agricultural areas, which is one of the economic resources of the region. • Cultivated areas on the axis of Mucuköz Stream, which were used only for agriculture, have turned into residential lands. 	<ul style="list-style-type: none"> • Until 1970, Kargalı village was experiencing demographic and economic difficulties. • Migration of the workforce to the city center indirectly affected agriculture negatively. • The use of agricultural tools developed in the region contributed to the facilitation of existing agriculture. • Rural resistance was the fact that the elderly population, who could not migrate to the city, remained in the region due to the residence requirement. • The people of the village, whose residences mostly moved to the city center, cultivate the fields seasonally. • The southern construction, which was used only for animal shelters before, started to take on the character of a secondary housing pattern for the village people, and this ensured the continuity of residence in the region.
1991 2008 2018	<ul style="list-style-type: none"> • With the residential construction in the north, the structural dynamics of the region have been updated as two housing patterns in the north and south. • An artificial pond has been built in the countryside with an artificial intervention to the existing morphological dynamics. • The transportation networks between the two newly formed housing patterns forked and increased their importance. • Vineyard cultivation area has strengthened its existence by increasing its regional volume. • The rate of infrastructure and service has increased in rural areas that have turned into local administrations. • The new weekend houses built in the region have created local morphology dynamics independent of the countryside. 	<ul style="list-style-type: none"> • Most of the cultivated areas of the region are turning into residential areas with unplanned settlements. • The first residential area, which is cluster-shaped and single, has turned into a road trace that leaves the district center inside. • The county road is no longer a threshold. • The plant-natural area dynamics and structural dynamics of the artificial pond built between the first and second residential settlements have been transformed, resulting in a loss of identity. • Mucuköz Stream, which is an important water source for the cultivated areas of the region, has been transformed by losing its intense nutritive feature due to the artificial pond. 	<ul style="list-style-type: none"> • The existing vineyard cultivation area has also evolved into an economic morphology dynamic with the addition of a commercial function. • Agricultural lands, which are important rural heritages, lost their economic power and turned into residential areas. 	<ul style="list-style-type: none"> • Between these years, the biggest strength example in the countryside has been the vineyard area, which has gained a new dynamic and has not lost its original purpose. • Although the first settlement area has undergone a formal change, it continues to exist in the form of a road trace. • The road axis providing access to the district lost its main artery feature due to the increasing transportation axes between weekend houses and building blocks but remained important. • Despite the many deformations in the rural heritage identity, the region continues to exist as a local administration with its transformation and parasitic additions.

5. Conclusion

In this study, the meaning of the term resilience in residential areas and its effects on rural settlement morphology is focused on. Regardless of urban and rural settlements, they are faced with the constant change of the identities of the settlements, which are constantly exposed to internal and external threats, and the dynamics that create them. The purpose of the resilience shown against this is to keep the ecological, economic and cultural integrity of the region in balance and to protect its identity. The identity elements of each rural settlement are subjective, and the severity of the same threat will be different. In this case, the resilience of the regions and the resulting outputs can create different changes and transformations.

As a result of the fact that change is inevitable and the resistance expected from the rural settlement identity, it is aimed to adapt and sustain the region, not mutation. However, this resistance cannot occur only for residents. Rural settlement morphology should be analyzed with stratification analysis from the first formation to the present, and the identity elements that define the region should be analyzed correctly. The outputs of the resilience against the incoming threat will be handled separately in structural, cultural, economic, and ecological parameters and will be calculated in line with these analyses. This situation will not only absorb the current threat and provide adaptation but also will be a solution to the policies to be formed for sustainable rural settlement in the new change/transformation processes to be experienced in the future.

It is seen that the rural settlement morphologies mentioned in the study are in transformation and change movements over time in the sample examined. The decrease in rural residents, especially with the increase in migration to the city, has jeopardized the economic, social, and cultural continuity of the rural. Rural heritage and conservation studies in Europe, which are applied in large numbers, are examined under general titles in Turkey. This causes the subjective needs of all rural settlements to be gathered under a single title, and therefore, an effective solution cannot be produced. As seen in the sample examined, the added structural morphology dynamics, regardless of the existing socio-cultural rural heritage of the region, led to deterioration in rural identity. The increasing housing of Kargalı village causes agriculture, which is one of the most important economic activities of the countryside, to be put into the secondary plan. One of the common concerns in the process of protecting rural heritage is the impact of the built and natural environment on identity, which must be preserved. The unplanned increase in housing has increased the built areas of this region and caused a rapid decrease in its natural and cultivated areas.

It is seen that rural settlements that have transformed from village status to neighborhood status in Turkey benefit from many opportunities such as infrastructure, service, or economic improvements that the city benefits from. However, all this local administration status also alters the subjective parameters of rural heritage that need to be protected. Thus, rural areas, which are among our most important intangible cultural heritage, may result in destruction that cannot be transferred to the posterities.

References

- Atlgir, V. N. (2003). Social Capital, Collective Action, And Adaptation to Climate Change. *Economic Geography*, 79(4).
- Burroughs, W. J. (2007). *Climate Change: A Multidisciplinary Approach*. Cambridge University Press.
- Demirođlu, B. (2020). *Ankara Polatlı Bölgesindeki Kırsal Yerleşim Yerlerinin Oluşum ve Gelişim Analizi* [PhD thesis]. Konya Technical University, Graduate School of Education.
- Dupre, K., & Bischeri, C. (2020). The Architecture of Resilience In Rural Towns. *Archnet-Ijar: International Journal Of Architectural Research*.
- Erdem, M. (2012). *Kırsal Yerleşim Peyzaj Kimlik Özelliklerinin Tespiti, Korunması Ve Geliştirilmesine Yönelik Değerlendirme Matrisi Önerisi* [PhD Thesis]. Istanbul Technical University,
- Erdoğan, A. (2013). *Polatlı Tarih Ve Kültür Atlası*. Polatlı Municipality Publications.
-

- Eres, Z. (2009). *Türkiye’de Planlı Kırsal Yerleşmelerin Tarihsel Gelişimi Ve Erken Cumhuriyet Dönemi Planlı Kırsal Mimarisinin Korunması Sorunu*. Graduate School of Natural and Applied Sciences.
- Folke, C. (2006). Resilience: The Emergence Of A Perspective For Social–Ecological Systems Analyses. *Global Environmental Change*, 16(3), 253–267.
- Gökalp, S. (2019). *Kırsal Miras Bileşenlerinin Tanımlanması Ve Bütünleşik Koruma Yaklaşımı: Gökçeada-Zeytinliköy Örneđi*. Graduate School of Natural and Applied Sciences.
- Heijman, W., Hagelaar, G., & Van Der Heide, M. (2019). Rural Resilience As A New Development Concept. In *Eu Bioeconomy Economics and Policies: Volume 11* (Pp. 195–211). Springer.
- Hill, M. R. (2003). *Rural Settlement and The Urban İmpact On the Countryside*. Hodder & Stoughton.
- Holling, C. S. (1973). Resilience And Stability of Ecological Systems. *Annual Review Of Ecology And Systematics*, 4(1), 1–23.
- Keleş, R. (1990). *Kentleşme Politikası* (Vol. 13). İmge Bookstore.
- Lefebvre, H. (2017). *Şehir Hakki* (Işık Ergüden, Trans.). Sel Publishing.
- Lukez, P. (2007). *Suburban Transformations*.
- Lynch, K. (1960). *The İmage Of the City* (Vol. 11). Mit Press.
- Mackey, B., Jacobs, P., Porfirio, L., & Hugh, S. (2016). Natural İcons And Threats: An Approach to Landscape Conservation Planning. *Parks*, 22(1), 51–62.
- Madran, E., & Özgünü, N. (1999). *International Documents Regarding the Preservation of Cultural And Natural Heritage*. Metu Faculty of Architecture Press.
- Norberg-Schulz, C. (2019). Genius Loci: Towards A Phenomenology of Architecture (1979). *Historic Cities: Issues İn Urban Conservation*, 8, 31.
- Özhancı, E., & Yılmaz, H. (2017). Görsel Peyzaj Kalite Deđerlendirmelerinde Kalite Göstergelerinin Mekansal Yansımaları. *Erciyes University Journal of Social Sciences Institute*, 31(43), 157–173.
- Rossi, A. (1984). *The Architecture of The City, Massachusetts*. The Mit Press.
- Torabi, Z., & Brahman, S. (2013). Effective Factors İn Shaping The İdentity Of Architecture. *Middle East Journal Of Scientific Research*, 15(1), 106–113.
- Walker, B., Holling, C. S., Carpenter, S. R., & Kinzig, A. (2004). Resilience, Adaptability and Transformability İn Social–Ecological Systems. *Ecology And Society*, 9(2).
- Url 1: http://www.icomos.org.tr/Dosyalar/ICOMOSTR_tr0458320001536681780.pdf (accessed: 25.04.2022)
- Url 2: <https://www.icomos.org/18thapril/18april2001.htm> (accessed: 25.04.2022)
- Url 3: <https://rm.coe.int/090000168093e8b0> (accessed: 25.04.2022)
- Url 4: TÜİK (Türkiye İstatistik Kurumu), [Www.Tuik.Gov.Tr](http://www.tuik.gov.tr) (accessed: 25.04.2022)
- Hgm: Harita Genel Müdürlüğü Arşivi, 2019, Kargalı Village Aerial Photographs and Orthophotos.

Resume

Begüm Demirođlu İzgi graduated from Selçuk University Faculty of Architecture, Department of Architecture in 2013. She received her MSc degree from Selçuk University Master of Architecture in 2017. She received her PhD degree from Konya Technical University in 2020. Her main research interests are urban/rural morphology, AHP methodology, urban communities, urban/rural resistance and architectural history. She is currently working as an academician at Yozgat Bozok University.