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Assessment of resilience in rural areas: The case of Bağlıköy, Cyprus

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Abstract

Recent developments have significantly impacted both urban and rural areas, leading to increased migration from rural to urban regions and considerable challenges in rural areas. Rural activities have decreased due to the reduction in population and the labour force, affecting economic, environmental, social, and demographic structures. These natural and artificial changes constitute potential threats to rural resilience. Consequently, rural resilience analysis has become essential to ensuring the sustainability and well-being of rural communities in the face of economic, environmental, and social challenges. Rural resilience is defined as the ability to adjust, transform and cope with change in response to ever-changing regional dynamics. There are four key components of rural resilience: economic resilience, social resilience, environmental resilience, and cultural resilience. Robust infrastructure, including transportation, communication, and healthcare systems, maintains connectivity and access to essential services during adverse events. The research focuses on the cultural, economic, environmental, and social factors influencing the resilience of rural area. Besides, this study hypothesizes that the resilience of rural areas is significantly influenced by vulnerabilities resulting from regional transformations, and both natural and artificial impacts. Bağlıköy village was selected as the case study area to examine this hypothesis. A SWOT analysis of Bağlıköy's rural resilience helps identify internal strengths and weaknesses, as well as external opportunities and threats that influence its ability to withstand and recover from challenges. The assessment of the vulnerability of rural areas to natural and artificial effects experienced with regional transformations linked to resilience factors. In conclusion, the study evaluates the rural area's resilience and provides recommendations to enhance its sustainability and adaptive capacity.

Keywords: resilience, rural area, rural resilience, SWOT analysis, Bağlıköy

1. Introduction

Cultural, economic, environmental, social, and demographic systems within urban areas are dynamic and directly related to each other (Cheng et al., 2023). Increasing economic, social, and technological developments in cities contribute to the degradation of both artificial and natural environments. The effects of economic, social, and cultural changes, along with natural disasters, are observable in rural areas. In rural regions, numerous changes are observed in the cultural, environmental and demographic structure in terms of the social and political relationships of users. Linked to the development of urban areas, rural populations continuously migrate to cities, resulting in a decline in rural populations. In this context, the study by Tepecik (2023) raised awareness about the impact of migration on rural resilience. Uncontrolled migration from rural to urban areas has negative effects on production and the economy; they emphasized the increasing threat to creating healthier, more sustainable, economically strong and resilient rural areas. The outcomes of relative effects occurring due to this reduction are larger in rural areas. Understanding the structure of rural areas is particularly crucial, as the context and capacities for managing threats differ significantly between urban and rural environments (Cutter et al., 2016).

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On a regional scale, the concept of resilience concerns how systems respond to factors of change. The resilience concept is the ability of a system to resist the effect of variables that change and transform (Muntele et al., 2021). The most significant variables to which the system is exposed include migration and ownership problems. It is a necessity to deal with these variables, alongside the performance of cities faced with climate change and potential risks, using a resilience-based approach and include them in planning through quantitative methods (Dincer & Ercoşkun, 2021). Moving from this point, it is crucial to examine rural areas and consider them in terms of resilience. There are numerous studies regarding resilience, especially focused on urban areas, among regional-scale studies (Li, 2023; Jorge-Ortiz et al., 2023; Shukla et al., 2023; Salvia & Quaranta, 2017). Studies related to resilience in cities assessed the potential to cope with unexpected shocks like policies, strategies, cultural, social and environmental change and natural disasters. However, the literature review observed that studies on rural resilience are limited.

Rural areas are regions located distant from city centers and with limited relationship to cities. These areas have limited economic opportunities, low income levels, and generally livelihoods involve agriculture and livestock. With the growth of urbanization, the reduction in the rural population is unavoidable and this situation has contributed to large migrations from rural areas to urban areas. This situation is linked to urban-rural differences in living standards (Li, 2023). Despite these challenges, rural areas are rich regions in terms of culture and cultural heritage elements. At this point, investigation of the resilience of rural areas is a necessity in terms of being able to maintain the continuity of culture and preserving cultural heritage elements. It is essential to research the resilience of rural regions, that encompass the cultural, traditional and environmental values of a society, against artificial and natural threats and protect from vulnerabilities that arise when confronted with sudden shocks in the future. Resilience indicates a system's ability to handle these shocks (Lanlan et al., 2024). In this context, minimizing the vulnerability of rural areas is important in terms of increasing the resilience of the system and their capacity to withstand shocks (Tepecik, 2023). The resilience of a system is considered in the economic, cultural, social and environmental dimensions. In conclusion, rural areas are just as important as urban regions, revealing the necessity and importance of investigating the resilience of the system in terms of unexpected risks and transformations that could have negative impacts.

Holling's (1973) definition of resilience is the ability of systems to absorb change when exposed to change and negative effects, the impact on the system in any situation, and the capacity and stability to return to equilibrium after disruption. The resilience concept focuses on the reaction given by a system at a flexibility threshold when faced with all these changes (Eraydin, 2016). The resilience concept, with various sources, has broad areas of effect. In this context, it has become a new topic attracting much interest in several different disciplines like ecology, economy, planning and design (Lizarralde et al., 2015). Consequently, the resilience approach has expanded into diverse fields, from ecology to psychology and from architecture to economics (Heijman et al., 2019). For these reasons, the wealth of approaches developed for measuring resilience have contributed to the development of resilience approaches in nowadays.

Challenges in urban regions display differences compared to rural regions. This situation means that an effect that does not involve resilience in urban regions can be effective in terms of resilience in rural areas (Cutter et al., 2016). At this point, the concept of rural resilience has come to the agenda, with important debates in the last twenty years linked to the disadvantageous situation of rural areas compared to cities (Karakayacı & Keser, 2021). Rural resilience is defined as the capacity of a rural region to adjust to external conditions linked to varying living standards, and the degree to which it can tolerate change before reorganizing around a new set of structures and processes. At the same time, it may explain how the ecosystem, economic and cultural functions of the rural area equilibrate simultaneously. Economic, human and social development have significant and complex relationships with environmental sustainability (Singh et al., 2019) and also the resilience (Wang et al., 2024). Rural resilience is based on mutual relationships of other resilience types, like ecological resilience and cultural resilience (Karakayacı & Keser, 2021; Heijman et al., 2019).

Migrations experienced in rural areas increase the impact of economic factors, economic losses due to climate change and natural disasters, reduce population and increase vulnerability of cultural heritage elements. Factors such as population reduction, migration, spatial transformation, increased employment outside of agriculture, and decline in agricultural income contribute to reduced resilience. As a result, it is important to develop strategies for vulnerability to increase the resilience of societies and cultural heritage in rural areas.

Accordingly, the objectives of the study were to assess the resilience concept based on vulnerabilities of rural areas resulting from regional transformations and both natural and artificial impacts. The factors affecting resilience in rural areas are considered within the social, economic, cultural, and environmental contexts (Cutter et al., 2008; Bruneau et al., 2003), as indicated by the literature review. As a study area, the transforming Bağlıköy rural area, located in the west of the Turkish Republic of Northern Cyprus. Bağlıköy is an example of an Ecovillage-Cittaslow region. In this direction, while rural resilience is shaped by the variables mentioned above in rural areas such as Bağlıköy, the interaction of these factors with each other positively or negatively affects the resilience in rural areas. As a result of the interrelationships among these factors, the resilience and adaptation capacities of the region are formed. In this context, the analysis of the existing social structure, cultural potential, economic activities and environmental dynamics for rural areas, particularly Bağlıköy, enables the development of rural resilience. At the point of evaluating the results of the analyses, while the existing opportunities for regional development become visible, it enables prioritized action plans for threats. From this point of view, the conceptual framework of the study was analyzed through a literature review on resilience and rural resilience. Following this, resilience indicators were developed at the point of rural resilience according to the literature review. The developed indicators were shaped in accordance with the resilience analysis of Bağlıköy Rural and applied to the participants with a written-interview model. The data obtained were analyzed with SWOT analysis. In the final phase, resilience was analyzed for the chosen rural area, which is rich in cultural heritage and potential tourism activities, and recommendations were developed against possible shocks that may be encountered in the context of resilience.

1.1. Resilience

The resilience concept, expressing the ability of a system to absorb sudden shocks and disruptions while sustaining basic functions (Walker & Pearson, 2007), began to be used to understand ecological change and equilibrium at the end of the 1970s. From the middle of the 1990s, reducing disaster risk was included in studies. After the 2000s, along with adjustment to climate change, it became a concept used against natural disaster risks (Akbaş, 2023). The resilience concept, with increasing research fields within the last twenty years, is currently used in several different study areas (Windle, 2011). The source of the word comes from the Latin root resilire, meaning to spring back (Moloney & Doyon, 2021). Terminologically, it may be explained as the ability to resist pressure and stress. According to Walker and Salt (2006), resilience was defined as the capacity of a system to absorb disorder, and preserve basic functioning and structures. According to the UNISDR (2009) definition, resilience is “the ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic buildings and functions”. At the same time, resilience has variable features according to time and location (Ainuddin & Routray, 2012). In this context, it is an approach that can be tested in several different disciplines at levels involving systems, persons, society, assets and values.

Measuring resilience in the architecture discipline involves assessment of both the physical and sociocultural dimensions of the built environment. In architecture, resilience encompasses the capacity to resist, adjust to and overcome degradations, while preserving the functionality and viability of urban systems and the built environment (Holling, 1973). In this context, resilience is an integrated approach about converting and managing the built environment sensitive to adaptable, robust and variable conditions. Additionally, sociotechnical resilience approaches emphasize the

importance of interdependence between physical infrastructure, sociocultural systems and governance mechanisms in developing resilience in the urban context (Pickett et al., 2013).

Currently, the resilience concept may be confused with the sustainability concept. Resilience emerging after the sustainability concept is not sustainability. Resilience is not new sustainability, but there are important overlaps between the two concepts. The system approaches in sustainability and resilience paradigms are sometimes different to each other; in fact, they may contradict. However, in a general sense, efforts made to ensure sustainability bring positive results in terms of resilience (Ercoskun, 2012; Lizarralde et al., 2015). Resilience to naturally derived disasters is explained as society being prepared in every area and returning to previous experiences with minimum harm if this disaster occurs (Inal Onal et al., 2021). If human-derived, it is assessed as analyzing the relationship between the built environment and society and is a concept that can be used for a built environment that can transfer social quality of life to future generations (Ciftcioglu & Sunalp, 2019). For disasters not to result in destruction, resilience aims to make people, communities and systems more prepared for destructive events in both natural- and human-derived risk situations (Gökalp Yılmaz & Şikar, 2023). At the point of evaluation, the resilience concept is investigated in social, economic, cultural and environmental terms linked to the social and physical components of cities (Bruneauet al., 2003; Cutter et al., 2008). Moving from this point, it is a known reality that cities and rural areas will continue to display variation and development. This development process will involve several predictable and unpredictable risk factors. Assessing the resilience of a system against risks is a necessity in terms of being able to transfer the available resources of rural areas, which have limited natural resources, to future generations.

1.2. Rural Resilience

Urban resilience involves continuity, variation and restructuring of the system; in other words, the adaptation/transformation process (Ersavaş Kavanoz, 2020). Like urban resilience, rural resilience is defined as adjustment to varying external environments for continuity of the current system in the internal environment and the capacity to cope with vulnerabilities (Heijman et al., 2007). In other words, rural resilience is similar to urban resilience, and may be defined as the capacity of a rural region to adjust to variable external conditions in a way that sustains present living standards (Heijman et al., 2019). Determining risks that threaten resilience in rural areas and that may create fragility is required to preserve resources and be able to transfer them to future generations. Rural areas, involving differences from social, economic, environmental and cultural aspects, has a multicomponent structure with the potential for large agricultural fields, distance from urban crowding and low population density (Özlü et al., 2021). It is possible to investigate the system dynamics emerging from rural settlements under several different demographic-social, economic, physical and legal-administrative components. At the same time, resilience studies are important for investment and development while preparing rural areas better for shock situations in the future (Altıntaş & Hovardaoğlu, 2023).

As a result of the effects of increasing urbanization activities in the present day, rural areas are faced with the migration factor. This factor causes differentiation of demographic and social structures in rural settlements, involving an aging rural population and changes to family structure, which alters the contribution to agricultural activities of individuals working in the agricultural sector. According to Tepecik (2023), these factors are important in terms of the resilience of the system in rural settlements. From this perspective, the presence of population and the age distribution in rural settlements are important in terms of resilience of the system. Inclusion of the young population in the rural development process will ensure positive development of the social structure, along with the economic structure (Kan et al., 2020). Rural resilience appears to be a social process explaining the reactions of society to external forces like theoretical and economic regressions, natural disasters or other threats to sustainability. Rural dynamics in rural settlements are known to protect the rural population, and improve the quality of life of residents and environmental sustainability.

Development dynamics appear to be successful in reducing problems in rural areas and strengthening social, economic and environmental systems (Salvia & Quaranta, 2017). From another perspective, as defenseless regions, rural settlements not having resilience in economic, social, cultural and environmental terms contributes to the emergence of living standards at present. Social resilience, especially, has central importance in reshaping the role and function of rural areas. Linked to this, the resilience of the system is negatively affected as a result of factors that will increase fragility in these regions. Vulnerabilities include reduced population, the majority of the population comprising the elderly, low numbers or lack of young population, low educational level and limited access to these services, gaps in labor for agricultural production and lack of production tools among producers, lack of disaster experience, lack of planning of settlements, existence of infrastructure problems (water, sewage, communication, etc.), lack of health facilities, use of fossil fuels or coal for heating, weak connections with cooperatives, and lack of transport services. Factors which increase resilience include production in different sectors as additional income for retirees, supports given for agricultural activities and availability of social insurance.

2. Methodology

This study aims to analyse resilience and the ability to adapt to economic, social, cultural and environmental dynamics and processes associated with regional transformations in rural areas. Rural resilience was formed in line with the interaction of the dynamics that are effective in rural areas. The analysis of these factors determines the vulnerability of rural areas and identifies regional sustainability and adaptation capacities.

From this perspective, this study includes an assessment of resilience in rural areas. The study data was based on a qualitative data collection method. In this context, in order to analyse the resilience of rural areas, resilience assessment indicators were determined from the literature review. Afterwards, by taking into account the local texture and characteristics of rural areas in general and Bağlıköy, the study area, in particular, were analyzed (Table 1).

Table 1 Energy Performance Table for Retrofitted and New Buildings in 2090

Resilience	Resilience indicators
Cultural resilience	• Are there positive and/or negative inputs for the village from cultural tourism? • Do you think the cultural tourism activities within the village are sufficient? • Is the traditional cultural texture of the village able to sustain cultural tourism activities sufficiently? • What are your thoughts about the ecovillage and ecotourism models? • Do you think preservation activities for neighborhoods with integrity of traditional texture are sufficient?
Environmental resilience	• Are land use activities appropriate to the traditional texture of the village? • Are there prevention plans for disaster hazards? • What is your assessment of infrastructure activities within the village? • What are the effects on the ecological balance of construction in all areas within the village boundaries? • Which disaster hazards have impacted the village? (earthquake, landslide, flood, etc.)
Economic resilience	• What is the main source of income in the village? • Do cultural tourism activities sufficiently contribute to the village? • Are rural development activities supported by the local people? • Are ecovillage activities sufficient as an economic resource for the village? • Are economic supports from local government sufficient for development of the village?
Social resilience	• Are local government policies for rural villages sufficient to preserve the historical and cultural texture? • Are local government policies for rural villages sufficient to preserve the environmental texture? • Are local government policies for rural villages sufficient to preserve economic activities? • Are there organizational activities about local culture, preserving tradition, revitalization, etc. within the rural area? Are they sufficient? • Are there changes related to the demographic structure with migration occurring in rural areas?

Then, the written interview method questions were prepared according to the determined indicators. A total of 20 questions regarding the variables related to the resilience levels specific to Bağlıköy rural area were prepared and used to obtain data on these variables. Within the scope of the study, the total population of the village was accepted as 200 based on the 2011 census of the State Planning Organisation (Lefke Municipality, 2024). The prepared questionnaire was applied to 55 users. The written notes obtained were reported and summarised within the scope of the study.

A SWOT analysis was conducted based on the primary data obtained from the participants and the data obtained by on-site observation. With the SWOT analysis method, the strengths and weaknesses of the current situation in the region and the opportunities and threats that may develop in the region were investigated. Analyses have been made for the threats and risks that the Bağlıköy rural area may face, and suggestions have been developed in line with these.

3. Bağlıköy Rural Area

Bağlıköy rural area is located in the west of the island (Figure 1) and is a town village linked to Lefke county since Lefke gained the status of 6th county within the scope of the Civil Administration and Divisions (Amendment) Act numbered 2/2017 (Çeliksoy, 2021). Based on the 2011 population census by the State Planning Organization (DPO), the total population was 200, with total number of residences reported to be 79.

Figure 1 Location of Bağlıköy (Googleearth, 2024)

Bağlıköy, where the traditional village culture of Cyprus still exists, is an important region in the context of rural features due to its location. Council of Ministers Decision Number 152-2013 declared Bağlıköy a Tourism Area in Need of Protection. In this context, it was identified to be a Historical, Cultural and Traditional Life Center in the National Physical Plan. For Bağlıköy rural area, the aim is to develop the settlement within the framework of the ecovillage concept while preserving the original village texture, and to attract tourism investments suitable to the character and scale of the region. Additionally, it is included within the area of the Cittaslow-Slow City and Plan encompassing the whole of Lefke county in the Lefke Zoning Plan Draft Report (LIP). In this context, the region was identified to be a historical, cultural and traditional living center. Additionally, attention was drawn to both spatial and economic policies appropriate for the stated roles within the scope of planning (Town Planning Department (TPD), 2024).

The Cittaslow (slow city) movement is an “international network of cities emphasizing quality of life” (Topal et al., 2016). It is a development model based on local lifestyles and values applied to small cities and aiming to increase quality of life. This model emerged in Italy in 1999. It contributes to sustainable development within the specific values of the region and local economic development. At the same time, it supports livable development models in settlements where the local character comes to the fore by preserving the natural environmental, historical and cultural texture (Öztürk et al., 2023). The Cittaslow movement encourages preservation and development of the green texture by taking precautions against environmental, air, water, noise and light pollution in settlements. It has popularized awareness of livability by ensuring the continuity of local, unique architecture and urban planning in a cultural context, development of the social infrastructure and preservation of demographic texture socially (Özmen & Can 2018). The Cittaslow approach comes to the fore with appropriate, local and unique features in social, economic, cultural

and environmental dimensions. The Bağlıköy rural area is a member of the Cittaslow movement, while also being a town village associated with Lefke municipality, one of the top 5 municipalities within the borders of the Turkish Republic of Northern Cyprus (KKTC).

In summary, the reasons for selecting of Bağlıköy as a study area included its historical and cultural neighborhood texture and adobe-dominated traditional building stock, its potential to provide opportunities for crucial economic activities for rural development such as being an eco-village and developing eco-tourism in addition to agriculture and animal husbandry. Moreover, Bağlıköy has significant rural identity with its geographical features and environmental texture, and the fact that it is a member of the Cittaslow (slow village) network, which embraces a development model based on local lifestyles and values.

3.1. Bağlıköy Rural Area Resilience Analysis

The concept of resilience for the Bağlıköy rural area was addressed by examining cultural, environmental, economic and social indicators. Data were obtained from primary sources through case study conducted in the Bağlıköy rural area. Written notes collected during written-interview studies were evaluated in conjunction with data obtained from literature review. In this context, assessments along with user opinions were important for analysis of region-focused resilience.

3.1.1. Cultural Resilience Analysis

Preservation of the architectural texture with traditional qualities existing in Bağlıköy and being able to transfer this to future generations were considered crucial. In this context, high rates of users' answers in the written-interview results found that cultural values provided meaningful returns for the village. According to the general opinion of the users “The ecovillage and ecotourism models involve elements like preserving natural resources, supporting local cultures and communities, and creating environmental education and awareness. These models may each be important tools for a sustainable future.”

Additionally, it was thought that the ecovillage and ecotourism models brought positive returns for rural areas in general and for development of Bağlıköy rural area specifically. The ecovillage and ecotourism models were positive approaches in terms of revitalizing social culture and the potential to contribute to the income of people in the region. At this point, studies about including historical values in the tourism sector will create positive effects on cultural sustainability. At the same time, they will play an important role in tourism-focused diversification of economic activities in the rural area and in this context, economic resilience.

The general user opinion also highlighted the importance of supporting local production and contributes to the local economy. However, it was pointed out that when ecovillage or ecotourism is mentioned, festivals held once a year come to everyone’s mind. The definition and aims are not sufficiently explained. This feedback emphasised the need for clearer communication regarding the aims and scope of these models.

However, at the point of contributing a positive approach, additionally, continuous repetition of festivals, important in rural areas both to enliven the culture and for rural development, creates a threat in terms of the originality of local values. Additionally, input about the necessity to ensure more information is given to local people and more active roles be played by experts was obtained at this point. More inclusion of local people in the process was generally emphasized to be important for local development.

Regarding the adequacy of preservation activities for neighbourhoods with integrity of unique traditional village texture in historical, cultural and traditional terms, studies were not found to be adequate and concerns within the scope of cultural heritage preservation were outputs obtained in our field study. In this context, within the scope of analysis and preservation activities for the existing building stock, dominantly adobe structures, there was consensus about the importance of performing this work by observing the existing identity and characteristic features.

3.1.2. Economic Resilience Analysis

The main income sources for the village are provided by animal husbandry and agricultural activities. Pension accommodation centers reflecting the traditional culture and restaurants selling food produced within the village are located within the village boundaries. In this context, the inadequacy of accommodation possibilities in Bağlıköy rural area, with rural tourism potential in terms of rural development, was evaluated as a potential fragility.

Based on the collective opinions of the users, while Ecotourism festivals are held in the village. Along with being important for rural development, I think these activities need to be increased and developed. They are not sufficiently developed or promotion is not performed.

There are festivals organized in relation to ecovillage and ecotourism concepts. The majority of users did not think these activities sufficiently contributed to the village in terms of cultural tourism. They emphasized the development of potential tourism resources and more active participation by non-governmental organizations for labor cooperation in relation to the continuity of rural development. At this point, the importance of sufficient participation by the public was a focus.

In order to ensure the continuity of local culture and increase production activities, users highlighted the need for opportunities like grant-support models be provided. In this context, increases in the contributions from local and regional administrations were emphasized at a high rate.

3.1.3. Environmental Resilience Analysis

The geographical location of Bağlıköy has its own unique environmental texture. However, it was identified that interventions resulting in destruction of sensitive regions in ecological terms had intensified with unplanned development of the region. Buildings in new settlement areas, especially, created inconsistencies with the traditional texture of the village. In this context, it was thought that there were negative impacts that may occur in the ecological balance with increased buildings within the village boundaries.

In this context, the general opinion of those interviewed that Instead of buildings reflecting the environmental and cultural texture, like adobe homes found in Bağlıköy and surroundings, construction of high-rise buildings negatively impact the traditional texture.

At the same time, climate change and landscape hazards due to geographical features comprise threats. In this context, an output in the study area was that services were expected from local and regional administrations in relation to action-prevention plans against natural disaster threats within the village.

3.1.4. Social Resilience Analysis

One of the most important assets in the village is the neighbourhood texture with traditional quality and adobe homes. However, in light of data obtained within the scope of field studies it was revealed that these assets were not sufficiently protected in the context of current policies in the present day.

In this context, the general opinion of those interviewed highlighted that the young population within the village is very low. The feeling of belonging to the village of the young population should be researched and developed.

In conclusion, it was determined the current demographic structure within the village does not comprise a young and dynamic population. In this context, it is necessary to take steps to enhance the feeling of belonging to the village among the young population and to create opportunities to develop employment.

3.2. Findings Related to Cultural, Economic, Environmental and Social Resilience Levels of Bağlıköy Rural Area

The cultural, economic, environmental, and social resilience variables were investigated for the Bağlıköy rural area. After these investigations were finalized, the results were combined into separate tables. Then, in this part of the research, the results of the analysis were discussed.

The cultural elements within the boundaries of Bağlıköy rural area have high cultural potential. In this stage of the research, According to the collected data were formed into the Cultural Resilience Assessment Matrix (Table 2) . Then, while the rural village environment where intangible and cultural heritage can still be experienced increases cultural resilience, the lack or incompleteness of protective activities to be able to transfer these values to future generations was negatively assessed in terms of this resilience. In written-interview studies performed with users about evaluating cultural elements, the local people had positive approaches to ecovillage and ecotourism concepts, which was positively assessed for resilience in this area. However, the inadequacy of these activities in focusing on rural development, inadequate information given to village users and insufficient support from the relevant administrative organs affected resilience in a negative sense.

Table 2 Cultural Resilience Assessment Matrix

	Strength	**Weakness**
	• Continuity of existing culture • Has tangible cultural heritage with traditional qualities • A variety of festival interventions to promote the culture	• Inadequate accommodation facilities in areas with rural tourism potential • Inadequate promotion and advertising work for potential rural tourism visitors • Lack of sufficient development of rural tourism awareness • Inadequacy of various festival interventions to promote the culture • Possibility of destruction of intangible cultural heritage over time
	Opportunities	**Threats**
Cultural Resilience	• High potential for the ecovillage approach due to tangible and intangible cultural heritage • Membership of the Cittaslow movement • Presence of university and relevant departments and potential for cooperation	• Impact on continuity of tangible cultural heritage within the scope of ownership problems • Lack of a legal protection approach for rural areas within the scope of preserving tangible-intangible cultural heritage • Low young population due to the migration factor and inability to continue cultural transfer • Lack of study, like reporting or inventories, for tangible cultural values (neighborhoods with traditional quality, traditional adobe homes, etc.) • Not following practices preserving traditional texture in new construction areas

Economic activities intensively comprised agriculture and livestock, as valid for rural settlements generally. Bağlıköy rural area is within this generally valid group. However, additionally, the sociocultural potential and tourism activities were accepted an important development in terms of economic income for the rural area—the present study combined economic resilience data collected into the Economic Resilience Assessment Matrix (Table 3). Resilience was negatively affected by inability to sufficiently benefit from institutions/organizations providing grants and funds to support economic activities in the region.

Table 3 Economic Resilience Assessment Matrix

	Strength	**Weakness**
Economic resilience	• High potential for ecovillage approach • Potential for agricultural production from the geographical structure of the region • Presence of tourism potential	• Inadequate promotion and advertising wor potential rural tourism visitors • Lack of existing structure to market rural to and structures • Inadequate cooperation to develop tourisn non-governmental organizations and publi institutions within the scope of rural devel • Inadequate accommodation facilities in are rural tourism potential • Infrastructure problems and deficiencies ir areas
	Opportunities	**Threats**
	• Support for economic development while preserving forgotten cultural and traditional values • Membership of the Cittaslow movement • Presence of university and relevant departments and potential for cooperation	• Culture festivals not adequate for developr • Lack of an area to sell products produced in area

In this stage of the research, the environmental resilience was evaluated. Firstly were formed the Environmental Resilience. Assessment Matrix (Table 4). connected to the collected data Then, according to the matrix, the environmental resilience was interpreted. Rural settlements have a less degraded natural environment compared to urban settlements. The lack of destruction of Bağlıköy rural area had positive effects in terms of environmental and potential resilience. However, forest fires are among the shocks experienced in rural settlements. The natural environment in rural areas is defenseless against forest fire risks. This situation causes a reduction in resilience. At this point, the importance of preparing a natural disaster management plan can be clearly seen.

Table 4 Environmental Resilience Assessment Matrix

	Strength	**Weakness**
Environmental Resilience	• Undegraded environment in the region	• Irregular construction in settlements in rural areas • Inadequate planning-auditing-control mechanisms for new construction
	Opportunities	**Threats**
	• Low threats to natural wealth of the region due to low population density and lack of development of industrial activities • Expected potential for assessment of agricultural resources • Presence of university and relevant departments and potential for cooperation	• Lack of cooperation between local administrations and relevant institutions • Lack of qualified personnel that will occur linked to the increase in rural tourism potential • Threat to natural assets linked to uncontrolled visitor demands • Risk of forest fires and hazards to the vulnerable natural environment • Lack of protection plans for the unique structure of the region

Rural areas are regions with unique identities in terms of regional architecture and social characteristics. In this part of the study, the Social Resilience Assessment Matrix (Table 5) was formed according to the collected information. Then, social resilience was interpreted as related to the social resilience assessment matrix. The high number of traditional adobe buildings in Bağlıköy rural area increases resilience in social and cultural terms. However, protection of the existing building stock was shown as a weakness at this point. Additionally, the inadequate zoning-audit-control mechanisms for new construction activities in the region negatively affected resilience.

Moving from this point, the still-incomplete legal processes for zoning-protection plans in the region and lack of implementation negatively impacts resilience levels, led by social and environmental resilience, but also from cultural and economic perspectives.

Table 5 Social Resilience Assessment Matrix

Social Resilience	**Strength**	**Weakness**
	• Distance from urbanization and industrialization activities • Lack of uncontrolled internal migration	• Unbalanced ratio between young population and elderly population • Lack of sufficient cooperation between non-governmental organizations and public institutions to develop rural tourism • Protection-zoning plans still not legalized and not implemented • Preservation-focused status detection analyses and inventory studies still not completed
	Opportunities	**Threats**
	• Existence of traditional village texture	• Negative impact of excess elderly population on dynamicity of rural settlements • Inadequate auditing mechanisms for construction and development within the region

4. Conclusion

Currently, resilience studies have come to the forefront due to shocks with increasing frequency and impact in rural areas. Rural areas have become dependent on cities in the face of changing external conditions and have a fragile structure (Li, 2023). As a result, increasing rural resilience is important in terms of adjusting to newly-developing situations. Resilience is simultaneously a necessity for sustainable rural development. Rural resilience is known as an integrated concept playing an important role in optimizing negative trends resulting from risks faced in rural areas and for sustainable rural development that can resist these risks. The basic aim of sustainable rural development is for rural areas to obtain resilience in their specific social, environmental, economic, institutional or cultural fields. At this point, determining indicators is crucial to understand the formation of the rural area.

In this study, hypothesizes that the resilience of rural areas is significantly influenced by vulnerabilities resulting from regional transformations, and both natural and artificial impacts. As a connected to the hypothesis, the indicators affecting resilience for Bağlıköy rural area were dealt with in cultural, economic, environmental and social contexts. Within the framework of the resilience approach, what problems may induce vulnerability in rural areas were investigated. Additionally, preparation capacity was assessed with tangible approaches to shocks that will have high impact on systems in rural areas. Data were obtained with field studies completed within the scope of the research and written-interview studies in focus groups. In this context, the obtained data were evaluated with the SWOT analysis method.

One of the important vulnerabilities emerging in findings related to social resilience within the scope of Bağlıköy rural area in the research is the case of migration and resulting degradation in the demographic structure. Migration and aging of the existing settled population negatively affects the dynamicity of the rural area. Additionally, it comprises a serious hazard in terms of resilience for transfer of intangible cultural heritage from generation to generation. This factor is connected to more than one area, and affects resilience in the economic, environmental and social areas as well as cultural area. At this point, recording and archive studies about intangible cultural heritage are important. Additionally, another result of migration affects rural development in terms of ensuring continuity of agricultural production by an aging population and this creates economic and also environmental vulnerability. At this point, it is important to protect local culture to be able to reduce the migration pressure from rural areas to towns and to organize grant resources about

increasing production. Additionally, it should not be forgotten that the Cittaslow membership of Bağlıköy and its ecotourism potential are strong factors at this point.

Transfer of tangible cultural heritage to future generations, continuous from past to the present, comprises vulnerability in the context of cultural resilience. Most of the existing building stock in Bağlıköy rural area comprises adobe. It is important to be able to transfer this adobe building group to future generations to ensure continuity of the culture. At this point, firstly it is mandatory to define a protection area in the region and to prepare region-focused preservation plans. Additionally, it is necessary to begin relief and inventory studies to analyze the existing building stock immediately. After analysis of the existing building stock, restoration and refunctioning work will contribute to resilience in a cultural sense.

Another of the most important problems experienced in rural areas was clearly revealed in written-interviews in terms of economic resilience. In this context, the need to evaluate the importance of support for local production and economy within the bounds of rural development principles was mentioned. At the same time, the analysis performed for Bağlıköy rural area determined that expectations were not sufficiently met by services like accessibility of local administrations and infrastructure.

The distance of rural areas from local administration centers emerged as a factor causing vulnerability. Additionally, distance to local administrations increased vulnerability in terms of environmental and social resilience. The inadequacy of auditing and control mechanisms affected resilience at this point. To be able to resist shocks that will be experienced in rural areas with increasing natural disaster events, there were expectations from local administrations in terms of disaster prevention and preparation work. Within this framework, this led to the need for more resilience and more robust policies to increase support for agriculture and tourism-focused economic activities, especially, and to overcome interrelated challenges in social, economic, environmental and cultural contexts.

In conclusion, analysis of the impact of any situation causing change, transformation or systemic shocks in rural areas, adjustment to new conditions and how to increase rural capacity is important. As a result of the study, it was observed that indicators of cultural, economic, environmental and social resilience interact with each other. At this point, the results of analyses that will be performed should involve an integrative approach. An integrative resilience analysis approach and how to identify it will be the research focus for future studies to increase the resilience of rural areas and maintain sustainable development capacity.

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Resume

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