İSTANBUL UNIVERSITY PRESS

Journal of Technology in Architecture Design and Planning
JTADP 2024, 2 (1), 35–43
DOI: 10.26650/JTADP.24.004

RESEARCH ARTICLE

The Importance of Habitable Areas in Urban Design

Sema KARAGÜLER[1], Bengi KORGAVUŞ[2]

[1] Yeditepe University, Faculty of Architecture, Architecture Department, İstanbul, Türkiye
[2] Yeditepe University, Faculty of Architecture, Urban Design and Landscape Architecture Department, İstanbul, Türkiye

ABSTRACT

When making urban design settlement plans, decisions about which areas can be opened for habitation should demonstrate compliance not only with the principles of planning disciplines but also with fundamental legislation regarding suitability for zoning. In the discipline of planning, when conducting threshold analysis to determine habitable areas, all factors influencing the region are considered separately as artificial and natural thresholds. However, when evaluated in the context of the emerging conditions of our time, this issue becomes even more significant.

Indeed, the suitability of land for habitation in the planning domain can be presented with an approach that prioritises today's important concepts and developments, such as natural disasters, public interest, nature conservation, ecology, and sustainability, while considering the relevant disciplinary and legal regulations. In contemporary urban design, it is increasingly essential to create appropriate habitable solutions based on the geographical, geological, historical, cultural, and functional physical characteristics of the settlement, as well as new concepts such as climate change, disasters, technological hazards, and planetary protection, while also adhering to existing legal sanctions.

This study explains the concept of habitable areas and the factors associated with them, outlining the principles for determining habitable areas based on each factor.

Keywords: Habitability, habitable area, threshold analysis in land use

Introduction

Today, the lack of green areas in and around residential areas, as well as environmental pollution such as water, air, and soil pollution, transportation accidents, fires, floods, earthquakes, landslides, avalanches, tsunamis, disasters, epidemics, etc., are on the rise, with most attributed to climate change. These increases make sustainable living in cities and residential areas challenging at all levels. Currently, one of the primary measures to minimise the effects of these problems is the proper selection of residential areas in urban construction.

This study focuses on determining and emphasising the importance of functional construction areas within settlements. In addition, it underscores the general landscape view that can be built outside residential areas, including considerations for geographical features such as sinkholes and other relevant factors. This study highlights the significance of the concept of a "habitable area" for all urban design planners. It begins by defining this concept and examining the factors that influence habitable areas. Planners are then tasked with determining habitable areas in city plans on the basis of these factors. The essential principles for determining the results are presented in the form of explanatory figures. Subsequently, new sanctions for determining habitable areas are proposed by evaluating the relationship between these principles and zoning law. Ultimately, inferences based on these principles and sanctions are stated.

1. The Concept of Habitable Area

The concept of "habitable area" generally refers to areas deemed suitable for creating urban environments that can accommodate various functions such as housing, commercial centres, industrial zones, and tourism destinations. These areas play a crucial role in the development of settlements and cities. The primary characteristic of habitable areas is their suitability for construction in urban design. Therefore, when developing plans for a settlement, identifying habitable areas is a fundamental step. Ensuring the

Corresponding Author: Bengi KORGAVUŞ **E-mail:** bdemirkan@yeditepe.edu.tr
Submitted: 25.03.2024 • **Revision Requested:** 10.05.2024 • **Last Revision Received:** 10.05.2024 • **Accepted:** 11.05.2024 • **Published Online:** 28.05.2024

accuracy of these determination is essential for the sustainable growth and development of cities and settlements of all sizes. Failure to do so may lead to the construction of buildings in areas unsuitable for habitation, resulting in urban environments that are vulnerable to various risks and ultimately unsustainable in the long term (T.C. Çevre ve Şehircilik Bakanlığı, 2015).

In urban planning and related disciplines, the concept of habitable areas encompasses areas that can be designated for settlement through careful planning. An integral part of planning settlements involves the exclusion of unsuitable areas for land use. Consequently, the planned urban areas are situated within habitable zones, ensuring that development occurs in appropriate locations.

As a fundamental principle, in zoning plans and all types of urban design plans, it is possible for an area to be suitable for some functions and unsuitable for others. In other words, when developing a settlement plan, habitable areas should be identified on the basis of their intended functions. In essence, determining the function of areas designated for settlement is crucial for assessing their suitability. For instance, while a certain area within an urban residential zone may be deemed suitable for an active green space like a park, another area designated for residential use may not meet the criteria for habitation and could be classified as non-habitable. Therefore, it is imperative to classify the habitable areas within the entire settlement and determine which areas are suitable for specific functions.

The classification in this regard can be made depending on the habitability factors. For example, while some areas may pose risks due to earthquakes, they could still be suitable for settlement with appropriate precautions. In addition, active green spaces such as playgrounds, parks, and open sports areas are integral parts of urban environments. These areas may be distinct from habitable zones or could be situated in areas deemed unsuitable for habitation but suitable for recreational purposes because of their lack of construction. By detailing habitable areas in this manner, a systematic classification addressing various urban functions can be established, enabling detailed determination of habitable areas in settlement plans.

2. Factors Affecting Habitable Areas

Specific features of the areas play a significant role in determining habitable areas because they provide insights into habitability. These characteristics indicate whether an area is suitable for settlement. Below, each factor is discussed individually along with its rationale.

2.1. Topographic Structure

The formations comprising plains, slopes, high slopes, hills, and streams within the land's topography provide suitable conditions for construction. However, hills and areas with very steep slopes are generally unsuitable for construction due to several reasons. Unless compelling reasons exist otherwise, they should be excluded from habitable areas. These reasons include

- Transportation challenges arising from steep slopes
- Difficulty and high cost of construction
- Susceptibility to disasters such as landslides and avalanches
- Amplification of flood impacts
- Vulnerability to various natural disasters triggered by earthquakes

Given that most completely flat and plain areas can be utilised for agricultural purposes based on soil quality, these regions should be retained within settlement areas to serve agricultural functions while being excluded from construction zones.

2.2. Geological Structure

Differences in land stratification, which constitute the geological structure of the settlement area, are significant factors in determining habitable areas, especially in terms of the dangers they pose to earthquakes. This factor always necessitates the preparation of settlement suitability maps, which are produced from geological structure and stratification analyses conducted by geological technical teams. In these maps, at least the areas unsuitable for earthquakes are clearly identified. Planners should exclude these areas from habitable areas. In addition, on these maps, areas that can be settled with precautions are graded according to the rock types they comprise. By specifying the measures to be taken on the basis of the functional areas in the plan, they can be considered conditionally habitable areas.

The areas to be excluded from the completely habitable area are termed "Geologically objectionable areas," which should also be delineated on the current maps. Although these areas can be excluded from habitable areas in the plans, planners must take

special precautions regarding their dangers. The land and surface soil structure, including watery swamps, reed beds, and habitable areas, should be excluded. Alluvial areas consist of weak soils that are not earthquakes-resistant, as indicated by the fact that stream beds.

2.3. Streams: Stream Beds and Stream Reclamation Boundaries

These are boundaries created by calculating the flood levels of natural streams. On both sides of the stream axis, further than the natural banks of the stream, boundaries extend to 15, 20, and 30 meters. The boundary varies according to the stream width and is fortified with stream reclamation retaining walls. Stream reclamation boundaries are initially established to prevent streams within residential areas from overflowing and causing floods, thereby damaging the surrounding residential areas. Retaining walls are constructed in sizes appropriate to the stream's flow, and the stream is rehabilitated to resemble an open channel. According to relevant regulations, it is necessary to refrain from constructing any buildings close to these reclamation boundaries, which are established depending on the characteristics of the region. As a general rule, it is necessary to keep stream beds clear of construction. Stream beds contribute to environmental flooding during stream floods and intensify flood risks. The primary cause of floods is the "overflow of water into river beds due to the inappropriate use of stream beds for purposes other than their intended use" (Karagüler & Korgavuş, 2022). Furthermore, stream beds, composed of wet and alluvial soils, form weak ground for construction and are not resistant to earthquakes. Moreover, the risk of water pollution in streams supplying water due to settlements underscores the need to keep stream beds free of construction. This issue will be elaborated further in chapter 2.6. Therefore, it is imperative to exclude stream beds from habitable areas.

2.4. Airport Obstacle Limits

These boundaries are set according to the topography of the airport environment. The "Air obstacle limit" is established to ensure safe aircraft operations at airports, prohibiting the elevation of obstacles in designated areas surrounding airports (Sivil Havacılık Genel Müdürlüğü, 2024). At airports surrounded by or close to residential areas, ensuring obstacle-free aircraft take-off and landing is crucial. Therefore, obstacle boundaries are established around airports to regulate the placement of structures within appropriate elevations for aircraft landing and take-off movements. These boundaries, categorised as first, second, and third degrees, vary in distance from the airport. Relevant regulations have imposed building bans and height limitations for areas between these boundaries. Building heights in settlements constructed within these boundaries should adhere to construction conditions specified for these regions to prevent accidents during aircraft take-off and landing. A schematic drawing illustrating the airport obstacle boundary is provided in Figure 1. This issue is further detailed for military airports due to defence considerations. In addition to limiting building heights to prevent take-off accidents, it is essential to protect buildings in these areas from take-off noise. According to the 6th paragraph of the 5th article of the Construction Rules Circular for the Airport and Its Surroundings, all zoning regulations or constructions within Airport obstacle plan boundaries must comply with the Environmental Regulation published in the Official Gazette No. 27601 dated 4/6/2010, using noise-blocking materials based on the Noise Evaluation and Management Regulation (Sivil Havacılık Genel Müdürlüğü, 2022). This noise parameter underscores the need to plan settlement approach distances to protection zones. Therefore, the obstacle boundaries around airports, particularly up to the first-degree obstacle boundaries, should be kept free of habitable areas.

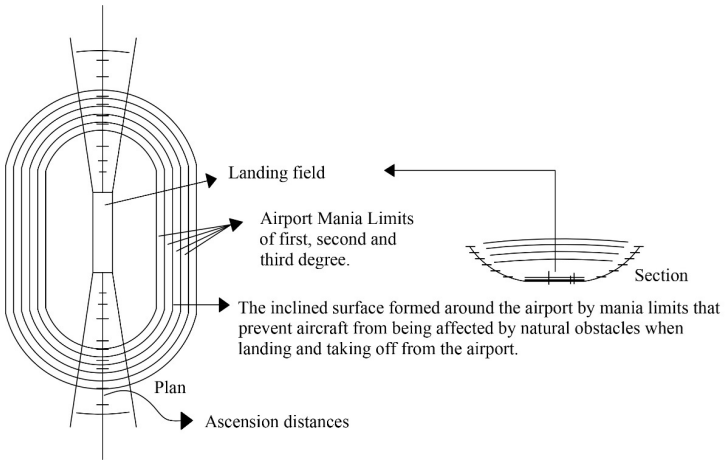

Figure 1. Schematic Description of Airport Mânia (Obstacle) Limits (created by the authors).

The inclined surface depicted in Figure 1 represents the area surrounding the airport, delineated by airport obstacle boundaries, designed to prevent aircraft from encountering natural obstacles during take-off and landing manoeuvres.

2.5. Forests and Areas that Have Lost Their Forest Quality

As it is widely acknowledged, forests hold legal significance in terms of protection. When formulating settlement plans, it is imperative that urban expansion does not encroach upon forested areas. The intricate relationship between settlement patterns and forests poses the risk of wildfires spreading from settlements to forested regions and vice versa. Professor Dr. Ünal Akkemik highlighted the ramifications of this interconnection in forested areas, noting that "increased human activity and equipment presence in forests contribute to heightened fire incidents" (Akkemik, 2021).

To mitigate the risk of forest damage, buffer zones can be established between urban functions, construction zones, and forested areas. Consequently, forested areas should be excluded from habitable zones in planned settlements. However, "Areas that have lost their forest character" may be legally designated for removal from the forest, typically for repurposing through planning for construction. From a global perspective of nature conservation and ecological sustainability, reforestation of these areas would represent a far more sustainable planning approach. Hence, it becomes imperative to exclude not only forested areas but also those that have lost their forest quality from habitable zones to ensure their preservation alongside forested regions.

2.6. Drinking Water Basins, Lakes, and Ponds

Protecting natural lakes, water basins, dam lakes, and ponds, which serve as sources of drinking and utility water vital for human health, necessitates maintaining their environments free from pollution. Consequently, all activities and practises that could lead to pollution must be eliminated from the vicinity of these bodies of water. Therefore, constructions should be situated at a considerable distance from lakes to prevent the discharge of pollutants such as sewage and wastewater, thereby safeguarding the purity of the water we consume and utilise and mitigating the risk of waterborne diseases. To this end, the "Regulation on the Protection of Drinking and Use Water Basins" outlines absolute, first (short), second (medium), and long-distance protection zones, which dictate building restrictions or controlled construction conditions in the vicinity of lakes for the preparation of zoning plans. The area between the absolute protection zone and the lake shore is designated as an absolute protection area, where construction is prohibited. Meanwhile, the areas between the short- and medium-distance protection zones are subject to limited construction conditions imposed by water administrations. The long-distance protection zone is delineated on the basis of the topographic features of the lake, with the protection area encircled by this zone designated for controlled construction. Figure 2 illustrates a schematic representation of these protection zones. This area, which is encompassed by the long-distance protection zone, is defined in the regulation as follows:
“The long-distance protection area encompasses the entire drinking-use water basin outside the absolute, short- and medium-range protection areas of natural lakes, dam lakes, and ponds from which drinking-use water is supplied or planned to be provided” (Tarım ve Orman Bakanlığı, 2021).

Preventing the occurrence of epidemic diseases in settlements around natural lakes, dam lakes, streams, and rivers, which serve as sources of drinking and potable water, is paramount. Consequently, novel urban design approaches such as healthy and smart cities have rapidly gained significance in the realm of future urbanisation and settlement models (Karagüler & Korgavuş, 2020). In 1854, Dr. John Snow provided a pioneering example of a smart city based on data usage. By mapping the spread of cholera cases in London, he identified water—not air—as the cause of the cholera epidemic in the city area (Öztaş, 2020).

In light of the protection requirement explained above, when crafting settlement plans at all scales, the absolute protection area of natural lakes, dam lakes, and ponds, which serve as water resources linked to the settlement, must be strictly excluded from habitable areas and surrounded by an absolute distance protection zone. Short-, medium-, and long-distance protected areas surrounded by other zones can be included within habitable areas by implementing controlled and minimal construction conditions and employing smart sewer systems.

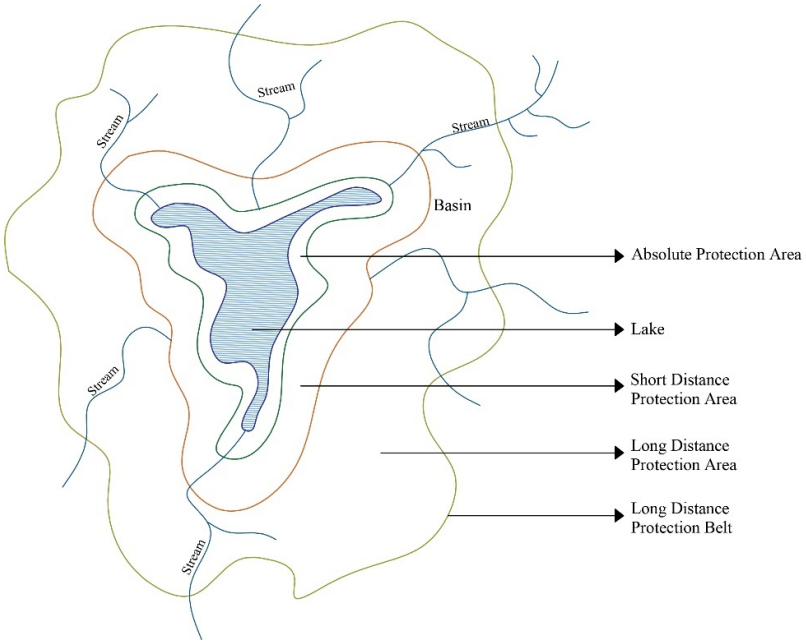

Figure 2. Schematic Representation of Lakes and Drinking Water Reservoir Protection Belts and Zones (created by the authors).

2.7. State Highways Environment

The Ministry of Transport safeguards the areas surrounding the routes of state highways with the highway expropriation border, according to the Highways Law. As per the General Directorate of Highways, this demarcation delineates the region subject to expropriation beyond the road boundaries of state-built highways and extends along both sides of the road. The space between the road and this border is designated for public use, and no structures other than public buildings necessitating highway public services can be erected within this zone. Consequently, the General Directorate of Highways determines the expropriation of the area between the road boundary line and the expropriation border of state highways within the planning area in accordance with the public interest. Planners are advised to exclude these areas from habitable zones. Figure 3 illustrates the highway expropriation boundaries and the expropriated area. The remnants of parcels resulting from expropriation, depicted in this schematic representation, are documented in the title deed through abandonment, thus forming a new parcel (Karayolları Genel Müdürlüğü, 2023).

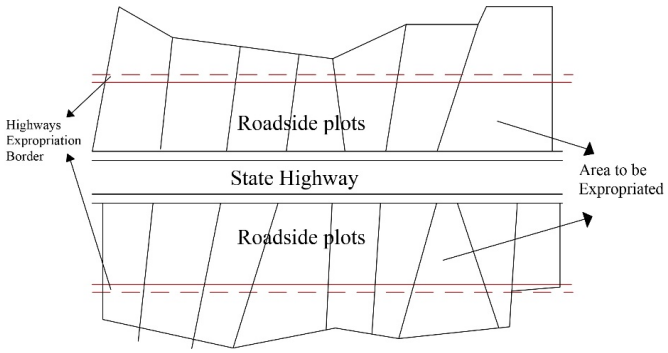

Figure 3. Schematic Representation of Highway Expropriation Boundaries (created by the authors).

2.8. Coasts

Coasts are subject to sanctions specified in coastal law, which includes definitions of shoreline, shoreline, coastal edge line, and coastline. In accordance with public interest, coastal areas and coastlines are open to the public; however, they are also areas that are restricted and subject to expropriation due to their vulnerable ground structure and susceptibility to disasters such as earthquakes and tsunamis.

Currently, various measures are being developed to protect coastal settlements from tsunamis, such as high breakwaters, coastal walls, coastal forests, and fortified coastal structures. All these measures, along with the expropriation of coastlines, necessitate that coastal areas be excluded from inhabitable zone limits to safeguard coastal settlements.

The coastline, as defined in coastal law, is the area that transmits the spread of damage caused by a tsunami disaster to the settlement area behind it, making it the first to be affected by such disasters. Therefore, as depicted in Figure 5, the coastal forest precautions mentioned above can be implemented in this region. Furthermore, coastal fortifications can be constructed between residential areas and the coastline, as illustrated in Figures 4 and 5.

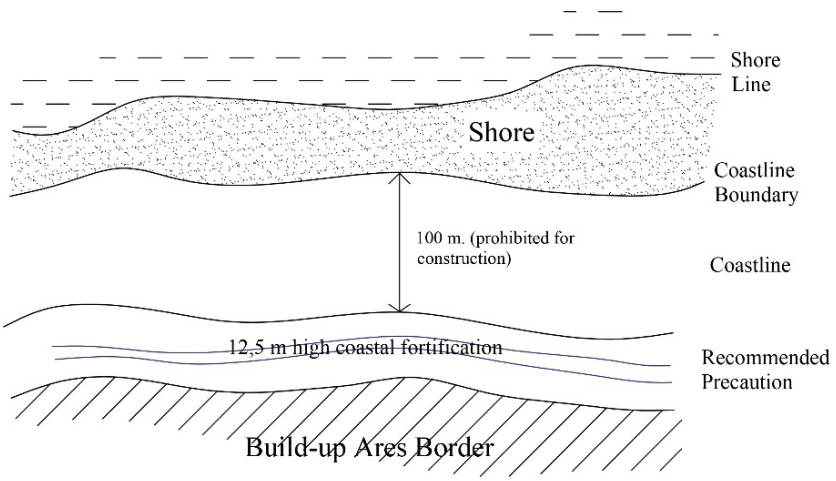

Figure 4. Coastal Law Compliance in Planning with Required Coastal Lines and Areas along with Tsunami Protection Area Proposal (created by the authors).

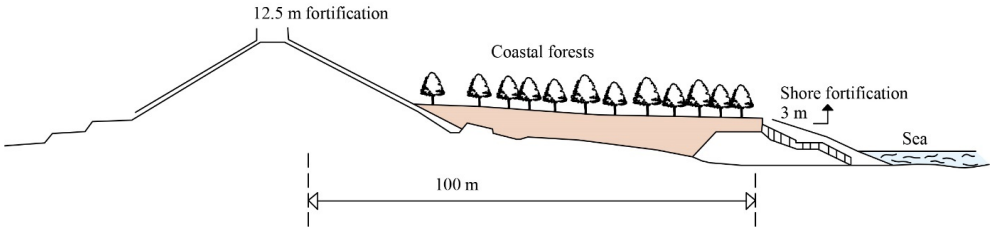

Figure 5. Coastal Fortifications and Coastal Forests, Rikuzentakata (Güler et.al, 2018).

2.9. Historical and Natural Conservation

Historical and natural conservation areas within or near residential zones, whether officially designated as protected areas or not, are safeguarded by the Cultural and Natural Heritage Protection Law, which typically prohibits construction within these zones. However, within conservation zoning plans encompassing protected areas, limited construction may be permitted to sustain local urban life while preserving these areas. This provision predominantly applies to urban and historical protected zones, whereas areas devoid of current settlements, such as natural reserves and archaeological sites, remain subject to construction bans. In all instances, the final decisions regarding these areas are determined through the formulation of "Conservation Plans" (T.C. Kültür ve Turizm Bakanlığı, 1983). Consequently, as protected areas necessitate distinct consideration within the framework of Conservation Development Plans, they should be excluded from the boundaries of inhabitable zones when planning the settlement areas they inhabit.

3. Evaluation of The Determination of Habitable Area Boundaries in Terms of Its Application in Planning

The growing significance of habitable areas in contemporary contexts necessitates that their planning applicability be reinforced by legal sanctions alongside principles of design discipline. Measures such as expropriation and legalisation will be essential to clearly delineate their implementation. Moreover, depending on the characteristics of the settlement, various additional factors may come into play. The following evaluations can be conducted from these perspectives:

3.1. Disciplinary and Legal Necessity of Areas to Be Excluded from Habitable Area Boundaries

The areas that require exclusion from habitable area boundaries, determined on the basis of factors influencing these boundaries, can be implemented through planning disciplines. However, such practises should not only be mandated legally but also enforced through planning disciplines. Table 1 illustrates the legal and disciplinary requirements for areas that are unsuitable for habitation due to influential factors in determining habitable areas. The table demonstrates that despite building restrictions, planning disciplines can mitigate concerns by assigning non-building functions, thereby allowing structures to remain within habitable areas through planning decisions. According to Table 1:

- Areas legally mandated for exclusion from habitable area boundaries via building bans include: geologically hazardous areas, wetlands, stream beds and their improvement areas, regions within 1st-degree air transportation obstacle limits, forests, absolute protection zones of lakes and ponds, expropriation areas for state highways, and coastal zones designated as natural and archaeological protected areas.
- Areas where construction bans are absent but exclusion from habitable area limits can be facilitated by planning disciplines encompass: highly sloped areas (over 40%), areas devoid of forest cover, and regions within 2nd-degree air transportation obstacle limits.
- Areas not subject to building bans but can be retained within habitable area boundaries through planning precautions include: regions within air transportation obstacle limits other than 1st and 2nd degree, short, medium, and long-distance protection zones of lakes and ponds, and areas with moderate slopes below 40%.

Table 1. Legal Requirements for Areas that Must Be Excluded from the Borders of Habitable Areas According to the Factors that Are Effective in Determining Habitable Areas (created by the authors).

	Habitability / Areas	Non-Habitable Area	Construction Prohibited	Controlled Construction	Legal Requirement
Topographic Structure	High slope areas (40%+)	+	-	+	+
	Sloping areas (40% -)	-	-	+	-
	Plain and Plain Areas	+	+	-	-
Geological Structure	Geologically objectionable areas	+	+	-	+
	Gradually Determined Geological Sites for Settlement	-	-	+	+
	Wetland, Swamp, and Reed Areas	+	+	-	-
Streams	Stream Beds and Adjacent Reclamation Areas	+	+	-	+
Airport Obstacle Limits	Areas Under 1st Degree Airport Obstacle Limits	+	+	-	+
	2. and Areas Under 3rd Degree Airport Obstacle Limits	-	-	+	+
Forests	Forest Areas	+	+	-	+
	Areas That Have Lost Their Forest Quality	+	-	-	-
	Private Forest Areas	-	-	+	+
Drinking Water Basins	Absolute protection areas	+	+	-	+
	Short, Medium, and Long-distance Protection Areas	-	-	+	+
State Highways Environment	Areas within the Expropriation Borders of State Highways	+	+	-	+
Coasts	Coastal Area	+	+	-	+
	Coastline	+	+	-	+
Historical Conservation	Natural and Archaeological Protected Areas	+	+	-	+
	Urban and Historical Protected Areas	-	-	+	+

3.2. Expropriation

Without appropriate legal qualifications for areas earmarked for exclusion from habitable zones, challenges may arise regarding their implementation within planning disciplines. For instance, unless a legal basis exists for expropriating regions that have lost their forest cover to be reclaimed as forested areas, it cannot be assumed that they will remain off-limits for construction, even with a designated plan. Similarly, expropriation may be essential for areas impacted by unique circumstances, such as pasturelands awaiting expropriation and public rural green spaces.

Delaying the expropriation of areas legally designated as open to the public yet prohibited from construction, such as coastal zones, can lead to significant practical difficulties despite the presence of plans and laws. Another illustration is the case of "special forest areas." While forested areas are public property and are typically excluded from habitable zones, regions with special forest status may pose unique challenges. Because these areas constitute private property, they cannot be subject to expropriation. Consequently, despite their forested characteristics, they may remain within the boundaries of habitable areas, albeit with limited construction possibilities.

3.3. Legalisation Guiding Planning by Zoning Law

Coastlines, airport obstacle boundaries, protection zones of lakes and ponds, state highway expropriation boundaries, stream reclamation, and stream bed boundaries—all significant factors in determining habitable areas—should be officially designated as "boundary lines" on current maps. This measure would facilitate the development of settlement plans of all scales and ensure practical functionality in practise.

Planners can formally acquire these boundaries from relevant institutions through "institutional opinions" during the determination of habitable areas. However, it would be highly beneficial if these boundary lines were officially recorded on the plan bases, which are the current maps. This action would contribute to the efficiency of plan-making processes and preempt any ambiguity or dispute regarding these boundary lines.

3.4. Other Factors that May Occur Depending on the Characteristics of the Settlement

In addition to the factors outlined here that affect the determination of habitable areas, there may always be other factors unique to the characteristics of a settlement. These factors can define distinct formations that effectively delineate habitable areas and may warrant their exclusion or the implementation of appropriate measures by planners to mitigate their impact on settlements.

Beyond the primary factors discussed earlier, settlement characteristics, such as proximity to waste disposal or storage sites or proximity to military zones, may introduce additional local factors. In such cases, these areas could be excluded from habitable zones, or planners could establish green buffer zones between these areas and the settlement to ensure that they remain within habitable zones while safeguarding settlements from their effects.

For instance, mining licenced areas or pasturelands within planned settlement areas may also require consideration. Although these areas might be excluded from habitable area boundaries in zoning plans, measures can be implemented in accordance with their legal status and protocols established by relevant ministries.

Results and Discussion

- Establishing habitable areas is foundational to a healthy and sustainable planning approach. The precision with which areas requiring exclusion from habitable boundaries are identified directly correlates with the accuracy and effectiveness of the subsequent planning process.
- In urban design and settlement planning, the determination of habitable areas often relies on the "threshold analysis" technique. However, as we consider the pursuit of sustainable living in future urbanisation and settlement designs, it becomes essential to evaluate the impacts of emerging scientific and disciplinary factors, such as climate change, natural disasters, and ecological considerations. In today's context, where these issues have gained paramount importance, the areas requiring exclusion from habitable zones, as mentioned in the article, may undergo quantitative and qualitative changes. Therefore, it is imperative that the threshold analysis method evolves and adapts to accommodate these evolving circumstances. In general, uninhabited areas are open to illegal and unplanned construction. Therefore, expropriating the areas that will be taken out of the habitable area, that is, the areas that cannot be settled, as much as possible, is actually one of the most effective solutions in terms of preventing illegal and unplanned construction.
- The areas pinpointed for exclusion from habitable zones in this study embody fundamental and critical zones crucial in present-day circumstances. These areas are subject to fluctuations in both their quality and quantity over time, contingent

on the characteristics of the planned settlement area. In settlement planning across all scales, areas excluded from the most suitable habitable area boundaries encompass a range of significant zones, including forested areas, geologically hazardous regions, wetlands, stream beds, reclaimed areas, zones affected by first-degree air transportation obstructions, protected areas around lakes and ponds, zones designated for state highway expropriation, coastal regions, and natural and archaeological protected areas.

- Areas designated for exclusion from settlements to establish habitable areas in urban design should not be perceived as unused or dysfunctional spaces. In contrast, these areas perform critical tasks that contribute to the health and sustainability of settlements. Although they may lack social activities, they typically consist of passive green spaces that serve to protect the city. Their presence is essential for providing oxygen to urban environments, regulating urban climates, and bestowing various other benefits associated with green areas. When determining habitable areas in urban design, it is essential to recognise and assess these areas for their vital functions rather than dismissing them as dysfunctional or unused.

Peer Review: Externally peer-reviewed.
Author Contributions: Conception / Design of Study – S.K., B.K.; Data Acquisition - S.K., B.K.; Data Analysis / Interpretation - S.K., B.K.; Drafting Manuscript - S.K., B.K.; Critical Revision of Manuscript - S.K., B.K.; Final Approval and Accountability - S.K., B.K.
Conflict of Interest: The authors have no conflict of interest to declare.
Grant Support: The authors declared that this study has received no financial support.

ORCID IDs of the authors

Sema KARAGÜLER 0000-0002-7949-9443
Bengi KORGAVUŞ 0000-0002-2257-2902

References

Akkemik, Ü. (2021). Kentsel Ekosistemler, Ormanlar ve Yangınlar Üzerine. *Yerel Kimlik Dergisi*, 76, 10-16. https://online.fliphtml5.com/fvgh/suob/#p=12

Güler, H. G., Özer Sözdinler, C., Arıkawa, T., & Yalçıner, A. C. (2018). Tsunami Afeti Sonrası Yapısal ve Sosyal Planlama, Yapılanma Aşamaları ve Farkındalık: Japonya Örneği. Teknik Dergi, 29(5), 8605-8630. https://doi.org/10.18400/tekderg.307568

Karagüler, S., & Korgavuş, B. (2022). *Doğal Afetlerin Kent Planlamasına Etkileri*, Peyzaj Araştırmaları II, Livre de Lyon Yayınevi, Editörler: Prof. Dr. Öner Demirel, Doç. Dr. Ertan Düzgüneş, Basım Sayısı:1, ss 65- 88, ISBN: 978-2-38236-293-8

Karagüler, S., & Korgavuş, B. (2020). *Geleceğin Kent Tasarımının Oluşmasında Pandeminin Etkileri*, Mimarlık Planlama ve Tasarım Alanında Teori ve Araştırmalar II., Cilt 1, Bölüm 7, sayfa: 101-130, Editör:Doç.Dr.Sibel Demirarslan, Gece Kitaplığı, 1. Basım, ISBN. 978-625-7702-95-9.

Karayolları Genel Müdürlüğü. (2023). Karayolları Genel Müdürlüğü Tarafından Yapılan Kamulaştırma Çalışmalarında İşlem Adımları. https://www.kgm.gov.tr/SiteCollectionDocuments/KGMdocuments/MerkezBirimler/TasinmazlarDairesi%20Baskanligi/Calismalar/kamulastirmaislemadimlari.pdf

Tarım ve Orman Bakanlığı (2021, June 24). *İçme-Kullanma Suyu Havzalarının Korunmasına Dair Yönetmelik*. https://www.tarimorman.gov.tr/SYGM/Belgeler/ek%201/%C4%B0%C3%A7me-Kullanma%20Suyu%20Havzalar%C4%B1n%C4%B1n%20Korunmas%C4%B1na%20Dair%20Y%C3%B6netmelik.pdf

T.C. Çevre ve Şehircilik Bakanlığı. (2015). Amasya İli 1/100.000 Ölçekli Çevre Düzeni Planı Revizyonu Plan Açıklama Raporu. https://webdosya.csb.gov.tr/db/amasya/editordosya/PlanaciklamRaporu.pdf

T.C. Kültür ve Turizm Bakanlığı. (1983, July 21). 2863 sayılı Kültür ve Tabiat Varlıklarını koruma Kanunu. https://korumakurullari.ktb.gov.tr/TR-131017/2863-sayili-kultur-ve-tabiat-varliklarini-koruma-kanunu.html

Öztaş, Ç. Ç. (2020, Mart 30). Kentlerin akıllanmasına pandemi etkisi. Açık Görüş, Akşam Gazetesi. https://wrisehirler.org/haberler/kentlerin-%E2%80%9Cak%C4%B1llanmas%C4%B1%E2%80%9Dna-pandemi-etkisi

Sivil Havacılık Genel Müdürlüğü. (2024). Manialar. https://web.shgm.gov.tr/tr/havaalanlari/2083-manialar

Sivil Havacılık Genel Müdürlüğü. (2022, March 4). Havaalanları ve Çevresindeki Yapılaşma Kuralları Genelgesi. https://web.shgm.gov.tr/documents/sivilhavacilik/files/mevzuat/sektorel/genelgeler/2022/YAPILASMA-GENELGESI.pdf

How cite this article

Karagüler, S., Korgavuş, B. (2024). The importance of habitable areas in urban design. *Journal of Technology in Architecture Design and Planning, 2*(1), 35-43. https://doi.org/10.26650/JTADP.24.004