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ISSN: 1307-9905 E-ISSN: 2602-2133

DOI: 10.31198/idealkent.1350893

Araştırma Makalesi / Research Article

Sayı Issue 43, Cilt Volume 16, Yıl Year 2024-1, 362-392

Insights into Girne Ancient Harbor: Analyzing the Landscaping in Historical Coastal Context with Urban Waterfront Development Principles

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Abstract

This article thoroughly analyzes the Girne Ancient Harbor and its coastal landscape, employing urban waterfront development principles. The study aims to provide valuable insights for enhancing the urban landscape and ensuring resilience. The research approach incorporates field surveys, archival data analysis, and urban design principles to assess the current state of Girne Ancient Harbor and identify development opportunities. The study explores public access, connectivity, green spaces, urban furniture, and water and land connections by emphasizing environmental and social considerations. The findings highlight the harbor's potential for improvement by capitalizing on its historical and cultural significance. Urban waterfront development principles can create a vibrant, inclusive, and resilient urban environment for residents and visitors. Balancing historical context with contemporary design elements is crucial for successful development. The implications extend beyond Girne Ancient Harbor, benefiting coastal areas facing similar challenges. This research provides a valuable resource for urban planners, architects, policymakers, and heritage conservationists involved in comprehensive development. Ultimately, this article emphasizes the importance of Girne Ancient Harbor as a cultural asset and presents a framework for analyzing the coastal landscape through urban waterfront development principles. By embracing comprehensive strategies and preserving heritage value, the harbor can transform into a thriving urban space while maintaining its unique character.

Keywords: *Girne Ancient Harbor, coastal landscape, urban waterfront development, cultural heritage, urban design*

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<http://idealkentdergisi.com>

Geliş Tarihi Received Date: 27.08.2023 Kabul Tarihi Accepted Date: 26.04.2024



idealkent ©

ISSN: 1307-9905 E-ISSN: 2602-2133

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Girne Antik Limanına Bakış: Tarihi Kıyı Bağlamında Peyzajın Kentsel Kıyı Gelişim Prensipleri ile Analizi

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Öz

Bu makale, kentsel sahil geliştirme ilkelerini kullanarak Girne Antik Limanı'nı ve kıyı peyzajını kapsamlı bir şekilde analiz etmektedir. Çalışma, kentsel peyzajın iyileştirilmesi ve dayanıklılığın sağlanması için gerekli bilgiler sağlamayı amaçlamaktadır. Araştırma yaklaşımı, Girne Antik Limanı'nın mevcut durumunu değerlendirmek ve gelişim fırsatlarını belirlemek için saha araştırmaları, arşiv veri analizi ve kentsel tasarım ilkelerini içermektedir. Çalışma, çevresel ve sosyal hususları vurgulayarak kamusal erişimi, bağlantıyı, yeşil alanları, kentsel mobilyaları ve su ile toprak bağlantılarını araştırıyor. Bulgular, limanın tarihi ve kültürel önemini de belirterek geliştirilme potansiyellerini vurgulamaktadır. Kentsel kıyı geliştirme ilkeleri, bölge sakinleri ve ziyaretçiler için canlı, kapsayıcı ve dayanıklı bir kentsel ortam yaratabilir. Başarılı bir gelişim için tarihi bağlamı çağdaş tasarım öğeleriyle dengelemek çok önemlidir. Girne Antik Limanı üzerinden yapılan bu çalışma ile birlikte benzer zorluklarla karşı karşıya olan kıyı bölgelerine de fayda sağlayacak veriye ulaşılabilmektedir. Bu araştırma, kapsamlı kalkınmayı hedefleyen şehir planlamacıları, mimarlar, politika yapımcılar ve kültürel mirası koruma ile ilgili ilgili uzmanlar için bir kaynak sağlamaktadır. Sonuç olarak bu makale, Girne Antik Limanı'nın kültürel bir değer olarak önemini vurgulamakta, ayrıca kıyı peyzajını kentsel kıyı gelişim ilkeleri yoluyla analiz etmek için bir çerçeve sunmaktadır. Hem miras değerini koruyan hem de kapsamlı gelişim stratejileri benimseyen limanların benzersiz karakterini korumasının yanında sürekli gelişebilen bir kentsel alana dönüşebileceği anlaşılmaktadır.

Anahtar Kelimeler: Girne Antik Limanı, kıyı peyzajı, kentsel kıyı gelişimi, kültürel miras, kentsel tasarım.

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Introduction

Coastal landscapes comprise a variety of attributes, including beaches, cliffs, dunes, estuaries, and habitats, in areas where land meets the sea (Greenlaw et al., 2012, p. 12). Coastal landscapes play an essential role in the relationship between land and sea, providing environments shaped by natural and human factors (Long & Cui, 2020, p. 218; Zhao, 2020, p. 254). Certain principles should be considered in urban waterfront development to ensure comprehensive and proportionate outcomes. For coastal landscapes with public access and connectivity-related waterfront development principles, it is essential to create public spaces and provide access to the waterfront for residents and visitors (Üzümcüođlu & Polay, 2022, p. 5; Üzümcüođlu & Polay, 2022 (a), p. 6; Üzümcüođlu & Polay, 2022 (b), p. 19; Eldardiry, 2022, p. 2). Promenades, parks, and pedestrian-friendly recreational facilities can increase community engagement and social interaction (Avni & Fischler, 2019, p. 1780; Iwata & Rio, 2004, p. 172; Shah & Roy, 2017, p. 196; Wang et al., 2020, p. 45788). In addition, adopting environmentally promising practices such as green infrastructure and native landscaping, protecting water quality, and preserving the ecological integrity of coastal landscapes is essential for environmentally friendly development (Kathijotes, 2013, p. 8).

Additionally, recognizing and preserving waterfront areas' cultural and historical significance can enhance a sense of place, identity, and community pride (Fernandes et al., 2017, p. 172; Miloš & Dragana, 2021, p. 2; Üzümcüođlu & Polay, 2022, p. 8). Involving diverse stakeholders, such as local communities, businesses, environmental organizations, and government agencies, promotes collaboration, transparency, and improved decision-making (Liu et al., 2022; Siewwuttanagul et al., 2022). Lastly, it is crucial to evaluate the harbor's adaptability and flexibility. Infrastructure, structures, and public spaces should design to withstand natural disasters and adapt to a changing environment (Jun, 2023, p. 3; Le, 2020, p. 741).

These principles guide urban waterfront development to establish a balance between economic development, environmental protection, and social well-being, ensuring that coastal landscapes are preserved and responsibly utilized. Ancient maritime center Girne Ancient Harbor, located in the coastal city of Girne, is historically and culturally significant. The

preservation and development of such heritage sites are of the utmost importance to maintain their distinctive qualities while meeting the requirements of modern societies as they evolve. This article aims to comprehensively analyze the harbor's coastal landscape and investigate the application of urban waterfront development principles for its improvement.

Ancient civilizations such as the Byzantines, Venetians, Ottomans, and British utilized Girne Ancient Harbor as a key trading port (Oktay & Bala, 2015, p. 204). Similar to other settlements across the island's history, Ancient Girne boasts a rich array of archaeological remains and cultural heritage spanning various periods, including the Byzantine, Frankish, Lusignan, Venetian, Ottoman, and British colonial eras. These civilizations have left behind significant traces that can still be observed today. The island of Cyprus, and specifically the Ancient Girne settlement and its harbor area, represent a fascinating blend of Eastern and Western cultures due to their strategic location. This diversity of historical heritage and the unique infrastructure of Ancient Girne are the result of successive occupations by different nations and administrations with diverse ethnic backgrounds over the centuries. Each new administration brought changes to the existing structures, sometimes repairing or adding to them, while other times causing damage or making significant alterations. For example, castles originally constructed by the Lusignan were later modified by the Venetians and Ottomans. The restoration efforts on warehouses within the castle area and the harbor sequence of Ancient Girne highlight the intricate historical mosaic and cultural amalgamation that characterize the region (Altan Bayraktar, 2015, p. 294). The harbor's significance has transcended its economic and strategic value to become an irreplaceable cultural asset that attracts visitors and highlights the region's history. The preservation of historical authenticity should balance with the need for suitable development that meets the current and future requirements of the local community and tourists.

The research methodology incorporates on-site field surveys, analysis of archival data, and application of urban design principles. In order to comprehend the context in which urban waterfront development principles can apply, the physical characteristics, historical significance, cultural heritage, and actual urban fabric surrounding the harbor are examined.

Despite the growing importance of integrating historical coastal landscapes with contemporary urban waterfront development principles,

there still needs to be a comprehensive understanding of the most significant indicators of landscaping in historic regions and how these can align with modern development frameworks. Furthermore, while theoretical frameworks exist for both landscaping and urban waterfront development, there is a need to synthesize these frameworks into a cohesive evaluation framework tailored specifically for historical coastal areas. This research seeks to bridge these gaps by investigating the landscaping of Girne Ancient Harbor in light of urban waterfront development principles, ultimately aiming to develop a new evaluation framework applicable to historic coastal landscapes. By examining the alignment between Girne's landscape and the proposed framework, this study also endeavors to provide insights that can inform future landscaping practices in other historic coastal areas.

This research problem highlights the gaps in current understanding and outlines the specific objectives of the study, including developing a new evaluation framework and applying it to the case of Girne Ancient Harbor, with implications for broader historical coastal landscape management.

According to the primary objective, the research questions for this investigation are as follows:

Q1: *What are the most significant indicators of landscaping in historic littoral regions?*

Q2: *What urban waterfront development indicators can be applied to the landscaping of historic coastal contexts?*

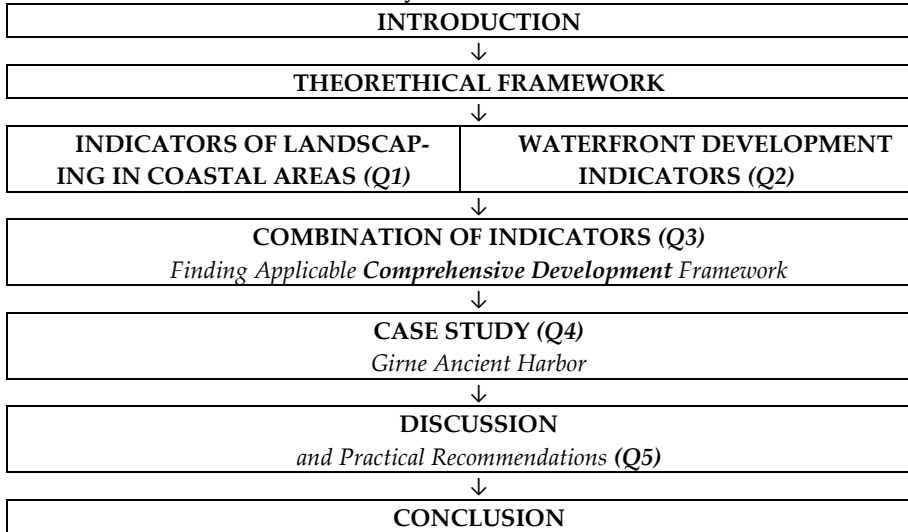
Q3: *How can theoretical findings on landscaping and urban waterfront development be combined to create a new evaluation framework for landscaping historical coastal areas?*

Q4: *How does the landscaping of Girne Ancient Harbor align with the new framework's indicators?*

Q5: *How can the Girne Ancient Harbor case study inform future landscaping practices in other historic coastal areas?*

These research questions would guide the investigation into the theoretical foundations, identification of critical indicators, analysis of the case study, and formulation of conclusions that can inform future practices and developments in historic coastal areas (Table 1).

Table 1: Structure of the Study



Indicators of Landscaping in Coastal Areas: An Analysis of Environmental and Historical Factors

Landscaping is crucial in coastal locations, where the dynamic interface between land and sea requires careful planning and management. This article investigates the indicators of coastal landscaping, concentrating on two distinct contexts: general coastal areas and historical coastal areas. This study identifies critical indicators for each context by examining pertinent research and best practices and emphasizing the environmental and historical factors influencing effective landscape design. The results contribute to thoroughly comprehending sustainable and culturally sensitive landscaping practices in coastal regions (Figure 1).

Coastal areas are dynamic ecosystems that necessitate considerate landscaping practices to preserve their ecological integrity and historical significance (Fernandes et al., 2017, p. 172; Jun, 2023, p. 741). This article identifies the indicators of landscaping in both general and historic coastal areas, shedding light on the unique considerations and strategies utilized in each setting.

Indicators of landscaping in historically significant coastal areas include the preservation of heritage (Fernandes et al., 2017, p. 171; Üzümcüoğlu & Polay, 2022, p. 8); landscaping in historically significant coastal areas emphasizes preserving and enhancing historical features.

These include preserving and restoring culturally and historically significant buildings, monuments, and antiquities. Incorporating these elements into the landscape design ensures that the area's historical character remains intact. Furthermore, cultural significance (Fernandes et al., 2017, p. 171; Miloš & Dragana, 2021, p. 2); the cultural significance of historical coastal areas is an essential aspect of landscaping. Including elements that reflect local traditions, customs, and historical narratives contributes to a sense of place and identity. By paying homage to cultural heritage, landscaping initiatives in historically significant coastal areas enhance community engagement and appreciation. In addition, interpretive signage and information appear in the landscaping designs for historic coastal areas. These educational aids offer visitors historical context and explanations of the landscape's significant features (Arslan, 2014, p. 4115; Iwata & Rio, 2004, p. 172). Such provisions contribute to comprehending and appreciating the area's historical significance by enhancing the visitor experience. In addition, the landscaping at the waterfront in a historical context includes indicators of period-appropriate design (Armenio & Mossa, 2020; Olsen, 2003; Papatheochari & Coccossis, 2019; Sorensen, 1993; Vallega, 2001). Period-appropriate design in landscaping at historical coastal areas involves incorporating design elements, materials, and aesthetics consistent with the site's historical context. It includes using architectural styles, materials, and plant varieties prevalent during the particular historical period. Incorporating landscape designs and ornamental features that correspond with the era enhances the historical atmosphere. The objective is to accurately represent the historical period and offer visitors an immersive experience that connects them to the site's historical significance. To ensure accuracy and avoid anachronistic elements, thorough research, consultation with experts, and attention to detail are required.

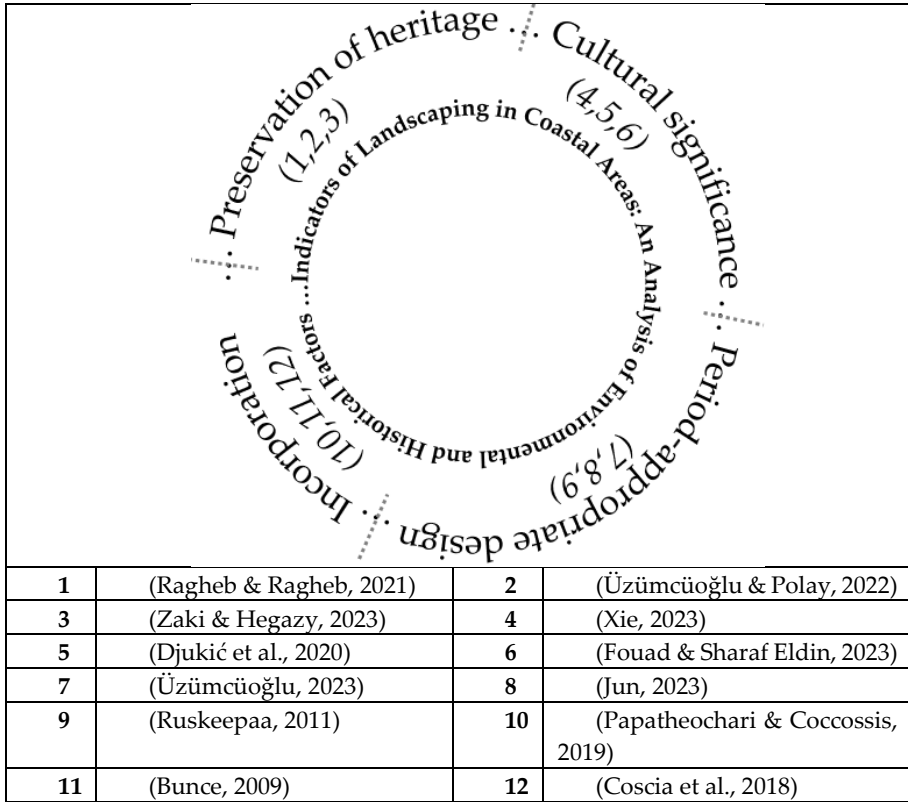


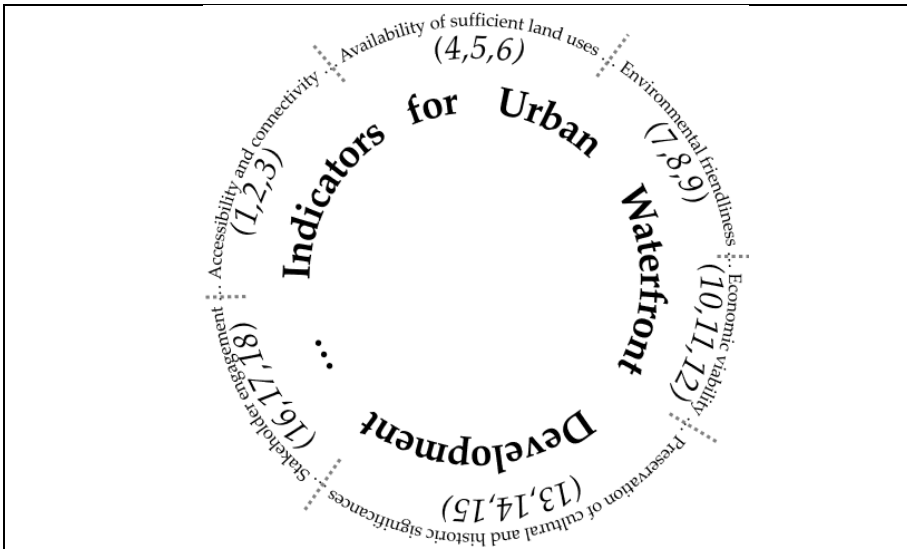
Figure 1: Indicators of Landscaping in Historic Coastal Areas

Indicators for Urban Waterfront Development

Urban waterfront development initiatives utilize various indicators to evaluate the feasibility and desirability of transforming waterfront areas into vibrant and resilient urban spaces. Accessibility and connectivity are crucial indicators, as seamless transportation connections via roads, public transit, and pedestrian/bicycle paths increase the waterfront's accessibility and allure (Guyenbas & Polay, 2020, pp. 1620-1641). The availability of sufficient land is another crucial factor, as it determines the scope and type of development, such as residential or commercial buildings, public amenities, recreational facilities, and parks (Chen, 2022; Hassan & Lee, 2015; Pirlone et al., 2022; Workineh, 2021). Water quality, flood risks, ecological preservation, and the potential impact of development on natural habitats should evaluate to ensure environmentally responsible projects (Kathijotes, 2013). Economic viability indicators include market demand,

the potential for employment creation, tourism opportunities, and the capacity to attract investment and private developers (Borggren & Ström, 2014; Kathijotes, 2013; Miloš & Dragana, 2021).

Moreover, public access and open space are essential elements, as waterfront areas should design to provide opportunities for recreation, public amenities, and gathering spaces for the community (Latip et al., 2012; Sealey et al., 2021). Cultural and historical significance contribute to the potential for development, necessitating the preservation of landmarks, incorporating cultural activities, and commemorating local heritage (Fernandes et al., 2017; Liu et al., 2022). Indicators of sustainability and resilience emphasize incorporating sustainable design principles and resilience measures, such as energy efficiency, green infrastructure, adaptation to climate change, and environmentally benign construction practices. Lastly, stakeholder engagement emerges as a crucial indicator, ensuring the participation and support of local communities, businesses, and government entities and aligning the development with their needs and aspirations (Cialdea & Pompei, 2022; Girard et al., 2014; Hall & Stern, 2014; Hoyle, 1999; Jun, 2023; Shah & Roy, 2017). Comprehensive feasibility studies and the knowledge of urban planners, architects, environmental experts, and community members are indispensable for accurately evaluating these indicators and directing the waterfront development process (Figure 2).



1	(Guvenbas & Polay, 2020)	2	(Othman et al., 2021)
3	(Morozov et al., 2023)	4	(Chen, 2022)
5	(Hassan & Lee, 2015)	6	(Wang et al., 2019)
7	(Avni & Fischler, 2019)	8	(Kathijotes, 2013)
9	(Shah & Roy, 2017)	10	(Borggren & Ström, 2014)
11	(Cerisola & Panzera, 2022)	12	(Feng & Ma, 2018)
13	(Xie, 2023)	14	(Djukić et al., 2020)
15	(Fouad & Sharaf Eldin, 2023)	16	(Papatheochari & Coccossis, 2019)
17	(Bunce, 2009)	18	(Coscia et al., 2018)

Figure 2: Indicators for Urban Waterfront Development

Historic Coastal Landscape and Urban Waterfront Development Principles: A Comprehensive Development Framework

This study highlights the principles of enhancing and developing the coastal landscape to promote comprehensive development. It proposes a new framework for improving the coastal landscape by establishing a conceptual relationship between urban design and comprehensive development through a particular mindset. Historic coastal landscapes are one-of-a-kind and complex environments that necessitate careful consideration for urban waterfront development. The principles of urban waterfront development consider the natural characteristics of the historic coastal landscape and the requirements of the community and visitors. These principles include providing public access to the waterfront, preserving natural habitats, incorporating cultural heritage sites, and fostering economic growth (Figure 3).

To effectively apply these principles, a conceptual framework is developed. This framework consider the coastal landscape's historical development and current social and economic trends. By analyzing case study Girne Ancient Harbor, we can obtain insight into the practical application of these principles. Through this analysis, we can better comprehend how to balance economic development, environmental preservation, and community needs in coastal areas.

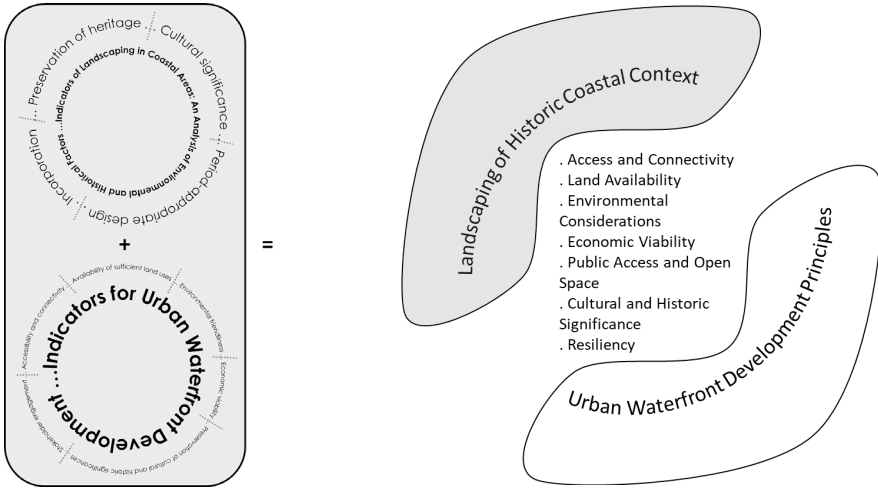


Figure 3: Combined Indicators of Comprehensive Development Framework

Case Study: Analyzing Girne Ancient Harbor Landscape with the Urban Waterfront Development Principles

Girne Ancient Harbor is a fascinating case study for analyzing coastal landscapes and the indicators of urban waterfront development. The harbor has served as a focal point for research into the evolution of general urban features, with creative class members, employee and employer groups, students, and vacationers as participants. The waterfront district of Girne is a notable example of progressive urban design, and numerous urban aspects of the area have been evaluated to comprehend its evolution over time. By examining the landscape of Girne Ancient Harbor through the view of urban waterfront development principles, we can gain valuable insights into establishing sustainable and vibrant coastal communities that benefit residents and tourists.

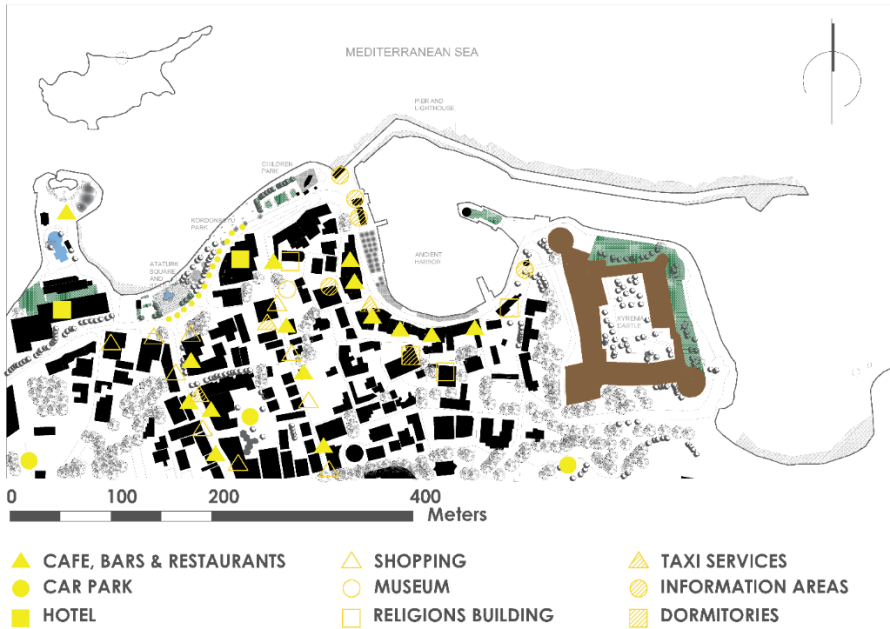


Figure 4: Landscape Design of the Girne Ancient Harbor

The landscaping of Girne Ancient Harbor combines natural beauty with historical allure. The harbor is between the majestic Girne Castle and the charming old town with its winding streets and traditional architecture. The breathtaking backdrop of the Beşparmak Mountains enhances its scenic beauty.

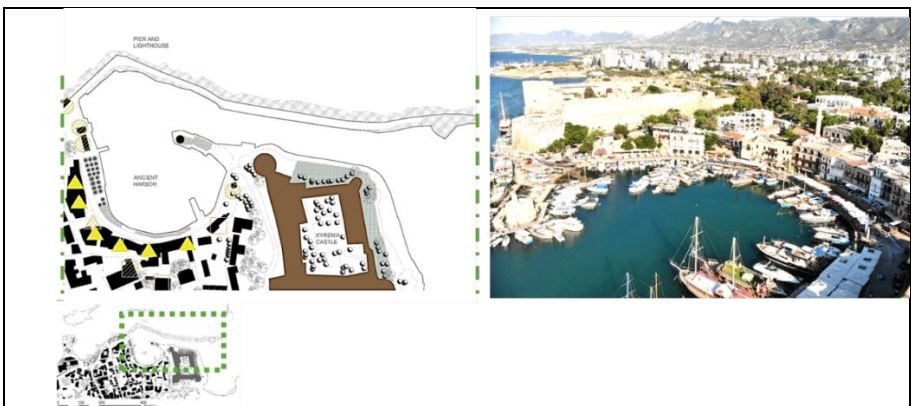


Figure 5: Girne Ancient Harbor

The harbor is in a captivating and picturesque environment, with its proximity to the sea and fishing vessels floating on the calm sea. The area encircling the harbor is adorned with open and semi-open seating areas, a view of a historic castle, and stylistic uniqueness, creating a relaxing and welcoming atmosphere.



Figure 6: Children Park and Promenade

Long the waterfront is a promenade adorned with cafes, restaurants, and shops offering a delightful assortment of local cuisine, handicrafts, and souvenirs. This lively promenade is a popular place for visitors to take a stroll, sample delectable seafood, or enjoy picturesque views.



Figure 7: Atatürk Square and Statue

Close to Girne Harbor, the landscaping of Atatürk Square seeks to create an inviting and pleasant public space. It combines natural elements,

such as greenery and trees, with pathways, seating areas, water features, and lighting fixtures to create an inviting environment for people to congregate, unwind, and appreciate their surroundings' historical and cultural significance.

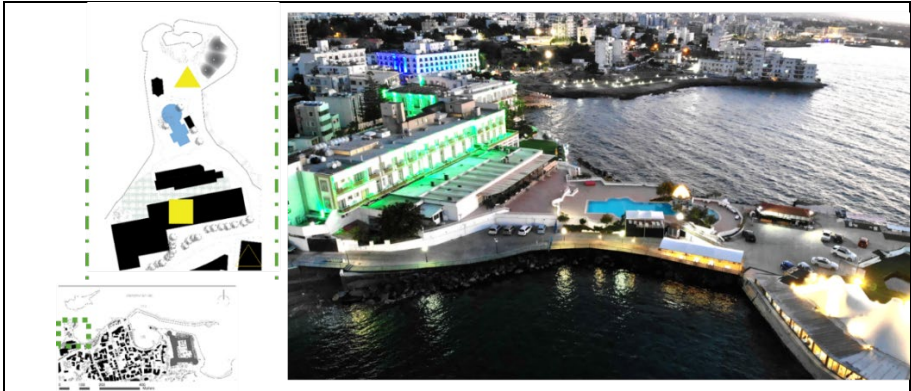


Figure 8: Dome Hotel and its Landscaping

The Dome Hotel's private landscaping focuses on creating a tranquil and picturesque environment for guests to appreciate. The hotel's landscaping takes advantage of the natural grandeur of its seaside location. However, only hotel guests permit within the territory.

Material and Method of the Study

Initially, a review of relevant literature was conducted to identify indicators of landscaping in coastal areas and waterfront development. Subsequently, these identified indicators were synthesized to create a comprehensive development framework. It was determined that the key indicators of this comprehensive framework include access and connectivity, land availability, environmental considerations, economic viability, public access and open space, cultural and historical significance, and resiliency (Figure 3). These principles served as the basis for analyzing the case study of Girne Ancient Harbor, selected for its historical significance and contemporary design as a waterfront destination. The study applied the combined comprehensive development indicators to examine the landscape and development of Girne Ancient Harbor. The study encompassed

individuals from many segments of society, including members of the academic community, professionals from other industries, students, and visitors.

This investigation employed a questionnaire comprising two distinct sections. The survey begins with ascertaining the demographic attributes of the participants. The subsequent part examines the degree of user satisfaction with the seven principles of waterfront development: access and connection, land availability, environmental concerns, economic viability, public access and open spaces, cultural and historical significance, and resiliency.

Data was collected at the Girne Waterfront over the period spanning from September to November 2020. A total of 247 questionnaires were distributed. In Girne, individuals visiting the waterfront engaged in a random selection process. The Likert scale in this study assigned scores ranging from 5 (representing complete agreement) to 1 (representing complete disagreement) to all items. The research offered valuable insights into the characteristics of the participants. The profiles encompass many demographic attributes such as gender, age, occupation, level of education, visitor type, frequency of visits, willingness to devote time, and suggestions. As part of the analysis technique, a descriptive analysis was performed to ascertain the frequency and proportion of each question in the questionnaire. Before conducting the study, the datasets underwent a thorough examination to assess their level of completeness and consistency.

In addition to the sampling adequacy measurement, exploratory factor analysis (EFA), convergent validity, discriminant validity, and variable dependability were assessed. Furthermore, confirmatory factor analysis (CFA) was conducted using a range of measurement models to assess fit. In addition to other demographic variables, the one-way ANOVA and Tukey's post hoc HSD tests were utilized to examine differences in variables among subgroups of related variables. All statistical analyses in this study were conducted utilizing SPSS V.25 and AMOS V.24, with a confidence level of 95%.

Results

Following the methodological framework employed in the survey, this part offers the results derived from investigating the collected data. The

experiment and survey results are displayed jointly, with statistically significant correlations emphasized.

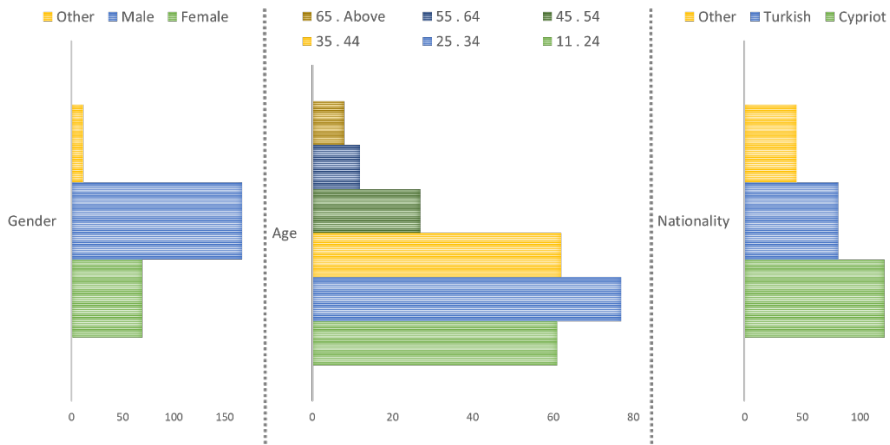


Figure 9: Participants' demographic statistics; Gender (left), age (middle), and Nationality (right)

The outcome of the expressive investigation into the gender variable is depicted in Figure 9. There is evidence that most respondents were male (67.6%).

In addition, there appear to be fewer female users than male users. This situation merits consideration. In addition, the above figure represents the outcome of a descriptive analysis of the age variable. Most respondents (81.0%) were between 18 and 44.

The preponderance of users are adolescents and adults. The survey hours were effective in generating this result. At the time of the survey, most of its users were students, indicating that most of the population consisted of adolescents.

Additionally, the figure depicts the result of the expressive nationality analysis. As demonstrated, the plurality of respondents was from North Cyprus and Turkey (81.8%). There are numerous user profiles in this region. Most users were locals during the survey, but vacationers and students were also present in sizeable numbers. It is recognized as a valuable asset that the region can support a diverse population.

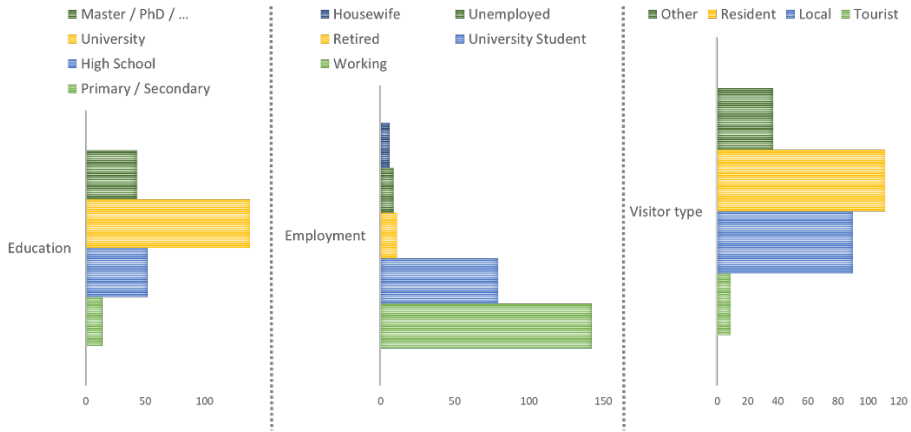


Figure 10: Participant profiles; Education (left), Occupation (middle), and Visitor Category (right)

The results of the descriptive investigation of the variable education are depicted in Figure 10. The majority of respondents (55.7%) had a university education, as demonstrated. There are numerous universities in the area. Given that the survey was conducted between 12 p.m. and 12 a.m., when university students are most likely to be at the site, it is unsurprising that most respondents are university students. In addition, the above figure depicts the results of the descriptive investigation of the employment variable among the respondents. Most respondents were students and employed (89.7%).

Wherever youthful people predominate, it is common to find university students and employees, working-class individuals, and inventive field laborers. In addition, the figure depicts the outcome of a descriptive analysis of the variable visitor type. Most respondents were Girne residents and natives (80.9%). Depending on when the survey was conducted, Girne residents were once again in the majority. Summer is the busiest season for both residents and tourists.

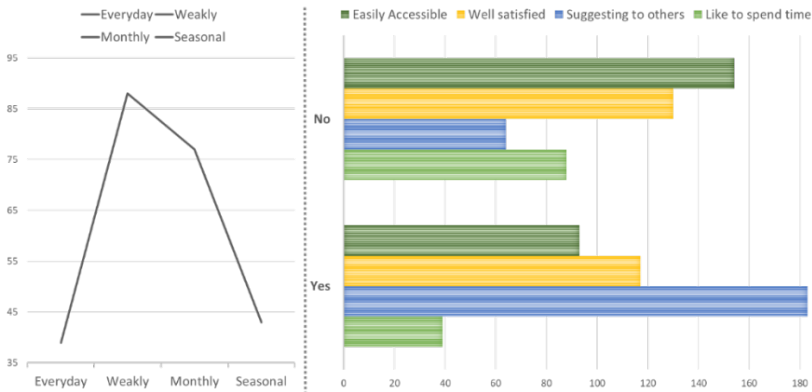


Figure 11: Participant attributes; the number of visits (left) and their satisfaction (right)

Figure 11 depicts the results of the descriptive investigation for the variable visit frequency. The majority of respondents (66.8%) were weekly or monthly visitors.

Frequent visitors are drawn to this location primarily because of its unique historical character and myriad activities. Consequently, it can accommodate various human profiles. In addition, it has become a place of refreshment for those who engage in casino tourism. At approximately 22:00, it was observed that casino guests were in the vicinity. In addition, the above figure depicts the outcome of descriptive analysis for variable recommendations to others. Most respondents (74.1%) were confident in recommending the location to others.

The results of the descriptive investigation of the well-satisfied variable are also shown in Figure 11. Nearly half of the respondents (47.4%) expressed satisfaction with the environment.

It has come to light that sanitation, lighting, and the absence of outdoor activities are among the reasons most users are unhappy. In addition, there were concerns about the nocturnal increase in dangerous users. In addition, the following figure illustrates the results of the descriptive investigation of the readily available variable. Most respondents (62.3 %) believed the location was not easily accessible.

According to the description provided by the user, the location is difficult to reach. Cyclists and pedestrians are concerned about the condition of the sidewalks, while motorists are concerned about the lack of parking spaces. Observations indicate that disabled individuals cannot independently utilize the location.

Table 2. Descriptive statistics of questionnaire indicators: indicators of the landscaping of historical coastal context through the prism of urban waterfront development principles⁵

Indicators	Questions	Mean	Mode	Std. Dev.	Skewness	Kurtosis	Min	Max
1 Access and Connectivity	<i>Accessibility for cyclist, pedestrian, and vehicle.</i>	2.8	2	1.42	0.26	-1.26	1	5
	<i>The place feels safe to me.</i>	3	2	1.29	0.10	-1.09	1	5
2 Land Availability	<i>Events and activities make this site appealing.</i>	2.7	2	1.26	0.51	-0.9	1	5
	<i>Basic life nurtures satisfy me.</i>	3.1	3	1.13	0.01	-0.73	1	5
	<i>Appropriate open and/or tight environments for creative output.</i>	2.1	1	1.05	0.73	0.03	1	5
3 Environmental Aspects	<i>Environment is good physically, naturally, and socially.</i>	2.4	2	1.15	0.66	-0.21	1	5
4 Economic Viability	<i>The renovation procedure considered economic and eco-friendly design.</i>	2.4	1	1.23	0.58	-0.54	1	5
5 Public Access and Open Spaces	<i>The waterfront is reachable by foot, bike, and public transit.</i>	2	1	1.08	1.08	0.48	1	5
6 Cultural and Historical Significance	<i>Historical allusions are preserved on the waterfront.</i>	2.3	2	1.18	0.75	-0.25	1	5
7 Resiliency	<i>Quality of urban design.</i>	2.1	2	1.01	0.98	0.83	1	5
	<i>Quality of natural space protection.</i>	2.2	2	1.08	1.04	0.76	1	5

Based on the consistent outcomes of the statistical analysis for the indicators of the landscaping of historical coastal context through the prism of urban waterfront development principles of the questionnaire in Table 2, there is a neutral approach to the questions posed. It is necessary to increase user satisfaction and opportunities for social interaction in this area, which can accommodate a diversity of user profiles. It is essential to increase the contentment of the users at this location, which has the potential to attract a wide variety of user types. In addition to providing a safe environment, there should be an artistic, modern, and physically appropriate environment, which will increase the interaction between water and people and provide a foundation for the collaboration of various classes in this region, which has enormous potential for all visitors.

Access and Connectivity

Respondents expressed concerns regarding the accessibility of the site for cyclists, pedestrians, and vehicles, noting that it fell short of expectations. Specifically, respondents highlighted challenges such as limited pathways for cyclists and pedestrians, insufficient parking facilities for vehicles, and unclear traffic management measures. Additionally, there was

⁵ Std. Dev. = standardized deviation; Min. = minimum; Max. = maximum.

a prevalent sentiment among respondents regarding a lack of safety within the area, which impacted their overall perception of accessibility. Factors contributing to this perception included inadequate lighting, poorly maintained pathways, and a lack of designated pedestrian zones. These findings underscore the need for improvements in infrastructure and safety measures to enhance accessibility for all modes of transportation and to foster a sense of security among visitors and residents alike.

Land Availability

The absence of diverse events and activities was identified as a significant factor detracting from the site's overall attractiveness and appeal. Respondents indicated that the limited range of events and activities could have effectively enhanced the site's allure or catered to the diverse interests of visitors. Moreover, this lack of variety was perceived as inadequate in meeting the respondents' satisfaction with their basic life needs, as they expressed a desire for more opportunities for leisure, social interaction, and cultural enrichment. Furthermore, the scarcity of engaging events and activities was noted to contribute to an uninspiring environment that did not foster creative expression or provide stimulating experiences for visitors. These findings underscore the importance of diversifying the range of events and activities offered at the site better to meet the diverse needs and preferences of the community and to create vibrant, engaging spaces conducive to creativity and social interaction.

Environmental Aspects

Respondents provided feedback indicating that they perceived the environment at the site to be average in terms of its physical, natural, and social attributes. This assessment suggests that respondents could have found the environment to be more exceptional or subpar in any specific aspect. Physically, the environment was deemed to be neither exceptionally well-maintained nor visibly deteriorated, with respondents generally observing standard upkeep and cleanliness levels. In terms of natural elements, respondents noted the presence of typical features expected within the environment, such as vegetation and water bodies, without any notable ecological concerns or outstanding natural beauty. Additionally, socially, the environment was perceived as neither exceptionally welcoming

nor unwelcoming, with respondents expressing neutral sentiments regarding the overall social atmosphere and interactions observed at the site. Overall, these findings suggest that respondents held moderate opinions regarding the environmental quality of the site, indicating a lack of significant positive or negative perceptions that would distinguish it as either exceptional or inadequate in comparison to other similar environments.

Economic Viability

The renovation process was highlighted for its conscientious consideration of both economic viability and eco-friendly design principles, reflecting a commendable effort to strike a balance between financial feasibility and environmental sustainability. Respondents noted that the renovation plans appeared to prioritize cost-effectiveness without compromising on environmental conservation measures, such as incorporating energy-efficient materials, implementing waste reduction strategies, and preserving natural habitats. This approach signaled a proactive stance towards ensuring that the development aligned with both economic and ecological objectives, demonstrating a commitment to responsible stewardship of resources and long-term environmental resilience. However, it is important to note that the application of these principles still needs to be fully realized due to the incomplete implementation of the renovation process. Consequently, the extent to which economic viability was achieved could not be accurately assessed, as the project's outcomes and financial implications remained uncertain. This incomplete application limited the ability to ascertain the project's success in achieving its economic goals, leaving questions regarding its financial sustainability unanswered. Despite this limitation, the initial efforts to integrate economic and environmental considerations into the renovation plans represent a promising step towards fostering sustainable development practices within the site.

Cultural and historical significance

The waterfront area was notable for its conscientious preservation of historical allusions, which poignantly reminded respondents of the significance of safeguarding cultural and historical heritage amidst ongoing development initiatives. Respondents observed various elements that paid

homage to the site's rich history, including architectural features, commemorative plaques, interpretive signage, and curated exhibits showcasing the area's past. These tangible reminders of bygone eras not only added depth and character to the waterfront but also fostered a sense of connection to the community's collective heritage. The preservation of historical allusions on the waterfront underscored the commitment to honoring and celebrating the site's cultural legacy, acknowledging its role as a repository of memories, traditions, and narratives that contribute to the collective identity of the community. By retaining and showcasing these historical elements, the development demonstrated a reverence for the past and a recognition of the importance of continuity and authenticity in shaping the site's identity and sense of place. Furthermore, the presence of historical allusions served as a catalyst for cultural appreciation and educational opportunities, inviting visitors to explore and learn about the area's history and significance. This thoughtful integration of cultural and historical elements not only enriched the aesthetic and experiential quality of the waterfront but also contributed to its broader social and cultural value as a place of heritage and identity. Overall, the preservation of historical allusions on the waterfront exemplified a commitment to holistic and sustainable development practices that prioritize the conservation of cultural heritage alongside the pursuit of economic and recreational objectives.

Resiliency

The perceived inadequacies in the quality of urban design and the insufficient protection of natural spaces emerged as significant factors undermining the resilience of the site, emphasizing the critical need for enhanced consideration of both built and natural environments in the development process. Respondents pointed out various areas for improvement in urban design, such as ineffective spatial planning, uninspiring architectural aesthetics, and a lack of cohesive design elements that failed to create a sense of place or facilitate meaningful human interactions. These deficiencies not only detracted from the site's visual appeal but also hindered its functionality and usability, compromising its ability to withstand and adapt to changing environmental, social, and economic conditions. Furthermore, the insufficient protection of natural spaces was identified as a

key vulnerability that compromised the site's ecological resilience and capacity to mitigate environmental risks. Respondents noted instances of habitat degradation as well as inadequate green infrastructure, which diminished the site's ability to provide essential ecosystem services such as flood control, water purification, and climate regulation. The neglect of natural spaces not only diminished the site's ecological value but also increased its susceptibility to environmental degradation and natural disasters, posing long-term risks to the well-being and sustainability of the site and its surrounding communities. These findings underscored the importance of adopting a holistic approach to development that integrates considerations for both built and natural environments, prioritizing sustainable design practices, green infrastructure development, and the preservation of natural habitats. By addressing these critical deficiencies and enhancing the resilience of the site, future development initiatives can better withstand environmental stresses, support ecological integrity, and promote the well-being and prosperity of present and future generations.

Discussion

The landscaping of Girne Ancient Harbor requires a comprehensive understanding of various factors, such as access and connectivity, land availability, environmental considerations, economic viability, public access and open spaces, cultural and historical significance, and resilience. Landscape architects can blend historical context and urban waterfront by addressing these factors.

Access and Connectivity: The current access and connectivity situation in Girne Ancient Harbor can impact the overall visitor experience. During prime tourist seasons, the limited parking options can cause congestion and difficulty reaching the area.

The absence of well-defined pedestrian pathways and dedicated bicycle lanes hampers accessibility and connectivity within the harbor. It can encourage visitors to investigate the area on foot or by bicycle and restrict their interaction with the urban fabric of the surrounding area.

In addition, the absence of efficient public transportation options serving the harbor exacerbates accessibility issues. Tourists and locals who rely on public transportation to reach the area may find this inconvenient.

The landscape design should consider implementing measures such as enhancing the harbor's road infrastructure to enhance access and connectivity. Dedicated pedestrian paths and bicycle lanes would increase accessibility and promote alternative modes of transportation. Additionally, efforts should be made to enhance public transportation links to the harbor, ensuring that city visitors have easy access.

By addressing these access and connectivity issues through the landscape design, Girne Ancient Harbor can become more accessible to a broader spectrum of visitors, enhancing their experience and encouraging greater engagement with the area's historical and cultural features.

Land Availability: The availability of land is a crucial aspect of Girne Ancient Harbor's landscaping. Given the historical context and limited space within the harbor area, meticulous planning and design are necessary to maximize land usage. Landscape design should prioritize space efficiency while preserving the area's historic character and cultural heritage. It is essential to maximize green spaces, promenades, and recreational areas within the available land to create a pleasant and sustainable environment for visitors and residents. As of 2023, the area opposite the historic marine site is undergoing renovation. The ongoing process involves implementing surface materials and various enhancements to improve quality.

Environmental Aspects: The landscaping of Girne Ancient Harbor should integrate significant environmental factors. It is essential to preserve the coastal region's natural grandeur and ecological balance. This can be accomplished through the use of native plant species, the implementation of efficient irrigation systems, and the promotion of sustainable maintenance practices. By emphasizing environmental concerns, the landscaping contributes to the ecological health of the harbor and its surroundings.

Economic Viability: The landscaping of Girne Ancient Harbor must also take into account economic viability. The development and upkeep of the harbor's landscape should balance commercial viability and aesthetic appeal. The landscape design should incorporate commercial spaces, such as cafes, restaurants, and stores, to increase the area's economic potential while preserving its historical and cultural significance. This equilibrium is essential to the harbor's long-term viability and economic success as a tourism destination.

Public Access and Open Spaces: Creating Public Access and Open Spaces is crucial to the harbor's landscaping. The landscaping encourages social interaction, recreational activities, and community involvement by providing well-designed public spaces like parks, plazas, and waterfront promenades. These open spaces provide opportunities for relaxation, cultural activities, and leisurely walks for both locals and visitors. The landscaping should balance public access and commercial activities to ensure the harbor remains accessible and welcoming.

Cultural and Historical Significance: The preservation of the cultural and historical significance of Girne Ancient Harbor is a primary landscaping consideration. The design should respect and enhance the extant historical structures and landmarks, such as Girne Castle and the old town's traditional architecture. Including elements that reflect the local culture and heritage, such as traditional materials or design motifs, enhances the landscape's authenticity and sense of place. By recognizing and emphasizing the harbor's cultural and historical significance, the landscaping becomes an integral part of the harbor's overall experience.

Resiliency: In light of growing concerns about climate change and its consequences, the landscaping of Girne Ancient Harbor should prioritize resilience. The design should consider the potential dangers of rising sea levels, extreme weather, and erosion. Implementing resilient landscaping techniques, such as restoring coastal vegetation, protective barriers, and sustainable drainage systems, protects the harbor from environmental threats. The landscaping guarantees the harbor's long-term sustainability and adaptability to changing conditions by incorporating resilience measures.

Conclusion

This study aimed to investigate indicators of landscaping in historic coastal areas, identify indicators of waterfront development, and devise a framework for evaluating the landscaping of historical coastal contexts using the principles of urban waterfront development. By analyzing the Girne Ancient Harbor case study, valuable insights were obtained that can be applied to future landscaping practices and urban waterfront development projects in similar settings.

In conclusion, the analysis of Girne Ancient Harbor within the theoretical framework has yielded valuable insights that have contributed to the refinement and enhancement of our understanding of comprehensive development indicators for historic coastal landscapes. Through the examination of various aspects such as access and connectivity, land availability, environmental aspects, economic viability, public access and open spaces, cultural and historical significance, and resiliency, the study has shed light on the multifaceted dynamics that shape the development and preservation of these unique environments. By synthesizing theoretical principles with empirical findings from the Girne case study, the theoretical framework has evolved to incorporate nuanced considerations that reflect the complexities of managing historical coastal landscapes in contemporary contexts. As a result, the new comprehensive development indicators for historic coastal landscapes emphasize the importance of integrating cultural heritage preservation, environmental sustainability, and community engagement into development strategies. This holistic approach not only acknowledges the intrinsic value of these landscapes as repositories of cultural and natural heritage but also underscores their potential to serve as vibrant, resilient, and inclusive spaces that enrich the quality of life for current and future generations. These comprehensive development indicators offer a roadmap for policymakers, planners, and stakeholders to guide sustainable development practices that honor the unique character and heritage of historic coastal landscapes while fostering their long-term resilience and vitality.

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