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ARTICLE / ARAŞTIRMA

Morphological Analysis of Rural Settlements That Have Been Relocated Due to the Construction of Dams: The Example of Dedemli Village

Baraj Yapımı Nedeniyle Yeri Değiştirilen Kırsal Yerleşmelerin Morfolojik Açıdan Analizi: Dedemli Köyü Örneği

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ABSTRACT

Rural settlements are residential areas integrated with nature, preserving traditional and cultural values and meeting the daily needs of individuals by environmental data. These rural settlements are analyzed into two main categories: mountain and plain settlements. In recent years, rural settlements have been under threat of extinction or subjected to relocation processes, particularly due to various natural or artificial reasons, especially dam projects. This study aims to conduct a morphological analysis of the settlement scale following the relocation of Dedemli Village to the Meram Dedemli Neighborhood in the Konya/Hadim district due to the construction of the Bozkır Dam. Firstly, the settlement areas were defined, roads and boundaries, parcel-structure-road relations, common use spaces, occupancy-vacancy, function, number of floors, and green space analyses were carried out and evaluated comparatively. Space Syntax Method was used to provide a quantitative perspective in the study, integration maps and data were revealed, and axial analyses supported these data. Upon examination of the analysis results, it was determined that the integration, connectivity, and intelligibility values of the new settlement, and the results of axial analysis were higher compared to the old settlement. In contrast, the mean depth value was lower. Therefore, it was observed that compared to rural mountain settlements with organic texture, planned rural plain settlements have a more readable, well-connected, and integrated settlement system. Consequently, it can be said that site selection and planning are critical processes for providing effective and healthy settlements in relocated rural settlements.

Keywords: Bozkır Dam; Dedemli Village; displacement; Meram Dedemli Neighborhood; morphological analysis; rural settlement; Space Syntax.

ÖZ

Kırsal yerleşmeler, bireylerin günlük ihtiyaçlarına yönelik, doğayla bütünleşik, çevresel verilere uygun, geleneksel ve kültürel değerleri yaşatan yerleşim alanlarıdır. Bu kırsal yerleşmeler, dağ ve ova yerleşmeleri olmak üzere iki ana kategoride incelenmektedir. Son yıllarda kırsal yerleşmeler doğal ya da yapay çeşitli sebeplerle ve özellikle baraj projeleri nedeniyle yok olma tehdidi altında kalmakta veya yer değiştirme süreçlerine tabi tutulmaktadır. Çalışmada, Konya/Hadim ilçesine bağlı Dedemli Köyü'nün Bozkır Barajı yapımı nedeniyle Meram Dedemli Mahallesi'ne taşınması üzerine yerleşim ölçeğinde morfolojik açıdan bir analiz yapılması amaçlanmıştır. İlk olarak yerleşme alanları tanımlanmış, yollar ve sınırlar, parsel-yapı-yol ilişkileri, ortak kullanım mekanları, doluluk-boşluk, işlev, kat sayısı, yeşil alan analizleri gerçekleştirilerek karşılaştırmalı olarak değerlendirilmiştir. Çalışmaya nicel bir bakış sağlamak amacıyla Mekansal Dizim Yöntemi kullanılmış, bütünleşme haritaları ve verileri ortaya konmuş, aksiyel analizler ile bu veriler desteklenmiştir. Yapılan analiz sonuçlarına bakıldığında yeni yerleşmenin integration, connectivity, intelligibility değerlerinin ve aksiyel analiz sonuçlarının eski yerleşmeye kıyasla daha yüksek olduğu, mean depth değerinin ise daha düşük olduğu tespit edilmiştir. Dolayısıyla organik dokudaki kırsal dağ yerleşmesine kıyasla planlı kırsal ova yerleşmesinin daha okunabilir, bağlantıları güçlü ve bütünleşik bir yerleşim sistemine sahip olduğu görülmüştür. Sonuç olarak yeri değiştirilen kırsal yerleşmelerde alan seçimi ve planlamasının etkin ve sağlıklı bir yerleşim sağlaması açısından kritik bir süreç olduğu söylenebilir.

Anahtar sözcükler: Bozkır Barajı; Dedemli Köyü; yer değiştirme; Meram Dedemli Mahallesi; morfolojik analiz; kırsal serleşme; Space Syntax.

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1. Introduction

Rural settlements are the areas where local architecture is most common, reflecting factors such as the natural conditions of the region where they are located, the requirements of the period, lifestyles, socio-cultural structure, and economic status of the people. Rural settlements are examined in two main categories, namely rural lowland and rural mountain, according to the topographic structure of the land and natural environmental conditions (Çınar, 1990).

Rural settlements maintain their original values regarding the formation and preservation of architectural characters by showing continuity where they belong. However, some rural settlements face the danger of extinction in their places due to various reasons such as natural disasters such as earthquakes, floods, landslides, infrastructure deficiencies transportation difficulties, or due to large-scale dam projects. In situations that threaten such rural settlements, relocation processes are emerging to move the settlements to healthier living areas (Bakırcı, 2002).

Among the displaced rural settlements, displacements due to natural disasters, especially those associated with earthquakes, stand out. However, with the developing and transforming world, large-scale dam projects established to meet current energy needs due to insufficient stream and underground water resources today are an important factor causing rural settlements to be displaced.

Within the scope of the study, the relocation process of Dedemli Village, which has a rural mountain settlement characteristic and is connected to the Hadim district of Konya province, due to the Bozkır Dam was examined. A new and planned settlement area has been created in an area connected to Meram, one of the central districts of Konya Province, for the village of Dedemli, which will be flooded with the construction of a dam. This settlement area took the name of Meram Dedemli Neighborhood and became the seventieth neighborhood of Meram district. In this context, the relocation of Dedemli Village, a residential area with an organic texture that shows rural mountain settlement characteristics, to Meram Dedemli Neighborhood, a planned residential area that shows rural lowland settlement characteristics, is a multi-faceted relocation process that requires extensive research. Within the framework of this study, it was aimed to analyze the old settlement with the mountain rural settlement area feature, which shows a natural formation, and the new settlement area with the lowland rural settlement area feature, which shows a planned formation, from a comparative morphological point of view on the settlement scale.

This study, in which Dedemli Village, which is an example of rural settlements that have been displaced, is examined from an architectural point of view, is aimed to perform a detailed morphological analysis. In this direction, it is aimed to address the old and new settlements with various parameters on the settlement scale and to make a comparative evaluation by performing space syntax and axial analyses from a quantitative point of view introduced into the study. In these aspects, the study will make an important contribution to the literature in terms of architectural analysis of resettled rural settlements. In addition, the identification of spatial layout differences on the settlement scale, which is the result of moving the mountain rural settlement area, which shows a natural formation, to a planned lowland rural settlement, allows the study to gain a unique dimension.

2. Conceptual Framework

2.1. Rural Settlements

Rural settlements, by their most general definition, usually refer to the framework covering all settlements outside the city. They are settlements that vary and gain identity according to the climatic characteristics of the region, topographic structure, vegetation, topographic structure of the land, and social and socio-cultural structure (Aydın, 2008). Rural settlements are places where cultures and lifestyles are reflected in the place where they live.

Looking at the definitions of rural settlements in general, it can be defined as a type of settlement where these areas are formed under the influence of geographical and cultural environmental components, cultural traces can be read from architectural products and spaces, and they differ according to lifestyle and livelihood styles (Yılmaz Çakmak, 2011).

Rural settlements can mostly be defined as settlements whose economy is based on agriculture, formed by communities with a large family structure, have strong ties in terms of face-to-face neighborly relations, and are separated from urban communities in all these respects. In addition, these settlements are social units in unique geographical and ecological areas, with a unique social organization and culture, a unique name and history, and a much smaller population compared to the city (Eminağaolu, 2004).

It can be classified into two main headings: rural lowland settlements and rural mountain settlements according to the densities on the land, the topographic structure of the land, and according to the settlement patterns (Kantar, 1998).

Rural lowland settlements are the first form of settlement seen. Rural lowland settlements are rural settlements built on without inclination flatlands, where housing groups and work areas are separated from each other (Çınar, 1990). Additional structures that are formed depending on the daily functions and livelihoods, depending on the independence of fields, vineyards, and gardens, which are residential areas and work

Table 1. General characteristics of rural lowland and mountain settlements

Parameters	Rural lowland settlements	Rural mountain settlements
1. Topography	Flat terrain structure	Rugged terrain structure
2. Building groups	The residences are located together and adjacent to each other. Additional buildings are far from residences	Housing groups are at certain intervals. Additional buildings and house buildings are intertwined.
3. Building material	Usually adobe, stone, and sometimes wooden	Usually stone and wood
4. Source of livelihood	Dry farming	Aqueous agriculture and animal husbandry
5. Social relations	Strong	Weak
6. Infrastructure	Installation and network installation is easy.	Installation and network installation is difficult.
7. Regional distribution	Widely used in Central Anatolia, Southeastern Anatolia and Eastern Anatolia	Settlements on the mountain slopes, commonly in the Black Sea and other regions

Yılmaz Çakmak, 2011; Çınar, 1990; Kantar, 1998; Tunçdilek, 1967; Gür, 2000; Yasak & Oğan, 2019.

areas, are seen in the working areas away from the residential groups. In these settlements, where agriculture is the primary source of livelihood, additional buildings are mainly warehouses, tobacco warehouses, and agricultural vehicle warehouses. In addition, adobe and stone materials are used as building materials in rural lowland settlements (Yasak & Oğan, 2019). Social relations are strong in these settlements. It is easy to install infrastructure services depending on the topographic structure of the lands where settlements are established. In our country, rural lowland settlements are widely observed regionally in Central Anatolia, Southeastern Anatolia, and Eastern Anatolia regions (Yılmaz Çakmak, 2011) (Table 1).

Rural mountain settlements, on the other hand, are rural settlements formed by housing groups located in clusters of several households depending on the inclined structure of the topography, established on sloping land (Yılmaz Çakmak, 2011). In addition to the residences, the structures formed depending on the daily work are located adjacent to or near the residences due to the sloping structure of the land in rural mountain settlements. These structures are used for housing and feeding animals that depend on the livelihood of the people. The additional structures mainly seen in these settlements, which are connected to the livestock economy, are stables, dairy, corral, and haystack structures (Üzülmez & Yılmaz, 2017). In addition, mainly stone and wooden materials, which are easily available materials from the environment in rural mountain settlements, are used as building materials in building constructions. Social relations are weaker in these settlements compared to rural lowland settlements. The installation of infrastructure services is difficult depending on the topographic structure of the lands where settlements are established. In our country, rural mountain settlements are widely observed in the Black Sea region, where mountains and slopes are predominantly located regionally (Yılmaz Çakmak, 2011) (Table 1).

Rural lowland settlements and mountain settlements have unique characteristics with differences in the natural environment, variations in building positioning, differences in spatial organization, and variations in building materials and construction techniques. The general characteristics obtained from various sources belonging to these settlements are tabulated and stated comparatively (Table 1) (Yılmaz Çakmak, 2011; Çınar, 1990; Kantar, 1998; Tunçdilek, 1967; Gür, 2000; Yasak & Oğan, 2019).

2.2. Rural Settlements That Have Been Relocated

Place is not only a physical reality but also a very interactive concept with psychological dimensions. Because place refers to the meaningful places where individuals form relationships, connect, and belong (Cresswell, 2004). According to Relph's (1976) definition, place finds meaning through information connected to practical action. Therefore, commitment to place is the original integration of the processes of creating space and living in the created spaces based on individual actions and experiences. In this context, the place is beyond physical phenomena. It is the semantic framework that individuals add to the environments they belong to (Relph, 1976). Understanding and reading the place will only be made possible by evaluating the physical environment and the social environment holistically and deciphering the interaction and relationship links between them.

The concept of relocation is the process of moving all or part of a settlement from an area that is unsafe or cannot meet current needs to another area that offers healthier living opportunities. Therefore, relocation is a state of separation from the place where they belong the settlement people, separation from the experiences belonging to the place, and drifting to new beginnings (Arslan & Ünlü, 2011).

The process of relocation in rural settlements are movements that need to be considered together with the social, cultural, economic, and political dimensions that arise in the process of changing space from a geographical point of view (Yılmaz Çakmak, 2011). According to the definition of the Turkish Language Association, displacement is the act of individuals or societies moving from one residential area to another for various reasons that can be increased, such as social, economic, or political (TDK, 2023). Various displacements are observed in every period of history due to changing political, environmental, and social factors and transformations in living conditions (Deniz, 2008).

Some of the rural settlements are forced to move to a different area from where they were established due to insufficient infrastructure, transportation difficulties, security hazards, dam construction, or natural disasters such as earthquakes, floods, landslides, and rockfalls (Gökçe et al., 2008). When we look at the causes of displacement in our country, it is seen that the most common factor within the scope of natural causes is landslides (32%). This is followed by earthquakes (25%), floods (15%), and water rise (0.8%) disasters. Within the scope of human reasons, the most common reason for displacement is the construction of dams (18%). Following this, transportation difficulties (2.3%), security hazards (1.9%), and economic reasons (1.5%) are the factors (Ceylan & Dinç, 2022).

Some settlements face various problems due to reasons such as the topographic characteristics of the place where the settlement belongs are unsuitable for providing infrastructure services, the road routes providing transportation to the settlement areas are not healthy, there are difficulties in accessing public services provided by the state, such as electricity, water. Therefore, these settlements are involved in the relocation processes to provide appropriate conditions for current requirements and improve existing ones (Rızvanoğlu, 2019). These reasons mentioned are the main factors that constitute the reasons for the relocation of rural settlements.

2.3. Rural Settlements That Have Been Relocated due to the Construction of Dams

Streams and underground water are important natural resources that have been used throughout history. Throughout history, the way of using streams has shown change and transformation depending on the way of life of people. Rivers that serve the purposes of meeting the need for drinking water, increasing soil fertility, and irrigation soils with the transition to a settled order are of critical importance.

Due to the emergence of new needs in the developing and transforming world in recent years and the fact that natural water resources such as streams and groundwater are insufficient to meet current needs, large-scale dam projects are being carried out for water accumulation, flood-flood control, energy production, and economic development (Sönmez, 2012). In addition to the positive effects they provide in various respects, they cause fundamental changes and transformations in spatial and sociological terms in the rural areas where they are built. Almost all of the settlements that have been displaced due to the construction of dams are rural settlements (Bakırcı, 2016; Orhan & Gök, 2016; Koday, 2013; Bakırcı, 1997; Boyraz & Bostancı, 2015) (Table 2). The establishment of dam projects especially in rural areas and, accordingly, their direct impact on rural settlements, forced displacement of rural settlements remaining within the boundaries of the dam lake area, and these relocation processes are a very interactive process beyond physicality (Bakırcı, 2016).

The studies conducted in the literature of rural settlements whose location has been changed due to the construction of dams have mainly been based on the social and economic foundations of displacement processes. Orhan and Gök's (2016) Oruçlu and Zeytinlik Villages related to the construction of Deriner Dam, Koday's (2013) Aşağı Çat, Yukarı Çat and Taşağıl Villages related to the construction of Palandöken Dam, Bakırcı's (1997) Samsat related to the construction of Atatürk Dam, Boyraz and Bostancı's (2015) Halfeti related to the construction of Birecik Dam, the sociological effects of displacement processes were generally studied in the studies. At this point, there is no comprehensive architectural assessment and analysis study for rural settlements that have been displaced due to the construction of dams. Therefore, this study is an innovative study that will contribute to the literature in terms of methodology and scope.

2.4. Space Syntax Method

Deciphering the relationship between social life and spatial organization is the main principle of creating a good environment (Hillier & Hanson, 1984). In this context, the reading of spatial relations on the settlement scale and the understanding of relations is an important parameter that needs to be addressed (Çelikkayalar, 2014). In this context, the Space Syntax method is a scientific approach to the structure and/or settlement scale that deals with the space together with its environment and allows the relationships within the organization to be read through numerical data (Çelikkayalar, 2014). This method explains the relationships between the parts and the whole and the relationship between different integrations (Hillier, 1996).

Integration maps obtained by axial analyses allow accessibility to be expressed from the highest degree to the lowest degree on settlement plans. In the integration maps, the regions with the highest mobility on the axles providing connections are indicated in red color, while weak movement points are indicated in blue color. Therefore, mobility and connectivity are interpreted on a color scale ranging from red to blue. Connectivity values indicate the degree of integration with the environment of the spaces in which the axles expressing connections in the relevant maps are related. For this reason, axes with a high integration value provide an inference that accessibility and integrity between the spaces they are connected to are strong (Ardıçoğlu, 2023).

Table 2. Some settlements that have been relocated due to the construction of dams in Turkey

Settlement names	The district to which it is afflied	The name of the dam	The year of displacement
1. Samsat	Adıyaman/Samsat	Atatürk Dam	1998
2. Halfeti	Şanlıurfa/Central	Birecik Dam	2000
3. Aşağı Çat	Erzurum/Çat	Palandöken Dam	2001
4. Yukarı Çat	Erzurum/Çat	Palandöken Dam	2001
5. Taşağıl	Erzurum/Çat	Palandöken Dam	2001
6. Dokuzpınar	Muş/Bulanık	Alparslan I Dam	2008
7. Yurttutan	Muş/Varto	Alparslan I Dam	2008
8. Demirkapı	Muş/Bulanık	Alparslan I Dam	2008
9. Tepeköy	Muş/Varto	Alparslan II Dam	2008
10. Doğantepe	Muş/Bulanık	Alparslan I Dam	2008
11. Zeytinlik	Artvin/Central	Deriner Dam	2012
12. Oruçlu	Artvin/Central	Deriner Dam	2012
13. Yeniköy	Artvin/Yusufeli	Yusufeli Dam	2019
14. Takkale	Artvin/Yusufeli	Yusufeli Dam	2019
15. Irmakyanı	Artvin/Yusufeli	Yusufeli Dam	2019
16. Çeltikdüzü	Artvin/Yusufeli	Yusufeli Dam	2019
17. Çevreli	Artvin/Yusufeli	Yusufeli Dam	2019
18. İşhan	Artvin/Yusufeli	Yusufeli Dam	2019
19. Meşecik	Artvin/Yusufeli	Yusufeli Dam	2019
20. Bağiçi	Muş/Varto	Alparslan Dam	2020
21. Sanlıca	Muş/Varto	Alparslan Dam	2020
22. Kayalıdere	Muş/Varto	Alparslan Dam	2021

Bakırcı, 2016; Orhan & Gök, 2016; Koday, 2013; Bakırcı, 1997; Boyraz & Bostancı, 2015.

In axial analysis, the integration value provides an estimate of the possible movement of the axles in the system and expresses the natural movement. The integration value expresses the relationship between each axle in the system and the other axles. The axles with the most intersections are considered the strongest integrated axis of the system, while those with the least intersections are expressed as dissociated axles (Gürbüz Yıldırım & Çağdaş, 2018). In axial maps, the strong integration expression is expressed in red color and the weak expression is expressed in blue color.

In axial analyses, the connectivity value expresses the spatial relationship in the context of accessibility (Hillier & Hanson, 1984). This value is the most basic criterion in making sense of the place. The connectivity value numerically expresses that an axle in a spatial system is in direct connection with other axles. The increase in the value of connectivity shows that the system has strong relationships, pedestrian mobility is intense, and the networks within the system are in strong connections with each other (Ünlü, 1999). Therefore, the value of connectivity is high in systems where the spatial relationship is high. In axial maps, axes with high connectivity values are indicated by red color, and axes with weak values are indicated by blue color (Gürbüz Yıldırım & Çağdaş, 2018).

The ratio between the integration and connectivity values obtained by axial analysis is defined as intelligibility. This value is related to the level of perception of the entire system by the space user. It provides ease of finding directions to the user in systems where the intelligibility value is high and a wide visual perspective from the point where it is located (Hillier et al., 1987).

Mean depth refers to the connections within a system, the layout, and the relationships of the connections within each other. The low mean depth value indicates that the axles and the system as a whole are more integrated within the system. A high mean depth value indicates that the system is more scattered and the connections are more complex (Çalışkan & Ongun, 2015).

Axial fracture refers to the degree of mobility within a settlement system and the deviations that occur in user movements. This value gains meaning between the values of 0 (zero) and 1 (one) (Table 3) (Hillier & Hanson, 1984; Kubat & Topçu, 2007).

Table 3. Axial fracture, axial annulation, and grid axiality values

Axial fracture value	= number of axles / number of buildings
Axial annulation value	= number of islands / 2 x (number of axles) - 5
Grid axiality	= (√(number of islands) x 2 + 2 / number of axles

Hillier & Hanson, 1984; Kubat & Topçu, 2007.

Table 4. The analysis parameters used in the settlement scale in the literature

Authors	Name of the literature study	The analysis parameters
Kut Görgün & Yörür (2018)	Village design guides as Tools for conserving the original tissues of rural dettlements: The Case of Ödemiş, Bademli	Roads and Borders, Parcel-Structure-Road Relations, Common Space Uses
Başaran (2024)	Investigation of Kocaeli Province Karamursel District Ereğli Neighborhood urban protected area in the context of protection of traditional architectural texture	Function Analysis, Use Case Analysis, Number of Floors Analysis, Structure-Parcel Relationship, Full-Empty Analysis, Ada-Parcel Analysis, Street Texture and Transportation Analysis
Yeler (2021)	Rural architectural features of Armutveren Village (Kirklareli) and conservation suggestions	Roads and Borders, Parcel-Structure-Road Relations, Common Space Uses, Function Analysis, Floor Analysis, Physical Condition Analysis, Construction Technique Analysis, Authenticity Status Analysis
Özbayraktar & Yinelek (2019)	Analysis on rural settlements in Kocaeli/Karamürsel: The case of Avciköy	Function Analysis, Number of Floors Analysis, Analysis of the Use Case of Housing
Büyükmıhçı & Eldek (2015)	Hacilar in the context of Architectural qualities	Full-Empty Analysis, Floor Analysis, Old-New Structure Analysis, Roof Analysis Usability Analysis

Kut Görgün & Yörür, 2018; Başaran, 2024; Yeler, 2021; Özbayraktar & Yinelek, 2019; Büyükmıhçı & Eldek, 2015.

Axial annulation describes the degree of connectivity of the axes in the settlement system. It expresses the level at which these axes are connected, but also provides an interpretation of the user moving within the settlement system and the level of spatial interaction and integration. This value is also meaningful between the values of 0 and 1 (Table 3) (Hillier & Hanson, 1984; Kubat & Topçu, 2007).

Grid axiality, on the other hand, describes the level of regularity of the layout plan. This value is a value that expresses the layout of the layout scheme of the settlement system, the degree of mobility of space users, and the level of connectivity between spaces. The fact that this value is below 0.25 refers to a settlement system with a lot of physical impairments, while values of 0.25 and above numerically describe a regular and planned settlement system (Table 3) (Hillier & Hanson, 1984; Kubat & Topçu, 2007).

3. Methodology

Within the scope of the study, a detailed literature search was carried out primarily to reveal data about rural settlements, displaced rural settlements, and the study area. In this direction, scientific books, journals, and other published works have been used. Existing maps belonging to the study area were used, on-site observations were made, necessary opinions were obtained about the findings obtained, various scientific documents were used and inferences were provided by reflecting the original thoughts and opinions of the researchers.

In the first part of the study, in which a morphological analysis was aimed, the general settlement characteristics of the old and new settlements were explained. In order to be able to read on the settlement scale, research has been conducted on which parameters are used in these analyses in the literature. Kut Görgün and Yörür's (2018) study "Kırsal yerleşmelerde özgün dokunun korunmasında bir araç olarak köy tasarım rehberleri: Ödemiş Bademli Örneği", Başaran's (2024) study "Kocaeli Karamürsel ilçesi Ereğli mahallesi kentsel sit alanı mimari dokusunun korunması bağlamında incelenmesi", Yeler's (2021) study "Armutveren Köyü'nün (Kırklareli) kırsal mimari özellikleri ve koruma önerileri", Özbayraktar and Yinelek's study (2019) "Kocaeli/Karamürsel ilçesi kırsal yerleşmeleri üzerine analizler: Avcıköy Örneği",

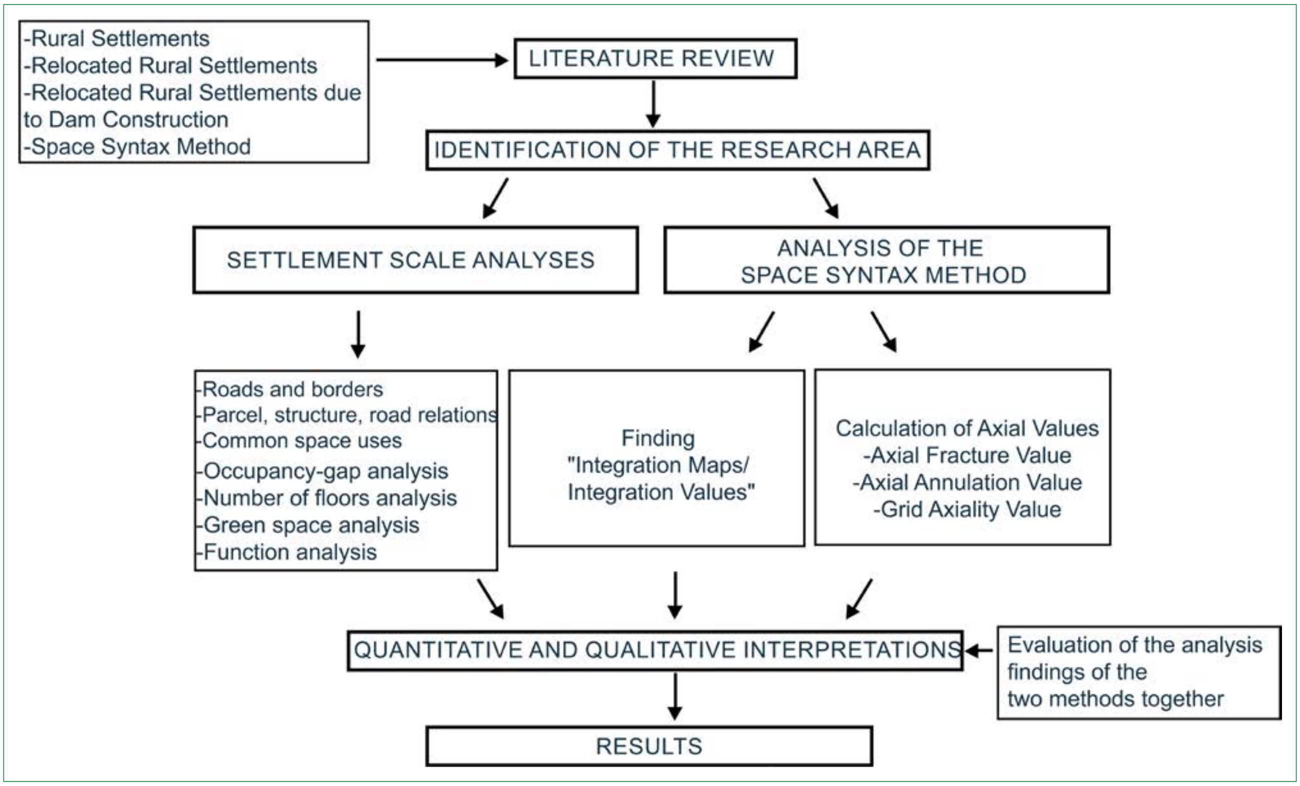

Figure 1. Working methodology scheme.

Created by the Authors, 2024.

Büyükmıhçı and Eldek's (2015) study "Mimari nitelikler bağlamında Hacılar" was accepted as an example in this context and the first part of the settlement scale analyses was classified as roads and borders, parcel-structure-road relations and common space uses, occupancy-vacancy analyses, floor number analyses, green space analyses, and function analyses, and comparative evaluations were made (Table 4).

In this study, which was created on the rural settlement area that was displaced in the continuation of the study, axial analyses were performed at the settlement scale using the Space Syntax method to provide an objective point of view by digitizing the studies on the old settlement and new settlement areas. Then, the island numbers, axle numbers, building numbers of values of the two settlement areas and axial fracture, axial annulation and grid axiality data were calculated. Together with these values, which provide a provable framework for the study, integration maps and values have been taken together and quantitative and qualitative interpretations of the old and new settlement areas have been made (Fig. 1).

The original value of the study is that the relocated rural settlements, which are considered missing in the literature, are analyzed at the settlement scale and supported by the Space Syntax method, which provides the opportunity to support these analyses with tangible data.

4. Fieldwork

4.1. Settlement Characteristics of the Old Settlement Area Dedemli Village

Hadim district of Konya Province, which is established among the high rugged hills of the Middle Taurus Mountains, is located on the borders of the Mediterranean Region as a geographical region. The altitude in this region rises to 2500 meters, and the land is dominated by a topography consisting of high hills and pointed mountains (Haritatr, 2023). Dedemli Village is a rural mountain settlement in the district of Hadim, Konya Province, Turkey. It is one of the 32 villages of Hadim and according to Turkish Statistical Institute 2022 data, it is the third most populous village after Taşpınar and Gevlevi villages with a population of 848 people (Hadimkülder, 2023; TÜİK, 2022) (Figs. 2, 3).

Dedemli Village is a rural settlement located on the Göksu River, which extends approximately 260 kilometers over the provinces of Antalya, Konya, and Karaman and empties into the sea in the province of Mersin. The altitude of Dedemli Village is about 1350 meters. Although it is geographically within the borders of the Mediterranean Region, depending on its high altitude, continental climate characteristics can be observed as well as Mediterranean climate characteristics (Haritatr, 2023).

Figure 2. The location of Hadim District in Turkey.

Google Earth, 2024.

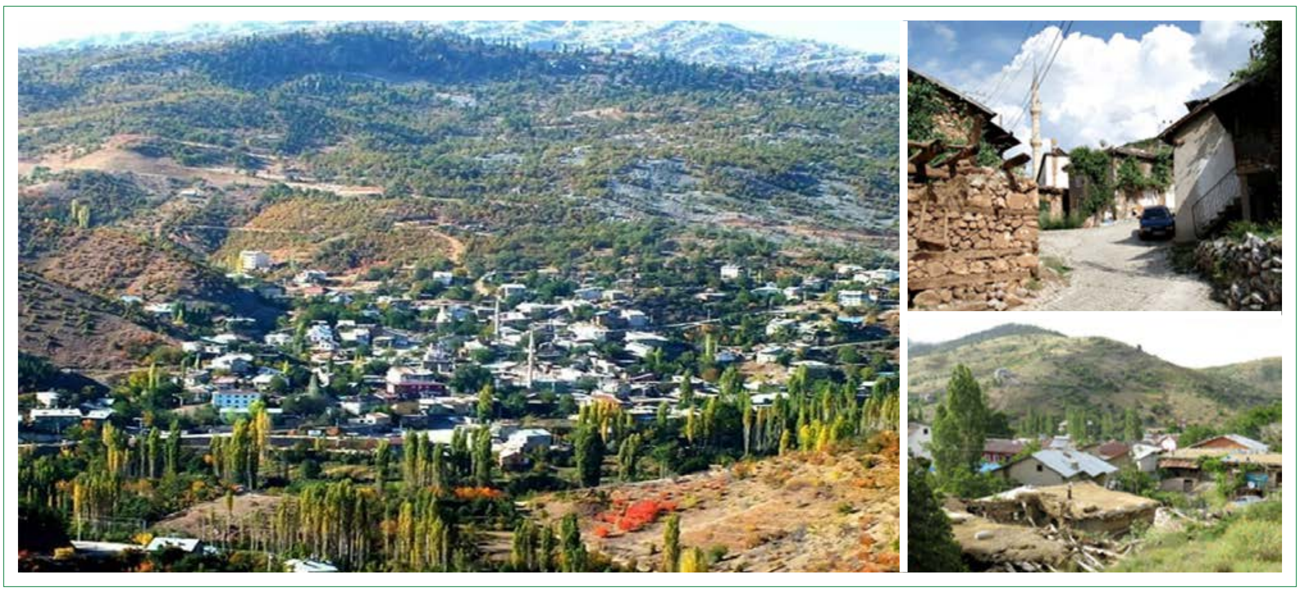

Figure 3. General view of Dedemli Village.

URL-1, Date of Access: 12.07.2024.

Dedemli Village remained within the boundaries of the dam lake due to the construction of the Bozkır Dam in 2020. Accordingly, with the dam starting to hold water, a new settlement has been planned for the people of Dedemli Village and the relocation process has started in 2020. While the population of the village was 1529 people according to the 2013 data before the relocation process, a decrease of almost half was observed with the introduction of the relocation process and it was seen that 848 people resided in the village in 2022 data (TÜİK, 2022). Nowadays, the number of village people involved in the relocation process is increasing day by day. Currently, it has been determined that about 100 people reside in the village during on-site observations.

The vast majority of the people in Dedemli Village are over the age of 65 and live on pensions. The main livelihoods of the village people were based on animal husbandry, viticulture, and agriculture. However, due to the construction of the dam, the agricultural lands remaining to the south of the village were flooded. In addition, a decrease in the young population living in the village has caused these activities to come to a standstill. In addition, small cattle enterprises located in the village have also been closed with the same excuses. Therefore, the people who remain in Dedemli Village today make their living by beekeeping and viticulture.

Dedemli Village has rural mountain settlement characteristics connected to its rugged terrain. Therefore, spatial construc-

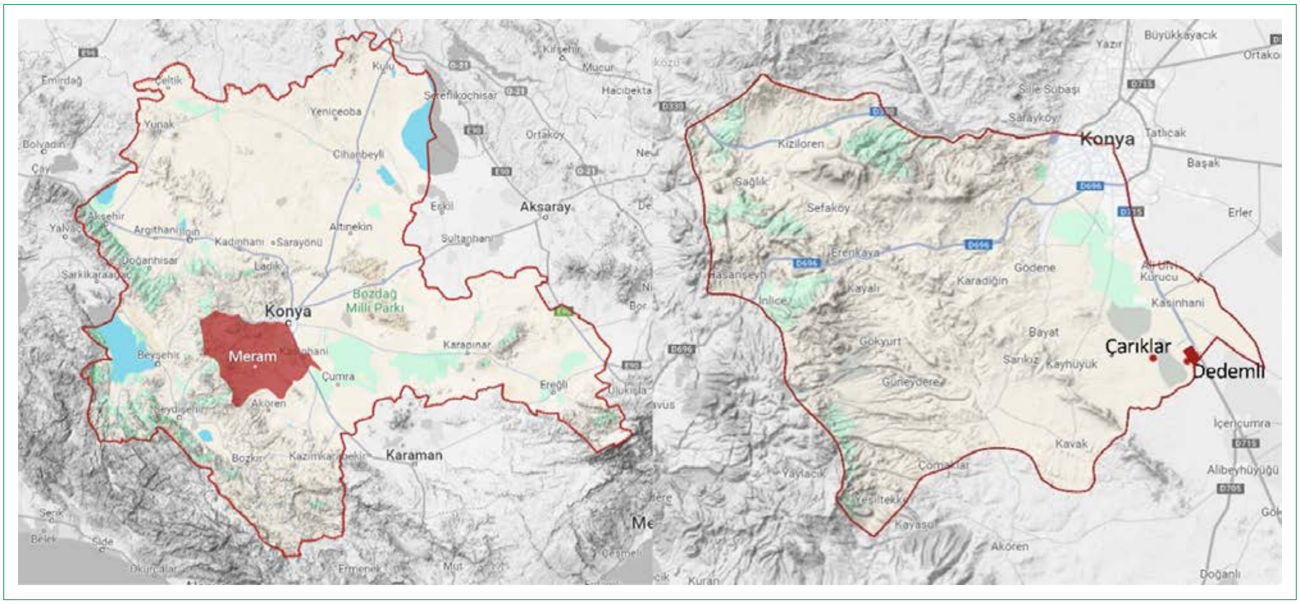

Figure 4. The location of Meram Dedemli Neighborhood in Turkey.
Google Earth, 2024.

tion on the settlement scale is seen in the form of housing clusters where several households coexist. In addition to the residences, additional structures that are connected to everyday functions and livelihoods are located adjacent to or close to the residences. A distinct village square is visible in the village outside the residences. Therefore, the service spaces located in the village square show a partial separation from the residences. The buildings surrounding the village square area grocery store, a headman's office, an internet cafe, a barber shop, a mosque, a restaurant, and a coffeehouse. Apart from these, there is a public health center, two educational structures, a village chamber, three mosques, and a Quran course in the village. Due to the inclusion of Dedemli Village in the relocation process due to the construction of the dam, most of the service venues are empty and idle today. It has been observed that the actively serving buildings are a grocery store, a barber shop, and a coffeehouse located in the village square.

4.2. Settlement Characteristics of the New Residential Area Meram Dedemli Neighborhood

The village of Dedemli in the district of Hadim, Konya province, has been involved in the relocation process due to the construction of the Bozkır Dam, whose construction was completed in 2020 and began to retain water. Due to the construction of the dam, a new settlement area has been planned for the settlement people in Meram District, one of the central districts of Konya province (Fig. 4). The new settlement has gained the quality of the last neighborhood of Meram District by taking the name of Dedemli Neighborhood. The new settlement area is planned at a distance of about 100 kilometers from the old settlement area. Therefore, this large distance between the two settlements causes spatial organizational differences to be observed between the two settlements due to the radical change in environmental data.

The Dedemli Neighborhood, which is the new settlement area, is located in the Konya Plain, which has the characteristics of the second-largest plain of our country. As a geographical region, it is located within the borders of the Central Anatolia Region and its altitude is 1021 meters (Haritatr, 2023). Therefore, the Dedemli Neighborhood is a rural lowland settlement where the continental climate is observed.

The new settlement area was established on a flat, without inclination terrain. The spatial formation on the settlement scale has a symmetrical structure in which parcels and structures are ordered one after the other due to both the non-sloping topographic structure of the land and the fact that it shows a planned settlement feature. In addition, in the new settlement area, the service structures were gathered in the neighborhood center and separated from the housing groups. There are four educational buildings, a mosque, commercial areas, a social facility, a public health center, a cultural facility, and a bazaar area in the center of this neighborhood (Fig. 5).

5. Findings

Within the scope of the study, quantitative and qualitative findings are presented within the framework of "comparison of settlement textures and comparison of space syntax analysis data" of old and new settlements in the context of the displacement of Dedemli Village in the district of Hadim, Konya Province, which is a research area, due to the construction of a Bozkır Dam.

Figure 5. General view of Dedemli Neighborhood.

Personal Archive, 2023.

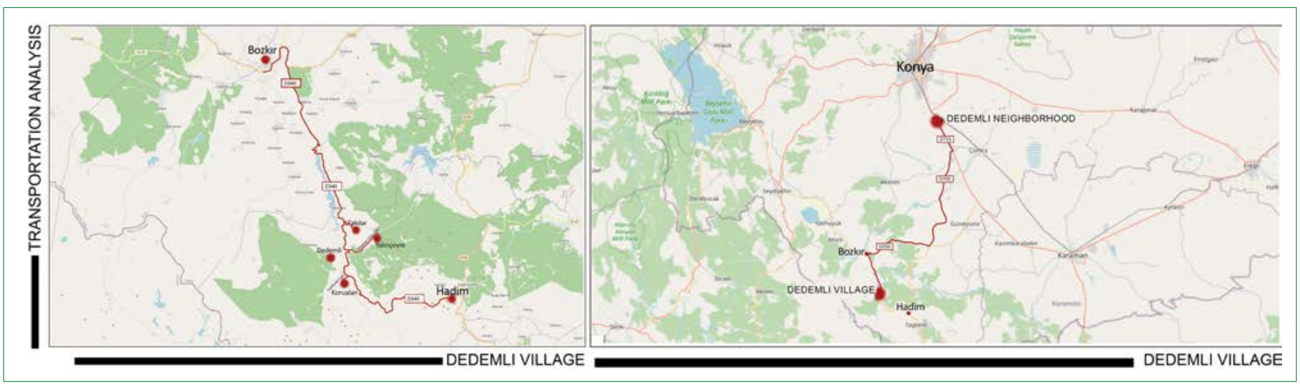

Figure 6. Transportation analysis of Dedemli Village and Meram Dedemli Neighborhood.

Google Earth, 2024.

5.1. Comparison of Settlement Textures

In this part of the study, roads and boundaries, parcel-structure-road relations, and common space uses of the two settlements were examined to understand the textures of the old and new settlements and to provide a mutual assessment, occupancy-vacancy, number of floors, green space and function analyses were performed at the settlement scale.

5.1.1. Roads and Borders

Transportation to Dedemli Village can be provided from the east to Hadim, from the north to Bozkır and Fakılar village, which is another district center connected to Konya province, and from the south to Korualan Village. The residential area of Dedemli Village is bounded on the north by the Göksu River, on the south by a steep hill, on the east and west by forested lands and main road connection tributaries. In the settlement, housing, garden, and parcel boundaries are usually framed with curbs and stone walls, and a limitation is made (Fig. 6).

Transportation to the Dedemli Neighborhood, which is the new settlement area, is provided from the north direction from the Konya province and Meram district center, from the south direction from the Çumra district, Hadim District, Bozkır district and Dedemli Village, which is the old settlement area (Fig. 6). The residential area of the Dedemli Neighborhood is bounded by the Konya-Karaman highway located in the northeast and by large agricultural lands on the other three sides.

When the Dedemli Village road texture-structure islands relationship is examined, it is seen that the number of axles is quite high, a settlement plan that develops in an organic form that does not have a specific order. The main axles and secondary axles branch off within the layout plan, forming capillary organic forms. Therefore, the natural structure of the road axles, which

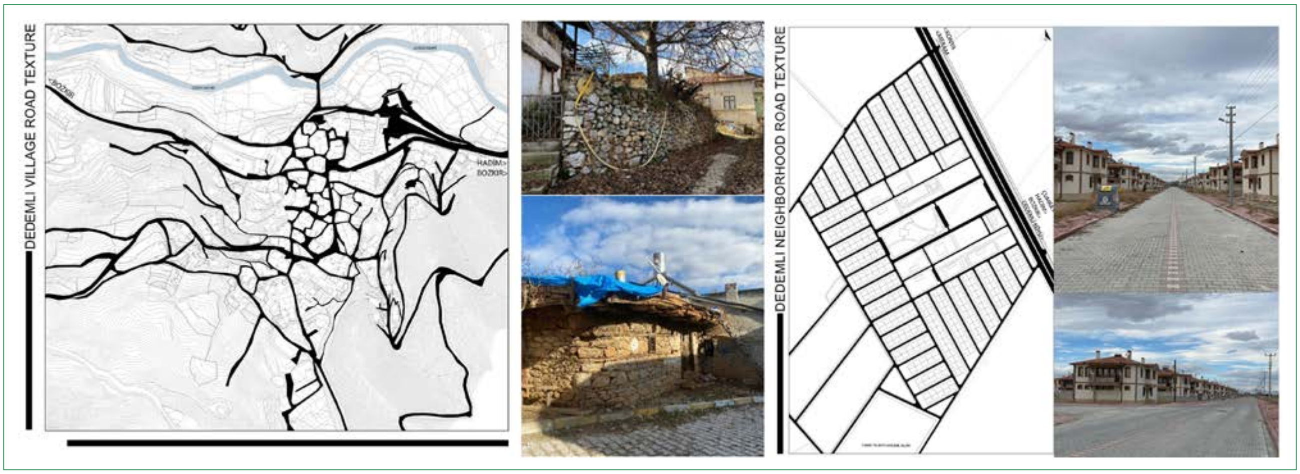

Figure 7. Road texture of Dedemli Village and Meram Dedemli Neighborhood.

Created by the Authors, 2024.

does not have a certain layout, causes the formation of building islands in various sizes and shapes. This situation also creates an unplanned and complex structure of organic tissue (Fig. 7).

On the other hand, there is no special project design for housing, garden, and parcel boundaries in the settlement. However, property owners can individually frame the structures they own with various materials such as garden walls, and wooden fences (Fig. 7).

5.1.2. Parcel-Structure-Road Relations

There are various parcels of different sizes and shapes in Dedemli Village. The largest of the parcels observed in different forms and sizes covers an area of 11.475 m^2 and the smallest covers an area of 288 m^2. The average parcel size is 2.186 m^2. The characteristic of rural settlement consists of the arrangement of parcels on the land, the characteristics of the placement of structures on these parcels, and the relationships of these elements with the road network. In Dedemli Village, the general parcel-structure-road relationship is seen as 5 types according to the location of the structure in the parcel. In this parcel building typology, the structure-parcel typology is mainly observed, in which the structures within the parcel are positioned to face the inner streets of the village, and the rear section is used as a garden (Fig. 8).

The settlement character in the Dedemli Neighborhood, the new settlement area, is within a framework in which public spaces are designed in the neighborhood center as a whole, separate from housing groups. The residential parcels located within the settlement area and their location are uniform. The largest of the parcels with similar forms covers an area of 51.587 m^2, and the smallest covers an area of 7.801 m^2. The average parcel size was calculated as 20.137 m^2. Building islands and parcels are sorted in a regular order. The structures are positioned parallel to and close to the inner road in such a way that they face the inner roads of the settlement area within the parcels. There is no diversity in terms of parcel-structure-road relations in the new settlement area, so it is seen that a planning approach dominated by uniformity prevails (Fig. 8).

5.1.3. Common Space Uses

As a result of on-site observations made in Dedemli Village, it was observed that the use of common spaces showed changes depending on gender and age. Men usually spend time in the coffeehouses located in the village square, while women gather and spend time in front of the houses or the gardens. The places that children use in common are streets and schoolyards. On special occasions such as weddings, and military send-offs, gender segregation is observed again. On such special occasions, the gathering area for men is the coffeehouses, while women and children gather in the schoolyards.

The relocation process from the old settlement area of Dedemli Village to the Meram Dedemli Neighborhood has not yet been completed. Therefore, it has been seen that the new settlement area is not a living environment in the full sense. Accordingly, there are no gender or age-related specializations in public use areas yet. In addition, separate spatial uses related to gender on special days observed in the old settlement area are not currently observed in the new settlement area. It is expected that the use of common spaces will be concentrated in this region because public service spaces are planned collectively in the neighborhood center. However, a gender- and age-related separation of common spatial use cannot be predicted.

5.1.4. Occupancy-Gap Analysis

When the occupancy-gap analysis of Dedemli Village is examined, it is seen that the building density is concentrated in the settlement center and decreases towards the settlement

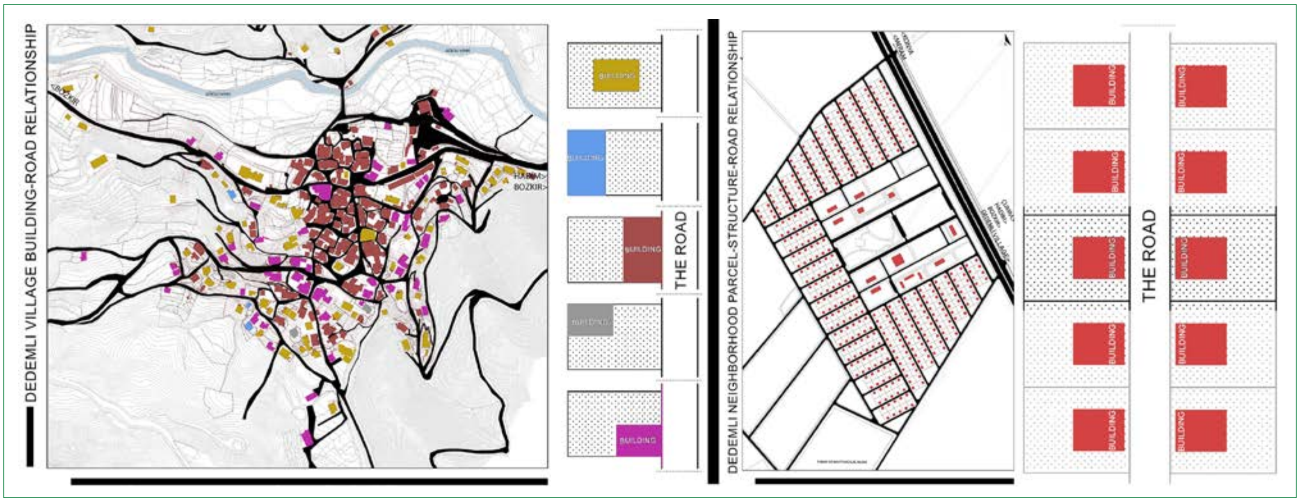

Figure 8. Building-road relationship and structure-parcel typology of Dedemli Village and Meram Dedemli Neighborhood.

Created by the Authors, 2024.

boundaries. Therefore, the sparsest density of buildings in the settlement area is on the settlement boundaries. In contrast to this settlement texture, the center of the new settlement area is the area with the sparsest building density. The residential buildings surrounding the public space located in the center of the settlement area are in a balanced and symmetrical plan texture. The building density of the dense settlement center, which is seen in the plan of the old settlement area, decreasing towards the boundaries, is not seen in the new settlement plan (Fig. 9). In addition, the data on the number of islands, the number of axles, and the number of buildings belonging to the two settlements are indicated in Table 5 to digitize the building density (Table 5).

5.1.5. Green Area Analysis

Dedemli Village is located in a very green mountainous area. Depending on the active use of home gardens for planting activities along with the wooded areas and agricultural areas surrounding the residential area, the settlement as a whole can be characterized as an environment dominated by greenery. Therefore, the Dedemli Village settlement is a rural mountain settlement integrated with nature (Fig. 10).

The Dedemli Neighborhood is located in the Konya Plain. This settlement area, which is far from the city center and is limited by agricultural lands and highway connections, has a green environment only seasonally depending on planting activities. In addition, the areas defined as the recreation area designed in the park and settlement center, which are seen only around residential areas in the settlement plan, are expected to be green areas, but there is no intensive use of green space in the settlement area project implemented today (Fig. 10).

When looking at the green space analyses of the two settlements, the Meram Dedemli Neighborhood settlement, which was built from scratch, can be considered an artificial settlement away from nature compared to the old settlement area, Hadim Dedemli Village (Fig. 10).

5.1.6. Functional Analysis

It is seen that the most intensive building function in the settlement plan of Dedemli Village is the housing function (%95, 350 buildings). Structures for other functions other than residential structures are concentrated in the village square, but they are distributed throughout the settlement area. In other words, houses and other functional structures are intertwined throughout the settlement. The structures for other functions other than the mentioned housing constitute about 5% (19 buildings) of all the structures in the settlement. In addition, in the settlement of Dedemli Village, buildings such as warehouses, barns, coops, and woodsheds, which are formed next to residential structures depending on daily work and livelihood resources, are mainly adjacent to residential structures, and one additional structure belonging to almost every residence is observed (Fig. 11).

In the Dedemli Neighborhood's settlement plan, the weighted function is again the housing function (%97, 428 buildings). In addition, no additional housing structures planned in this settlement area are connected to daily functions and livelihoods. In the new settlement plan, the residences and other functions seen in the old settlement coexisted is not coexisted. In contrast to this settlement plan, housing groups, and other functional areas are separated from each other by sharp lines in the new settlement area. The buildings planned for functions outside the residential areas were gathered in the neighborhood center. Structures other than residential structures account for 3% (13 buildings) of the total structures located in the residential area (Fig. 11).

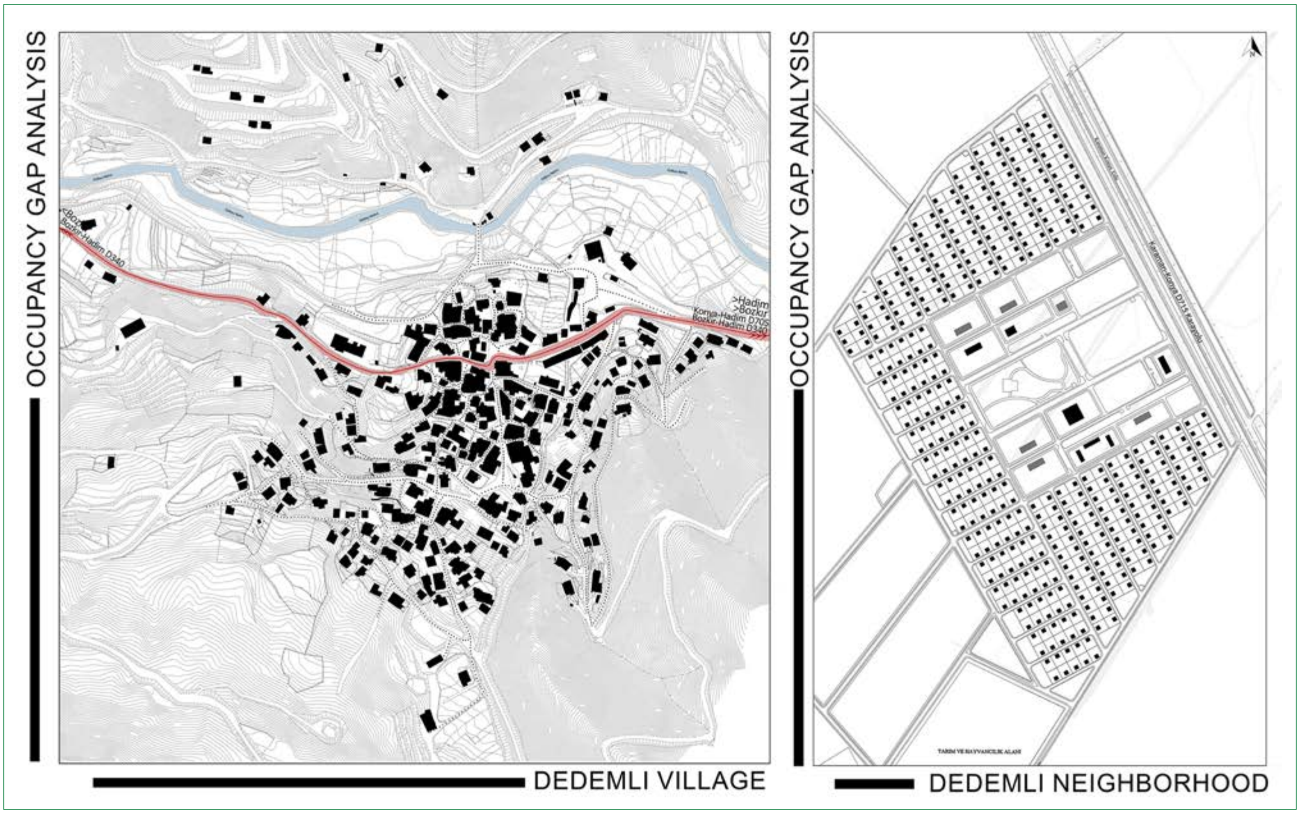

Figure 9. Dedemli Village and Dedemli Neighborhood occupancy-gap analysis.
Created by the Authors, 2024.

5.1.7. Number of Floors Analysis

When the number of floors belonging to Dedemli Village is analyzed, it is seen that the buildings throughout the settlement are mainly single-story (67%, 246 buildings). Two-story buildings following single floors are about a third of all structures in the settlement (30%, 111 buildings). In this settlement, where the maximum number of three-story buildings is seen, there are twelve (12) three-story buildings, and these constitute about 3% of all buildings. In addition, all the building types analyzed according to the number of floors were balancedly distributed throughout the settlement. Therefore, there is no diversity in the old settlement area depending on the size of the buildings (Fig. 12).

In the analysis of the number of floors in the Dedemli neighborhood, it is seen that the buildings vary between single and four-story. There is a uniform housing typology in this settlement and, accordingly, there is no diversity in housing buildings. All of the residential buildings have two stories and account for about 97% (429 buildings) of all residential buildings. In the public area planned in the center of the new settlement area, there are structures for various functions that are outside the residential structures. In this part of the settlement area, the number of floors varies depending on the building functions. Single-story buildings in this area account for 1% (5 buildings) of all structures, and four-story buildings account for about 2% (7 buildings). Therefore, in the new settlement area, an area separation depending on the size of the construction is observed (Fig. 12).

Table 5. Data on the number of islands, number of axles, and number of buildings belonging to Dedemli Village and Dedemli Neighborhood

Parameters	Dedemli Village, which is the Old Settlement Area	Meram Dedemli Neighborhood, which is the New Settlement Area
1 Number of islands	65	50
2 Number of axles	272	47
3 Number of buildings	369	441

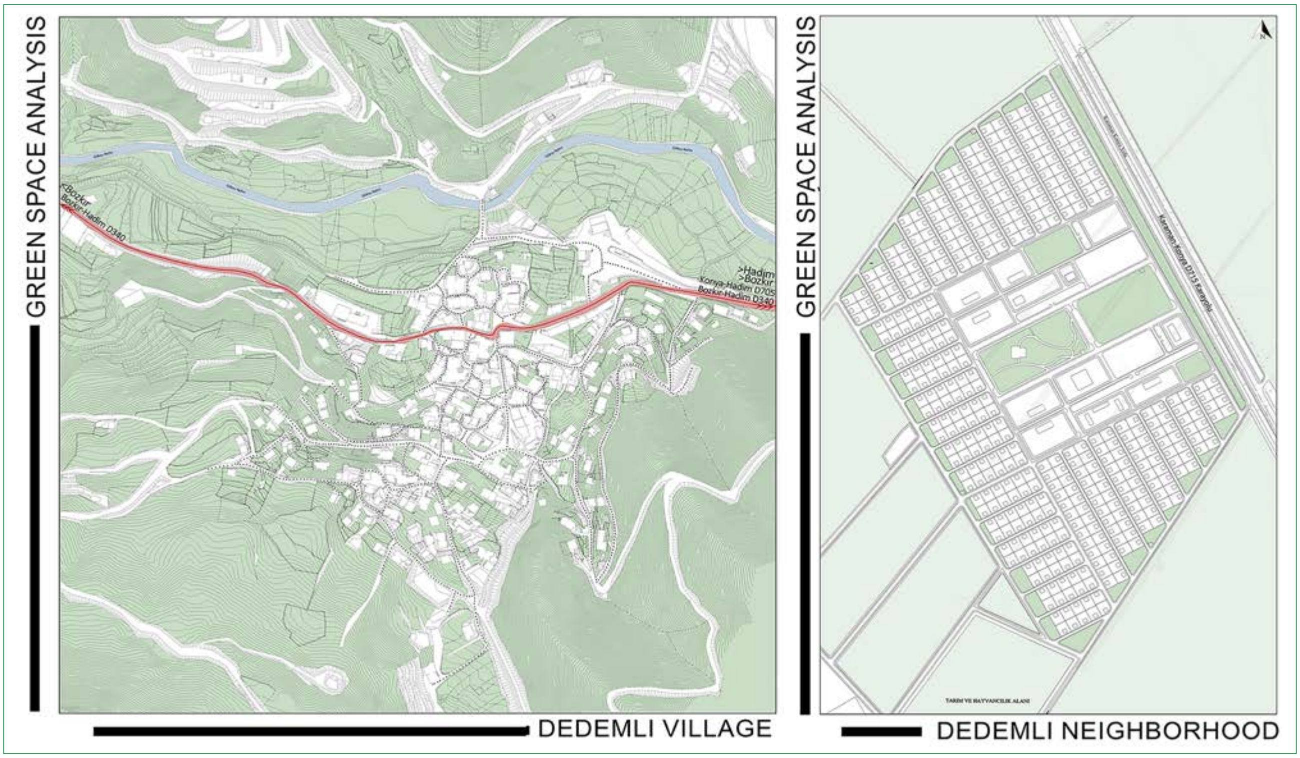

Figure 10. Dedemli Village and Dedemli Neighborhood green area analysis.

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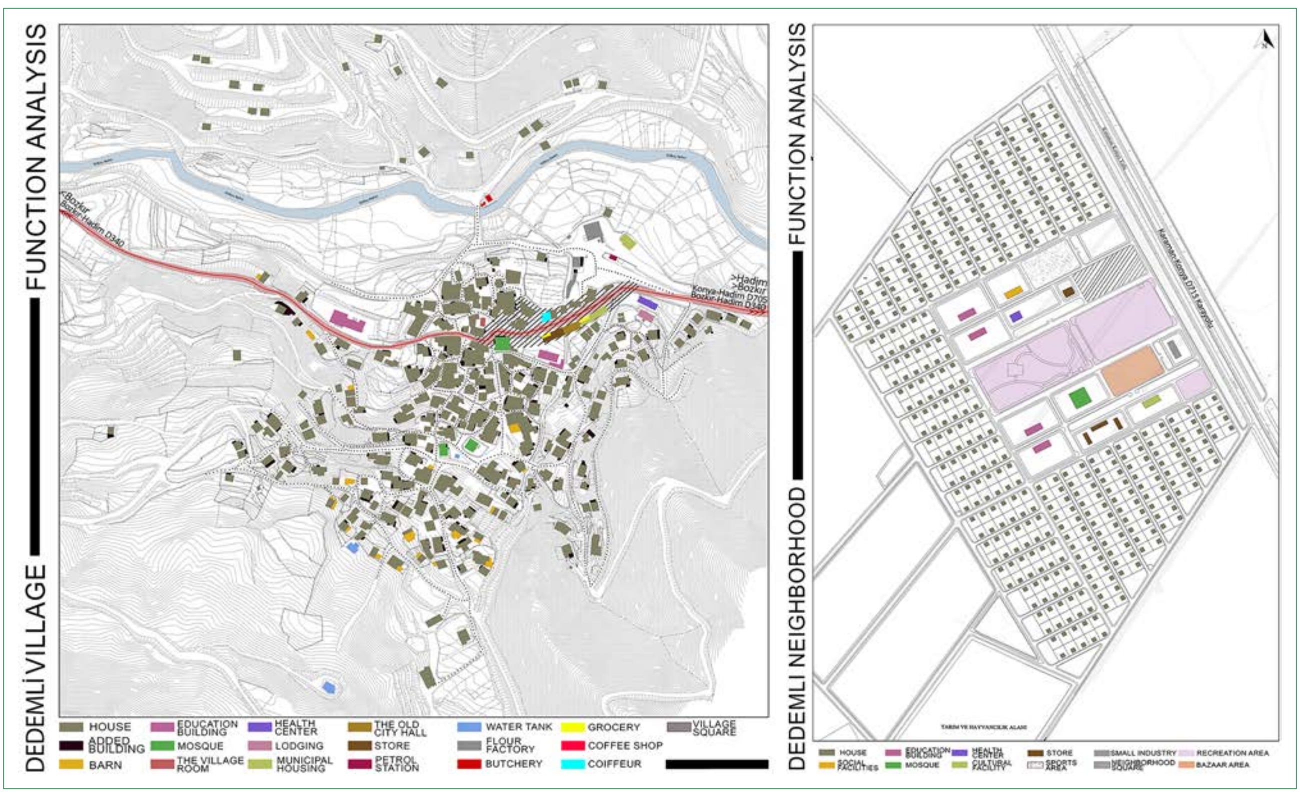

Figure 11. Dedemli Village and Dedemli Neighborhood functional analysis.

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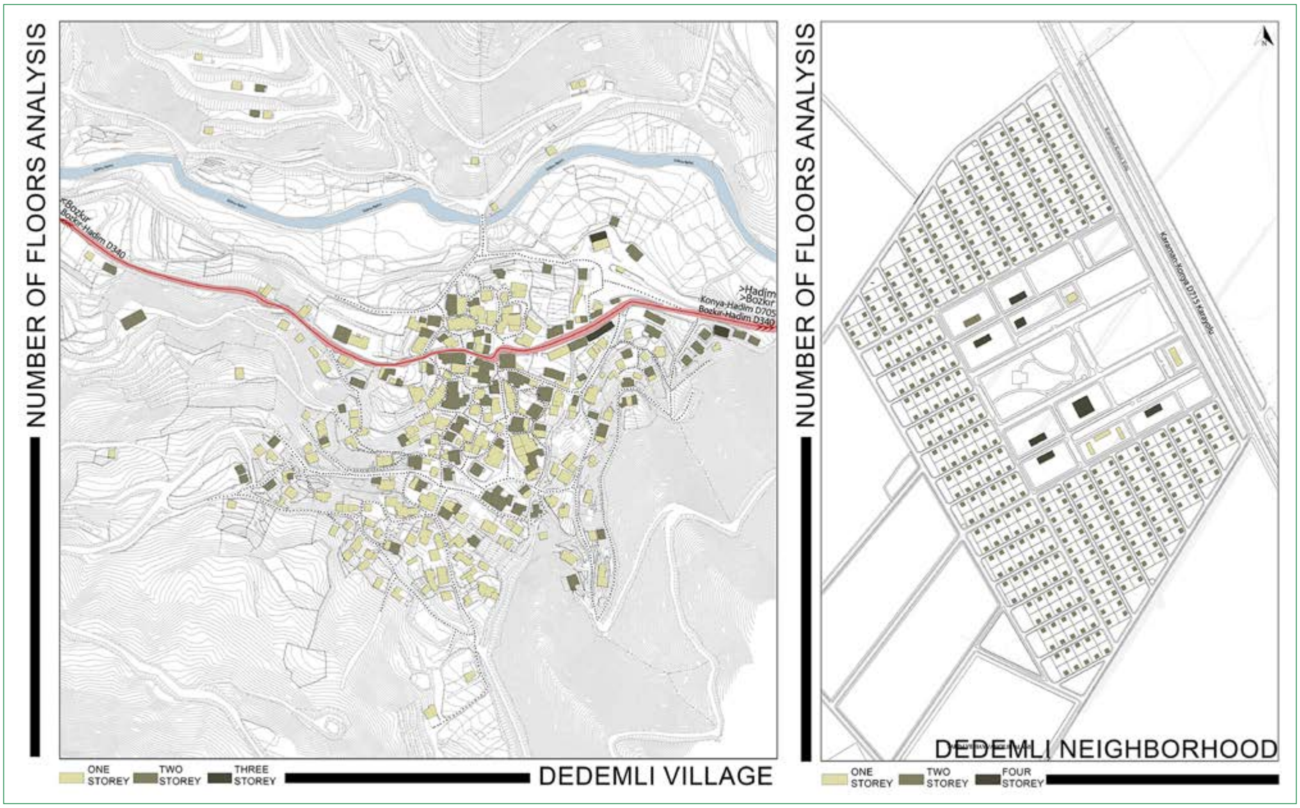


Figure 12. Analysis of the number of floors in Dedemli Village and Dedemli Neighborhood.

Created by the Authors, 2024.

5.2. Comparison of Space Syntax Analysis Data

Integration maps, integration values, and axial analyses were carried out using settlement plans in this section, where space syntax analysis data were obtained and the data belonging to the two settlements were compared. It is expected that the integration maps and integration values obtained within this framework will coincide with the axial analysis findings.

The integration data values table of the old settlement area Dedemli Village and the new settlement area Dedemli Neighborhood is important in terms of enabling interpretations of the perceptions of connectivity and integration of settlement areas and quantitative interpretation of axial integration maps (Table 6).

When the integration data values of the two settlement areas are examined, it is seen that the old settlement (1.416), which has an organic rural mountain settlement plan, has weaker integration values compared to a planned rural lowland settlement (5.261). In addition, the average depth of the planning system (7.946), which has an unplanned naturally occurring old settlement area depending on the rugged nature of the land, is higher compared to the planned new settlement built on sloping land (2.408). This situation shows that the settlement order in Dedemli Village is more independent and scattered, while the planned order in the new settlement area has a clearer system (Table 6).

Looking at the connectivity value obtained as a result of axial analyses on Dedemli Village, which is an old settlement area and shows a rural natural mountain settlement feature, and Dedemli Neighborhood, which is a new settlement area and shows a rural planned lowland settlement feature, it was found that the new settlement area (3.774) has stronger ties. The appropriate placement of spatial organizations related to the rugged terrain structure of the old settlement area on the land causes it to have a scattered formation and system compared to the new settlement. The fact that the system belonging to the old settlement is more complex and a certain order cannot be mentioned in the system explains the low connectivity value. The planning of the new settlement with a symmetrical structure on an inclined terrain compared to the old settlement explains that the new settlement system is more connected (Table 6).

The intelligibility value (0.908) of the Dedemli Neighborhood, which is the new settlement area, is higher compared to the old settlement area (0.306). These values indicate that the new settlement area has a more understandable and readable system of connections. Therefore, the layout of the space in the planned rural lowland settlement created as the Dedemli

Table 6. Integration data of Dedemli Village and Meram Dedemli Neighborhood

Parameters	Dedemli Village, which is the old settlement area			Meram Dedemli Neighborhood, which is the new settlement area		
	Min.	Avg.	Max.	Min.	Avg.	Max.
1 Mean depth	4.852	7.946	16.127	1.601	2.408	4.366
2 Relative asymmetry (RA)	0.002	0.003	0.008	0.001	0.003	0.009
3 Real relative asymmetry (RRA)	0.414	0.748	1.629	0.087	0.204	0.489
4 Connectivity	3	54.775	275	6	99.938	340
5 Integration	0.613	1.416	2.409	2.050	5.261	11.479
6 Intelligibility	–	0.306	–	–	0.908	–

Neighborhood allows the user within the system to perceive the space more easily compared to the old settlement (Table 6).

The average depth value of Dedemli Village (7.946) is much higher compared to the new settlement value (2.408). This situation shows that the settlement order in Dedemli Village is more independent and scattered, while the planned order in the new settlement area has a clearer system (Table 6).

Integration maps of the two settlements were obtained by axial analyses. When we look at the integration map of the old settlement area of Dedemli Village, it is seen that the area with the highest integration value is concentrated in the north-south direction in the center of the settlement. This axle circumference, which is expressed in red color, is the longest linear axle that continues uninterrupted within the settlement area. In addition, the numerical excess of the axles connected to this axle is another factor that increases the integration value of the specified region. It is observed that the level of integration increases in the regions where each axis intersects with another axis within the settlement area. Other axes with low connection numbers are expressed with a color scale with values decreasing towards blue. Mobility and spatial accessibility are noticeably decreasing from the central area of the settlement to the boundaries. Therefore, the strong integration value seen in the settlement center has different values in the settlement area, but the fact that the settlement overall has yellow and blue tones indicates that this settlement area is not easy and accessible. On the other hand, the integration map of the old settlement indicates that the connections and axes within the settlement have less integration with each other. For this reason, it can be said that the general settlement is more scattered and not in a certain order in Dedemli Village, which shows a rural mountain settlement feature (Fig. 13).

When looking at the integration map of the new settlement area, it is seen that the axis extending in the southeast-northwest direction of the settlement area center provides an intersection with a large number of axles and has the highest integration value because it is the longest and uninterrupted route in the settlement. It is seen that all the roads providing connections within the new and planned settlement area have a quadrangular and linear shape and long axles intersect with a large number of other axles. Therefore, it can be said that the integration values of the axes that provide spatial interaction and access throughout the settlement are high, and therefore the new and planned settlement area has a more understandable and accessible plan system. On the other hand, the planning of the new settlement with a symmetrical structure on a without inclination terrain explains that the new settlement system is more integrated. Therefore, the layout of the space in the planned rural lowland settlement created as the Dedemli Neighborhood allows the user within the system to perceive the space more easily compared to the old settlement (Fig. 14).

The axial values considered in the context of the old and new settlement areas express the mobility of the settlement areas, the connectivity levels of the plan systems, and the degree of order. Axial values should be considered and interpreted together with integration maps (Table 7).

In the axial findings belonging to the old settlement area of Dedemli Village, it is observed that the axial fracture value is high, and the axial annulation and grid axiality values are low. In the layout plan of Dedemli Village, which is a mountainous rural settlement area, these values indicate that the perception of space is complex, spatial transitions are difficult, and the degree of connection of the axes providing connectivity is low. Settlements with a grid axiality value below 0.25 are considered settlements with weak layouts (Hillier and Hanson, 1984). The fact that the grid axiality value of Dedemli Village is significantly lower than the 0.25 value determined as the layout limit indicates that the settlement plan does not have a specific layout. Therefore, the axial fracture, axial annulation and grid axiality values determined correspond to the findings obtained in the integration map (Table 7).

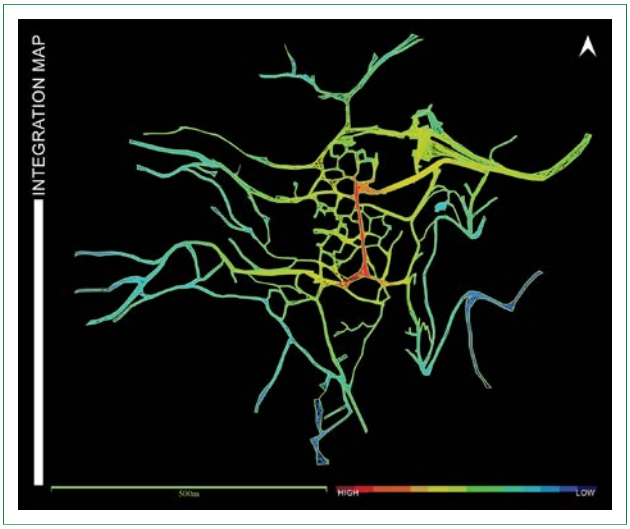


Figure 13. Integration map of the old settlement area Dedemli Village.

Created by the Authors, 2024.

When the axial findings of the new settlement area Dedemli Neighborhood are compared with the old settlement area data, it is seen that the axial fracture value is lower, but the axial annulation and grid axiality values are higher. The fact that the axial fracture value is lower in the new settlement plan indicates that there is a more integrated, accessible, and planned settlement system in the new settlement. Therefore, it can be said that the organization seen in the old settlement plan has turned into a more regular and symmetrical structure in the new settlement plan. The fact that the grid axiality value of the new settlement is higher than the limit value of 0.25, resulting in 0.343, supports that this settlement has a regular and planned settlement plan (Table 7).

In the findings of the old settlement area Dedemli Village and the new settlement area Dedemli Neighborhood, it is seen that they have different settlement plans depending on the natural data of the places they are located and the logic of the formation of settlements. Differences in settlement plans cause significant differences in terms of regularity, integration, and accessibility of settlement plans. Factors such as the influence of land topography, settlement texture, and the form of connection roads in settlement plans are important values that affect these differences.

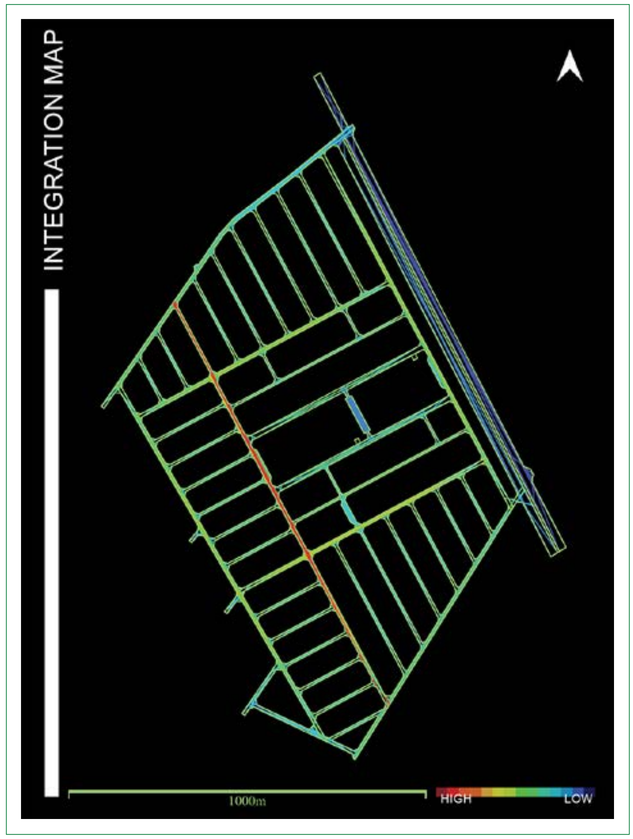


Figure 14. Integration map of the new settlement area Dedemli Neighborhood.

Created by the Authors, 2024.

When integration maps and integration values are considered, it is seen that the values of Dedemli Neighborhood, which is the new settlement area, are higher compared to Dedemli Village, which is the old settlement area. Factors such as the fact that the new settlement area has a planned design, is built on non-sloping land, and has continuous linear connection roads explain these result values. The fact that these values of the planned new settlement are high compared to the unplanned and organic settlement texture of Dedemli Village shows that perception is strong, access is easy and the force of interaction between places is high in the new settlement. On the other hand, the integration map of Dedemli Village and the poor integration values indicate that mobility is limited in the settlement and the permeability

Table 7. Axial data of Dedemli Village and Meram Dedemli Neighborhood

Parameters	Dedemli Village, which is the old settlement area	Meram Dedemli Neighborhood, which is the new settlement area
1 Axial fracture	0.683	0.106
2 Axial annulation	0.120	0.561
3 Grid axiality	0.066	0.343

between spatial units is low. In addition, when both settlement plans are evaluated in their way, it has been seen that the strongest axles are concentrated in the settlement center and that these strong axles are at the intersection with a large number of other axles.

It is seen that the axial data give parallel results with the integration map and data. When axial data are considered together with integration data, it is seen that spatial and axial connections are strong in the new settlement plan, so a certain order and system can be mentioned in settlement planning. On the contrary, in the old settlement plan, spatial and axial breaks are excessive, and a complex and irregular settlement system is observed. In this context, it can be said that the new settlement plan has a regularly accepted grid plan system, while the old settlement plan has an irregular organic plan scheme.

6. Evaluation and Conclusion

Rural settlements are small-scale settlements located in rural areas that are shaped depending on the characteristics of the place where they are located, and the traditional and cultural accumulation of the people. Therefore, the original qualities of rural settlements are directly related to the place. For this reason, the continuity of these settlements in the places where they belong is critical in terms of cultural, experiential, and local accumulations. However, depending on some natural or human factors, settlements are in danger of disappearing in the places where they belong, or these settlements are involved in the relocation process.

The reasons for the relocation of rural settlements vary depending on many factors. The critical displacement factor that is frequently encountered today is due to the construction of dams. The fact that dam structures established for development purposes such as providing an alternative solution to natural water resources that are insufficient to respond to current requirements in a developing and transforming world and generating energy cover large areas of land in rural areas directly affects rural settlements.

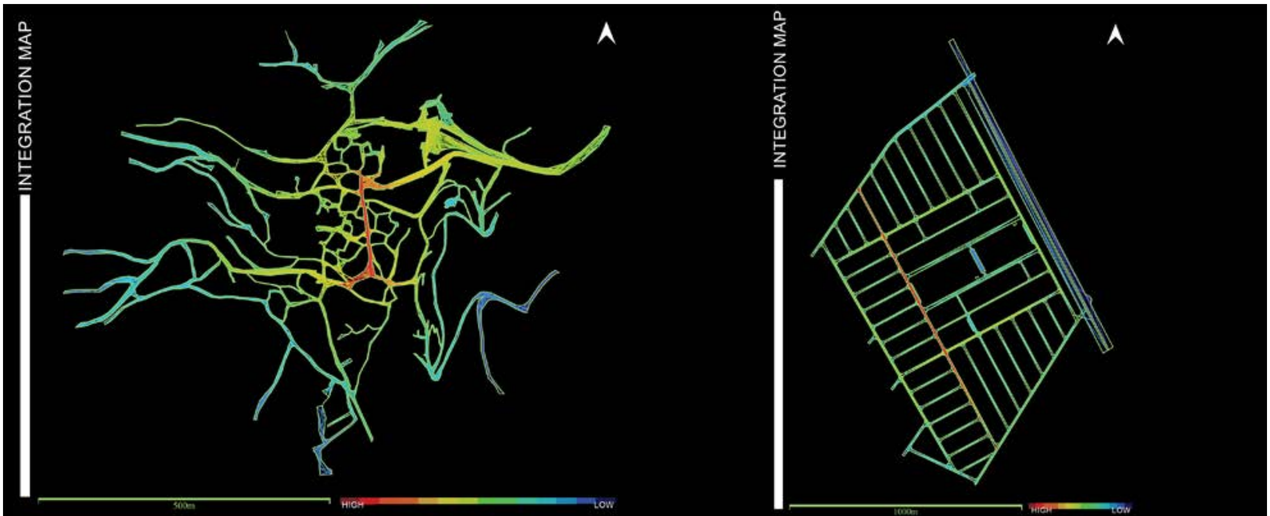
Rural settlements that have been displaced due to the construction of dams are being torn away from where they belong and dragged to a new beginning. Along with the change in location, environmental, social, and economic data cause fundamental changes. The change of these data directly affects the settlement character, spatial formation and organization, and local architecture.

Within the scope of this study, the Dedemli Village, which was relocated due to the construction of a dam, and the Dedemli Neighborhood, which is a new settlement area, were considered. Dedemli Village, which is built on a high rugged terrain, has the characteristics of a rural mountain settlement with an organic texture that is suitable for environmental data. In the topography with a high slope, the spatial formation is seen as the appropriate placement of clusters consisting of several housing groups of various sizes fronting the internal roads to the building islands. Depending on the sloping terrain, the internal roads that provide connections are short and narrow. This situation causes the formation of a complex tissue within the general settlement system. The newly planned Dedemli Neighborhood for the relocation process has been planned in a place quite far from the old settlement area. Therefore, the fact that the places where the old and new settlements are located are independent of each other has caused the qualities that determine the character of the settlement to have deep-rooted differences. The new settlement area shows a rural lowland settlement feature. The new settlement area, which is established on a flat land without slope, has a planned and symmetrical structure. Therefore, the settlement system has a certain organizational scheme and is more organized compared to the old settlement area.

The observed physical differences between Dedemli Village and Dedemli Neighborhood were converted into concrete and quantitative data using the Space Syntax method. As a result of the analyses conducted, it was found that the settlement system with organic texture on the high-slope topographic structure of Dedemli Village has lower connectivity, integration, and legibility compared to the non-sloping topographic structure of the new settlement and the planned settlement system.

There is a relationship between topographic factors and factors that determine the texture of the settlement, such as the density of structures in the settlement area, and the number of floors, depending on the ground form. It is seen that this relationship causes the formation of different building typologies and building models of various sizes and shapes in settlement areas. The differences in settlement plans are read in the two settlements considered. The fact that the grid axiality value of the old settlement is below the 0.25 value considered as the threshold value, and the grid axiality value of the new settlement is above the 0.25 value indicates that the new settlement has a planned settlement plan with a specific system, in contrast to this, it is concluded that a certain order and system are not observed in the old settlement plan.

At this point, it is noteworthy that the planned and symmetrical new settlement area has a higher integration and readability within its system compared to the old settlement. Looking at the results of the analysis, it is understood that a planned rural settlement area with no slope has a stronger settlement system and an understandable layout compared to a rural settlement area with a high-slope organic texture. On the other hand, the high average depth values observed in Dedemli Village also support this situa-



PARAMETERS	Dedemli Village, which is the Old Settlement Area	Meram Dedemli Neighborhood, which is the New Settlement Area
Mean Depth	7.946	2.408
Connectivity	54.775	99.938
Integration	1.416	5.261
Intelligibility	0.306	0.908
Axial Fracture	0.683	0.106
Axial Annulation	0.120	0.561
Grid Axiality	0.066	0.343

Figure 15. The results of the analysis of the old settlement dedemli village and the new settlement Dedemli Neighborhood.

Created by the Authors, 2024.

tion. In other words, it can be said that the planned Dedemli Neighborhood, which is a new settlement area, has a more integrated layout within the system. Axial analysis values made to support integration maps and data also support other parameters considered (Fig. 15).

As a result, the displacement processes of rural settlements bring about many transformations. The displacement of these settlements, whose continuity is important in various respects, causes the parameters that will directly affect the settlement characteristics, such as environmental, social, and economic, to undergo radical changes. Within the scope of the study, the village of Dedemli, whose location was changed due to the construction of a dam, was considered. This settlement area, which has a very rugged terrain structure, has been moved to a settlement area where the topographic and climatic data are completely different, in particular. In this process, both the relocation from a settlement area in organic tissue to a planned settlement and the fact that spatial formations depending on the parameters affecting settlement formation have completely different qualities have caused radical perceptual changes between the old and the new settlement.

According to spatial assessments on the settlement scale of the old and new settlements in the Village of Dedemli, which are studied as an example of rural settlements that have been relocated due to the construction of dams; their complete separation from the place they belong to during the relocation processes and the construction of new settlements in areas with completely different environmental data completely change the spatial perception and system integrity. In this direction, it is necessary to take into account various factors in such deep-rooted displacement processes of settlements. During the relocation process, the choice of a new place should be close to the old settlement, the old and new settlements should be topographically and climatically close to each other, the creation of planning organizations suitable for the old lifestyle at the settlement scale, ensuring adequate infrastructure development in the new settlement, appropriate planning should be made so that the users living in the old settlement can maintain their lifestyle in the new settlement, and economic support should be provided if necessary. In addition, users need to have a say in the planning of new settlements in such relocations from the point of view of participatory planning and the point of view of the possibility of a sustainable and healthy area of the new settlement. The protection of the natural environment and the creation of adequate green areas should also be considered as the cornerstones of this process in the planning of a new residential area. Therefore, it should be remembered that effective planning in similar relocation processes will directly affect the entire settlement system from various parameters.

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