

Ekistics

and the New Habitat

The problems and science of human settlements



SPECIAL ISSUE

Turkey, Urbanism and the New Habitat

Guest Editor: Derya Oktay

2020, Volume 80, Issue No. 1

ISSN 0013-2942 | **Editor-in-Chief:** Kurt Seemann – editor@ekisticsjournal.org

Publisher: Oceanic Group – World Society for Ekistics in affiliation with Swinburne University of Technology, Australia.

Ekistics and the new habitat: the problems and science of human settlements

The International Journal of *Ekistics and the New Habitat* is an online double-blind, internationally peer reviewed research journal. The journal publishes scholarly insights and reflective practice of studies and critical writing concerning the problems and science of human settlements. The field of Ekistics is mapped against a classification of settlement scale, from the remote village and rural township to global systems of dense smart cities, and increasingly the challenges of on-and-off world sustainable habitats.

In broad terms, papers in *Ekistics and the New Habitat* contribute to the scholarly discourse about the systemic nature of how humans design, build, link-up and transform their world. Articles examine empirical and non-empirical research and ideas that critique the necessary relationship between people, our human settlement designs and technological systems, and our natural and designed habitat. Models, case studies, rigorous conceptual work, design critique, smart-citizen education for smart cities, resource flows, network behaviour, and reflective practice are published in order to continually improve and advance the application of integrated knowledge that defines the epistemic telos of Ekistics.

History and back issue archives

Ekistics and the New Habitat: the problems and science of human settlements is the 2020+ online and revised continuation of the ground-breaking and influential ideas published throughout the preceding print version of the journal in *Ekistics: the problems and science of human settlements* 1957-2006.

- Back issues are lodged with our archive partners at JSTOR: <https://www.jstor.org/journal/ekistics>

Standard Call for Papers.

There are few scholarly journals whose papers archive the history of development and thought evolution tracing back to 1957 - excepting Ekistics. This background makes for an extraordinary historical collection for research and practices documenting how humans have colonised the planet and transformed our built habitats. The journal seeks papers from students, post-graduate candidates, academics and practitioners. We seek papers, typically of a cross-disciplinary nature, that:

- Targets any aspect of the [United Nations New Urban Agenda, in Habitat III](#), including reference to the [Sustainable Development Goals](#).
- Critiques *local, regional and global policy* of human settlement development, design and planning, and urban transformation
- Offers a critical description of the *core elements that define the liveability of human settlements* such as:

NATURE: Habitat foundations. How settlements rely upon, interact with, alter, or produce living ecologies, biodiversity, and climate.

PEOPLE: Physiological/biological and social-psychological needs and constraints. How settlements rely upon, interact with, or affect people's livelihood, safety, embodied and shared knowledge and skills, security and well-being – whether they are transiting visitors, settlers (citizens), or neighbours of settlements.

SOCIETY: Social, economic, educational systems, fiscal and political organisation. How settlements rely upon, interact with, or are affected by governance and leadership, vicarious or present communities, groups, markets, cultures, beliefs and values.

SHELLS: The envelopes that contain settlement functions. How the design, technologies and places created, altered or removed in settlements affect the functions and amenity of the settlement from the scale of personal shelter to the home, to urban business districts and precincts, to towns, cities or regions.

NETWORKS: Node-to-node systems and flows of resources, waste, data, people and information and communication systems. How the design, technologies and transport of goods, waste, energy, resources, water, food, people and information affect a settlement's functionality, amenity and viability.

SYNTHESIS: Combined, coherent design and knowledge. Physical design and planning; Ekistics theory expressed through evolving models and principles of habitat. How systems of systems may differ from small and remote, to large and urban-dense settlements and linked-up settlements in regions.

This journal invites and accepts three types of submissions, all double-blind and internationally peer-reviewed for their type:

IMAGES: Must be in *.jpeg or *.png file format and upload as separate files with their submission and an optimised resolution clarity for web viewing and download. Authors assume responsibility for assuring they have copyright permissions and may be required to show proof.

1. **Scholarly articles/reviews (full papers, double-blind review):** typically, with title, authors, institutional affiliations, abstract, keywords, body text (5000-7000 words), and [APA 7th References](#) at the end of the article. Body text typically includes:
 - a. an introduction to a problem or topic outlining the need for or goals of the research,
 - b. the key prior papers in Ekistics archives and other sources that best relate to the topic,
 - c. the methodological or conceptual framework and methods used,
 - d. a summary of key results or findings,
 - e. a critical concluding discussion
 - f. the Editor assigns papers to their best-fit classifications in the Ekistics grid index.
2. **Scholarly essays/extended abstracts (double-blind review):** typically, with title, authors, institutional affiliations, keywords, body text (1000-2500 words), and [APA 7th References](#) at the end of the article. These shorter submissions are well placed for academics and practitioners seeking to share a critical reflection of an issue, or for first-time students seeking to publish an academic submission (often co-authored with a mentor/supervisor). They may focus on a think piece style of critique, or a project in process, or a topic of interest for a geo-location or generic issue. Short *Essays/Extended-Abstracts may be tested in Ekistics* before a full paper version is submitted elsewhere.
3. **Practitioner, industry or citizen think-piece (short article only, peer review):** typically, with title, authors, regional/organisational affiliations, keywords, body text (500-1000 words). A *Citizen Think-piece* may be up to 3000 words. Where appropriate, [APA 7th References](#) at the end of the article may be included. These shorter submissions are well placed for practitioners, industry or citizens to raise provocative ideas to which we invite the research community to respond in subsequent issues.

We welcome book reviews. Submissions are copy-edited, normally 300-500 words, designed to share with the readership community interesting or provocative volumes, monographs, or edited books that may be of interest to scholars, practitioners and students of human settlements, Habitat III New Urban Agenda, and the Sustainable Development Goals of the United Nations.

Editor-in-Chief

Professor (adj) Dr. Kurt Seemann | email: editor@ekisticsjournal.org

Deputy Editor/Journal Manager

Assistant Professor (Lect) Dr. Ian Fookes | email: deputyeditor@ekisticsjournal.org

Editorial Advisory Board:

Professor Dr. Christopher Benninger, India.
A.D White Professor-at-Large Brinda Somaya, for India & Cornell University, USA.
Professor George A. Giannopoulos, Greece.
Professor Dr. Derya Oktay, Turkey.
Professor Dr. Çağatay Keskinok, Turkey.
Assistant Professor Dr. Koon Wee, HKU, China.
Professor Dr. Peter Newton, Australia.
Practitioner: Architect and Planner, Catharine Nagashima, Japan.
Associate Professor Ioannis Aris Alexiou, Colombia.
Professor Dr. Ray Bromley, USA.
Professor Emeritus Dr. Robert W. Marans, USA.
Assistant Professor Dr. Yenny Rahmayati, Saudi Arabia & for Indonesia

Publisher: World Society for Ekistics – Oceanic Group | C/o Prof. Kurt Seemann (Editor-in-Chief) | PO Box 2065, Belgrave Vic. 3160. Australia. URL: <http://ekisticsjournal.org/>

ISSN 2653-1313 (Online) - Australia - 2021+

COPYRIGHT

© 2020+ World Society for Ekistics – Oceanic Group
Creative Commons: <https://creativecommons.org/licenses/by/4.0/>

EDITOR'S DESK

EKISTICS IS BACK!

2020, Vol. 80., Issue 1

Welcome to the reimagined and contemporary international journal of *Ekistics and the New Habitat: the problems and science of human settlements*.

On behalf of the international board of editors, it is with great pleasure that I welcome you to this very special edition led by Professor Dr. Derya Oktay, Professor of Architecture and Urban Design Maltepe University, Istanbul, Turkey.

Professor Oktay's Special Issue is a fitting volume of work identifying the many dimensions of contemporary and emerging habitat development pressures in Turkey. We invite scholars, students, practitioners, lay citizens, politicians and entrepreneurs to read the works of authors developed in this issue. The ideas and context of investigations contained in *Turkey, Urbanism and the New Habitat* are fresh, and exemplify the direction the Editorial Board seeks to reimagine Ekistics for our emerging millennia.

The Editorial Board has many issues in production including, but not limited to:

- India & Jugaad – The impact of innovation by the resilient Indian mind on habitat – Guest Editor Prof. Brinda Somaya.
- Cities and Transport in the Mediterranean Region – Guest Editor Prof. Dr. George Giannopoulos
- Saudi Vision 2030 - Habitats for Sustainable Development – Guest Editor Assist. Prof. Dr. Yenny Rahmayati
- The Global Pacific: Island and Coastal Human Habitats – Guest Editor Assist. Prof. /Lecturer Dr. Ian Fookes.
- Tribute to the late Panayis Psomopoulos who along with Constantinos Doxiadis, assured Ekistics remained very well regarded in over 46 countries and at all UN Habitat presentations and the majority world countries up until his passing.
- Special issue on new theories and propositions in Ekistics led by a team with Prof. Dr. Ray Bromley, Catharine Nagashima and Prof. Dr. Christopher Benninger among others.
- Regular Issues and new back issues previously unpublished.

This issue and the next has seen a huge degree of personal and private investment of resources and late hours by our inaugural editors, but perhaps none so more in effort as that by Assist. Prof. (Lecturer) Dr Ian Fookes, Auckland University, New Zealand. Well suited to the transdisciplinary articles that this journal accommodates, Dr Fookes is involved in teaching Academic Writing, Asian Studies, Comparative Literature, and Japanese courses. His research focuses on the role of language and literature in identity construction across cultures, and he has a strong interest in the contribution of landscapes, architecture, and garden design to mental health and well-being. Associated with the World Society for Ekistics (WSE) since his participation in the 2002 WSE Meeting in Tinos, Greece, Ian is Deputy-Editor of the *Journal Ekistics and the New Habitat* and Guest Editor of its 2021 *Special Issue: The Global Pacific: Coastal and Human Habitats*.

Of myself and appointed by the previous Editor-in-Chief of EKISTICS Panayis Psomopoulos, I cannot imagine a better platform for publishing double-blind and internationally peer reviewed *integrated research*. This journal provides a credible channel for creative voices emerging from the majority-world to publish their ideas and observations, designs and book reviews, or for testing their proposition in short essays or seminars than that of *Ekistics and the New Habitat: the problems and science of human settlements*. I was a student of Ekistics in my doctoral studies at the University of New South Wales and applied its ideas in empirical studies for rural and remote community education in Technology curriculum; a program that won an Australian Curriculum Innovation Award. Design led STE(A)M education for regional community development remains my core passion using Ekistics to help organise and scale an integrated and connected-up view of 'smart-citizen' education for the fast-emerging 'smart-cities', towns and regional communities. Ekistics is well placed to support scale and leadership in regional and urban educational policies.

This inaugural Special Issue cannot be published without mention of the collateral impact of COVID19, not only on people's lives directly, but the economic and hardship that essential lock down restrictions of movement have inevitably had on lives and livelihoods, including members of this Board and myself. As we emerged from the blackout that was 2020, with vaccines being deployed we have hope. This issue is testimony of the resilience of our international Ekistics community as represented on the Editorial Board of *Ekistics and the New Habitat*.

I encourage all to approach your institutions library and colleagues to log in to our new Journal web site and take up annual subscriptions to it. Ekistics and the New Habitat is the platform for a new voice in human settlement studies for the current and emerging times ahead.

Subscriptions

<https://ekisticsjournal.org/index.php/journal/about/subscriptions>

Yours in synthesis,



Dr. Kurt Seemann | Editor-in-Chief | Ekistics and the New Habitat.

Professor (adjunct) Swinburne University of Technology
Associate Professor Federation University

Email: editor@ekisticsjournal.org

Victoria Australia
June 2021

Special Issue: Turkey, Urbanism and the New Habitat

Guest Editor: Derya Oktay

*BArch, MArch, PgDipUD, PhD | Professor of Architecture and Urban Design
Maltepe University | Istanbul, Turkey*

Contents

Editorial <i>Derya Oktay</i>	1
<hr/>	
Towards Sustainable Habitats in Turkey: Challenges and Prospects for the Future <i>Derya Oktay</i>	3
Eco-Villages as Sustainable Human Habitats: Challenges and Conflicts in Turkey <i>Merve Güleriyüz Çohadar and Neslihan Dostoğlu</i>	11
A Framework for Increasing Sustainability in Affordable Housing: Case Studies in Turkey <i>Çelen Paşalar, Özlem Demir and George Hallowell</i>	24
The Changing Landscapes of Ankara: A Critical Ground for Integrative Urban and Landscape Development <i>Selin Çavdar Sert and Funda Baş Büttiner</i>	39
Measuring Walkability for More Liveable and Sustainable Cities: The Case of Mersin City Centre <i>Müge Akkar Ercan and Züleyha Sara Belge</i>	51
Spatial Characteristics of Urban Waterfronts: Evaluations on the Historic Waterfronts of Istanbul <i>Serengül Seçmen and Handan Türkoğlu</i>	69
Commodification of Urban Space and the Image of 'New' Istanbul: Decoding the prevailing discourse <i>Demet Mutman and Derya Yorgancıoğlu</i>	83
Book Review: The Cities, Security and Poverty <i>Onur Tümtürk</i>	95

Deputy Editor (Lead on this issue): Ian Fookes (PhD) (CELTA), Lecturer in the School of Cultures, Languages and Linguistics, University of Auckland, New Zealand.

Editor-in-Chief: Kurt Seemann (PhD, BSc.DipEd(Hons) UNSW), Grad. Cert. (Management Competence) AIM-Deakin University, ACM), Adj. Professor. Swinburne University of Technology (2021-2024), Assoc. Professor. Federation University (2021+), Australia.

Editorial

Derya Oktay BArch, MArch, PgDipUD, PhD

Maltepe University, Istanbul, Turkey.

E-mail: de.oktay@gmail.com | deryaoktay@maltepe.edu.tr

In the last century, Turkey has encountered many urban issues as a consequence of an increasingly urban population characterized by its heterogeneity (diversity). Expansion of urban areas, intensification of developments within existing cities and towns, and the continued proliferation of high-rise and other intensive building types have resulted in the deterioration of the overall character of cities, and the ongoing loss of natural and socio-cultural resources. A multiplicity of design and planning issues is currently to be found in Turkish cities which also face an array of complex challenges in different domains. This complex and challenging situation prompted us to compose this special issue, which marks the return of the *Ekistics* journal following a pause of thirteen years. I am delighted to have put together the first issue of the journal in its renewed form with an updated title: *Ekistics and the New Habitat*.

Following a thorough evaluation process, the current special issue has brought together seven articles and a book review that address different planning and urban design issues. Organized around the generic themes of urban and landscape development, sustainability, urban public spaces, liveability and imageability, our authors approach these themes using a variety of research methods and case studies from Turkish cities.

In the opening article on sustainable cities in the future in Turkey, Oktay (2020) suggests that urban planning and design should be seen as a process through which the habitats are consciously shaped and managed in line with the requirements of sustainability. In this context, the author reminds us that although urbanism and architecture based on ecological principles have a long history, the rigorous translation into action of the principles of environmental sustainability remains of critical importance. The author further argues that in an era of globalization, the need for social sustainability and increased sensitivity to local contexts becomes even more critical than ever. Accordingly, the article is a critical assessment of contemporary paradigms of sustainable urbanism considered in light of the current realities of world cities, using the traditional Turkish (Ottoman) city as a model to provide an analysis of the ecological and social concerns governing urban formation. The author concludes by drawing lessons for sustainable urbanism from both contemporary and traditional approaches, highlighting the importance of sensitivity to the local, while recommending possible deviations from human-centred approaches due to impacts of the coronavirus COVID-19 pandemic and the prevailing conditions beginning to emerge from it. In this very contemporary sense, then, Oktay (2020) points out the need to balance the competing future demands of public health and the environment with ecological and social-cultural concerns.

The second article in this special issue, “Eco-Villages as Sustainable Human Habitats: Challenges and Conflicts in Turkey” focuses our attention on eco-village initiatives founded on the dream of creating a sustainable and self-sufficient community. Güleriyüz Çohadar and Dostoğlu (2020) assess the villages’ respective success in terms of their fulfilment of ecological and social dimensions of sustainability. Carrying out personal interviews in four selected eco-villages in Turkey, the authors point out that, rather than facing physical problems owing to the residents’ isolation from their social and professional lives, the existing eco-villages must contend with economic and social problems. Güleriyüz Çohadar and Dostoğlu (2020) propose that even though eco-villages’ core principle of ecological sustainability may differ from the principles of traditional villages, eco-village initiatives would benefit from an increased awareness of the social elements of traditional villages and could learn from their shared solutions to common sustainability problems.

The need for affordable housing is still a major issue in developing countries, including Turkey. Since housing areas are where environmental problems most impact people’s quality of life, the planning and design of sustainable housing environments requires a sensitive approach. Paşalar, Demir and Hallowell (2020) explore this issue in the context of affordable housing in Turkey; exploring the idea that truly affordable housing is only possible through a multidisciplinary approach that caters for both affordability and sustainability. The article advocates a comprehensive integrated approach to affordable and sustainable housing development, as it has the added advantage of reducing costs in other areas, such as energy consumption, transportation, healthcare, work opportunities, life cycle and maintenance expenditures, and so forth. Examining four housing projects developed by the Mass Housing Development Administration of Turkey (TOKI) in two prominent Turkish cities, the authors conclude that integrating sustainability goals and assessment parameters into new affordable housing developments can improve not only the long-term economic viability of the operation of the housing development but also the economic and social sustainability of its inhabitants.

Access to urban nature and green landscapes is important for urban resilience in both the short- and long-term; access to such spaces helps to maintain physical and mental health in the short-term and to sustain general urban resilience in the long-term. Sert and Bütüner (2020) dwell on the fragmented and shrunken landscape fabric of Ankara to provide a critical reading of the changing landscapes of the city. Their analysis reveals the potential that remains for framing integrative urban strategy-making. In this context, the authors point to the critical role played by landscape policy-making and recent landscape theory in the adoption of new positions in the face of urban challenges. They further highlight the need for the development of coherent land use and landscape strategies, in opposition to the destructive impacts of urban policies on landscape fabric. Their analysis of the changing landscapes of Ankara is discussed referring to three cases that reveal the need for the generation of landscape infrastructure, reconceived as an urban landscape. This new conception could form the basis of solutions to apparent problems

such as flooding, air and basin pollution, but also unnoticed challenges such as the effects of climate change, preservation of endemic species, and the city's livability.

Based on the fact that walking not only has environmental, emotional and health benefits, but also is key to social connectedness and liveability, walkability is one of the essential qualities of sustainable and healthy habitats. However, while urban planners and designers have long been working to increase walkability in big cities, the challenge has always been to compete with the dominance of vehicle traffic. Turkish cities are no exception to this. Akkar Ercan and Belge (2020) explore the concept of walkability and provide an assessment model to measure the level of the walkability of a given place. The findings of their research and case study in the historic city centre of Mersin indicate that walkability is multi-dimensional and qualitatively and quantitatively measurable. Dwelling on the hypothesis that there is a need for a dynamic, flexible, human-centred and inclusive planning and design approach for addressing today's complex problems and future requirements of cities, the authors offer an alternative to a top-down and centralist approach. The paper is expected to contribute to the decision-making process, as it provides a practical means for policymakers, scholars, and practitioners to assess and score the walkability level of a given space, thereby identifying the strengths and weaknesses of specific urban areas.

Seçmen and Türkoğlu (2020) explore the spatial characteristics of urban waterfronts of Istanbul, the transcontinental city straddling the Bosphorus Strait, which separates Europe and Asia between the Sea of Marmara and the Black Sea. Interrogating the transformation of the city's historic waterfronts in parallel to the urban development process since the 19th century, the authors claim that the five historic waterfronts - namely Eminönü, Karaköy, Kadıköy, Üsküdar, Beşiktaş - have not been developed as a part of a holistic planning approach. They subsequently develop five parameters for the evaluation of the spatial characteristics of open spaces on urban waterfronts: 'water-based environment', 'connectivity and continuity', 'imageability', 'compatibility' and 'looseness'. The findings of their research revealed that the historical waterfronts in Istanbul while contributing to the overall image of the city, lack important spatial qualities such as positive interaction with water, accessibility via public transportation, adequate pedestrian access, and diversity of spaces and uses.

In the final article by Mutman and Yorgancıoğlu (2020), the urban transformation strategy implemented in Istanbul over the past 15 years is identified as a tool to promote the 'new' urban discourse and the cityscape. In this context, the authors decode and analyze the actors, roles, and branding images of selected urban projects which were concentrated on a top-down planning approach. The results of the study suggest that the re-reading of the city and its 'new' Istanbul image enables us to easily recognize representations of political power that were developed through a construction practice using simulations of historical images and manipulating spaces for 'the new', 'the iconic', and 'the gigantic'. The authors then point out a connection between these initiatives (following the common path of configuring the city according to a top-down planning strategy), and one of Tafuri's arguments concerning Istanbul which insists that the city is 'devoid of social and individual utopia' due to capitalist-development-led practices, played out as 'the drama of architecture' (Tafuri, 1998, p. 3-4).

Taken together, the articles in this issue may not fully cover all points of interest regarding urbanism and the new habitat in Turkey. However, they certainly give academic researchers, policymakers, developers, and citizens a clear view of a range of timely issues that require more attention and investigation in future urban developments and/or redevelopments.

References

- Güleryüz Çohadar, M. and Dostoğlu, N. (2020). Eco-Villages as Sustainable Human Habitats: Challenges and Conflicts in Turkey. *Ekistics and the New Habitat, Special Issue: Turkey, Urbanism and the New Habitat*, 80(1), 11-22.
- Paşalar, Ç, Demir, Ö. and Hallowell, G. (2020). A Framework for Increasing Sustainability in Affordable Housing: Case Studies in Turkey. *Ekistics and the New Habitat, Special Issue: Turkey, Urbanism and the New Habitat*, 80(1), 23-37.
- Çavdar Sert, S. and Baş Bütüner, F. (2020). The Changing Landscapes of Ankara: A Critical Ground for Integrative Urban and Landscape Development. *Ekistics and the New Habitat, Special Issue: Turkey, Urbanism and the New Habitat*, 80(1), 38-49.
- Akkar Ercan, M. and Belge, Z. S. (2020). Measuring Walkability for More Liveable and Sustainable Cities: The Case of Mersin City Centre. *Ekistics and the New Habitat, Special Issue: Turkey, Urbanism and the New Habitat*, 80(1), 50-67.
- Seçmen, S. and Türkoğlu, H. (2020). Spatial Characteristics of Urban Waterfronts: Evaluations on the Historic Waterfronts of Istanbul. *Ekistics and the New Habitat, Special Issue: Turkey, Urbanism and the New Habitat*, 80(1). *Ekistics and the New Habitat, Special Issue: Turkey, Urbanism and the New Habitat*, 80(1), 68-81.
- Mutman, D. and Yorgancıoğlu, D. (2020). Re-reading The Tools and Actors: Commodification of Urban Space and Promoting the Image of 'New' Istanbul. *Ekistics and the New Habitat, Special Issue: Turkey, Urbanism and the New Habitat*, 80(1), 82-93.
- Tafuri M. (1998). Toward a Critique of Architectural Ideology. In Hays K. M. (ed.) *Architecture Theory since 1968* pp. 6-35. Cambridge, Mass. and London: The MIT Press.

Towards Sustainable Habitats in Turkey: Challenges and Prospects for the Future

Derya Oktay BArch, MArch, PGDipUD, PhD

Professor, Faculty of Architecture and Design, Maltepe University, Istanbul, Turkey

Abstract

Considering the serious environmental and social problems faced during the last few decades and the extensive neglect and devastation of local sources and values, urban development practice cannot be said to be meeting sustainability requirements in most habitats. Urban planning and design are not merely engaged in the visual qualities of urban places but should be recognized as processes through which we consciously shape and manage our habitats with a focus on meeting the requirements of sustainable urbanism. This article firstly explores the logic of sustainable urbanism through a review of its philosophical and practical framework; secondly, it provides a critical assessment of contemporary approaches to sustainable urbanism; and thirdly, it analyses the traditional Turkish (Ottoman) city, which provides valuable clues for sustainable habitats with identity. These evaluations indicate that instead of advocating compactness in all cases, randomly mixing of uses, and promoting car-oriented developments; planners and designers should promote context-sensitive compactness, completeness, and sustainable movement patterns and connectedness. Moreover, rather than relying on standardized urban design guides, practicing 'green-washed' architecture and urbanism, creating left-over spaces through planning, and ignoring the peculiarities of the community, practitioners should foster urban identity, promote access to nature and sensitivity to the natural ecology, create sustainable public spaces, and develop social sustainability. These alternative measures are essential for creating sustainability in the urban environment of future habitats.

Introduction

Industrial and technological developments since 1960s, and the process of globalisation for the last two decades have dramatically influenced our habitats. The socio-cultural changes which emerged in this context have driven the sprawling, rapid and uncontrollable growth of cities. This has caused increased travel distances, environmental, social, and economic deterioration, which in turn, has driven more non-sustainable urban developments.

The changes in transportation types, land use, and economy have had wrought their effects on city centres. Moreover, many cities have become overly reliant on the industrial sector, and this has resulted in a reduction of business diversity, which in turn has caused the lack of use of the city centres. In this context, the city centres have lost their meaning and liveability in many cities, especially in developing countries like Turkey, owing to the fragmentation of the urban fabric and the development with out-of-scale and inappropriate buildings lacking social use value. As the residents vacated the central areas and moved to suburban areas in response to the various problems they faced in central areas, city centres have become more problematic places; the buildings have been emptied, they have lost their functions, shops have closed, and most of the entertainment activities have moved away (Manzelat & Oktay, 2019, p. 24).

As cities have grown larger and spread wider, urban functions have disintegrated and public spaces have lost much of their significance in urban life. Streets, in particular, have lost their significance in our lives, and considering their configuration, shape or form, they have not received detailed consideration. To this point, the current coronavirus COVID-19 pandemic period should be mentioned. As the research and documentation on changes

in cities over the past decade reveals, the current pandemic period does not look much different than what was experienced before in many cases in terms of limitations, social interaction in housing environments, opportunities for community development, social divisions of tangible and intangible kinds, lack of efficient use of public spaces, and so forth. These problems have existed since the beginning of the 'Modernist' urban planning period and pose a serious threat to the urban life. Harvey (2008), on the other hand, highlights the significance of freedom in the urban environment by saying that

"The right to the city is far more than the individual liberty to access urban resources: it is a right to change ourselves by changing the city. It is, moreover, a common rather than an individual right since this transformation inevitably depends upon the exercise of a collective power to reshape the processes of urbanization. The freedom to make and remake our cities and ourselves is, I want to argue, one of the most precious yet most neglected of our human rights".

The majority of the new housing settlements developed in the last five decades have been subjected to a universal design standard that denies a sense of place and urban identity; rather, they reflect a dispersed and haphazard character contrary to the compact and regimented urban fabric in the central cores (Oktay, 2019, p. 31). The typical attempt here is a sort of standard international exercise, which makes no concessions at all to either climate or social life. In some cases, the housing areas spoil the precious land covered by edible landscape; the residential buildings in these areas are concrete apartment blocks isolated on their individual plots and/or tower buildings accommodating luxury residences (mainly in the last ten years) (Figures 1-4). Such developments could be



1



2



3



4

Figures 1-4: The aerial views of the newly developed areas in Istanbul, Turkey (Photos by author)

considered a threat to urban ecology, and the self-sufficiency of the city and the urban economy.

Today, all cities within the international milieu compete to be perceived as favourable places with international reputations for safety and investment. The resulting competition, along with other factors such as increasingly urban and diverse populations, the expansion of urban areas, the intensification of developments within existing cities and towns, the continued proliferation of the high rise and other intensive building types, and the deterioration of both natural and cultural resources, has been threatening the image and identity of settlements in the last few decades. In this context, the processes of urbanisation and globalisation, which have caused such rapid change to our environments, need to be considered together with the concept of identity and urban sustainability. These processes need to be reintegrated into the agenda of researchers and practitioners in the field of architecture and urbanism (Oktay, 2017a).

If by sustainability we mean towns and cities which sustain themselves without any adverse impact on wider natural systems then it is impossible to envision a sustainable urban neighbourhood or a truly sustainable city. Nevertheless, the way we plan human habitats has an important role to play in increasing the sustainability of human activities and it is the responsibility of those who shape towns and cities to minimise their unsustainability and their impact on the natural environment (Rudlin & Falk, 1999, p. 167).

The article begins by exploring the current understanding of sustainable urbanism and reviewing contemporary approaches. It continues with an analysis of the traditional Turkish, or the Ottoman city, as an ideal model, where ecological and social concerns govern the formation of the city and architecture. It then considers how the author draws lessons from both contemporary and traditional approaches to sustainable urbanism.

A critical review: the concept of sustainable urbanism and contemporary paradigms

A globally accepted definition of sustainable development is that it meets the 'needs of the present without compromising the ability of future generations to meet their own needs' (WCED, 1987). Research into various aspects of the city reveals that no city can be sustainable on its own. This means that it cannot be completely self-sufficient, economically, socially, or environmentally. Sustainable development, however, implies that, at all these levels, the aim should be the development which does not damage the environment, and does not import resources which adversely affect the global ecosystem or negatively affect sustainable development in other territories; instead, it improves the long-term health of human and ecological systems. In this context, local sustainable development is of great significance, as it is concerned with improving the quality of life of the local community and with the production of resources.

Most of the publications in the field have dealt with it so far simply as a general principle worth recommending in order to safeguard the main components of the ecosystem.

Recent debate about the theory of urban sustainability, however, indicates a tension between technical and social aspects, as much of the focus has been on ideas about active façade technology or purely technologically driven engineering solutions, despite the reality that cities are complex entities bearing both ecological and social problems including economic issues (Lehmann 2010, p. 66). On the other hand, since the city is an organic and dynamic entity and may take many different forms and meanings at different time intervals, we are bound to take the “time” factor into account. Sustainability, then, can be regarded as a perspective or paradigm in which we consider the three dimensions of society, economy and environment together, within the fourth dimension of ‘time’.



Figure 5: The aerial view of the newly developed areas in Ankara, Turkey (Photo by author)

Sustainable urbanism grows out of three late 20th century paradigms to highlight “sustainable development”: The ‘New Urbanism’, ‘Smart Growth’ and ‘Green Architecture’. Each of these movements, however, has revealed certain narrow-mindedness.

The movement known as the ‘New Urbanism’, appeared in the early 1990s in the United States based on the ‘walkable’ neighbourhoods, villages and small towns with clearly defined centres and edges. It has become a strong force for re-evaluating the physical layout of communities. Walkability, based on an understanding through which the built environment supports and encourages walking by providing comfort, safety and visual interest for pedestrians, connecting people with varied destinations within a reasonable amount of time and effort, is certainly of great significance. However, it cannot be considered efficient and urban, as its focus was actually better suited to ‘suburban’ development. New Urbanism cannot be considered new either, as it simply revives many ideas about the city and planning that were mainstream before the Modern Movement. Another criticism about New Urbanism is about the elitism within the movement (Kelbaugh, 2002). Indeed, the movement is open to criticism on a number of fronts - in particular for being focused on better-designed suburban development, often for upper-income groups, rather than the creation of truly ‘urban’ places. It also failed to incorporate green building design and landscaping. Further, since the New Urbanism movement advocates standardisation through similar urban design guides for different regions, it can be said that

the need for urban identity is ignored within this paradigm (Oktay 2017b).

In the mid-1990s, ‘Smart Growth’ evolved as an effort to recast the policy debate over sprawl in a way that more directly linked the environment, the economy and daily life concerns in pursuit of a positive and sustainable urban growth as essential to the quality of the city and urban life. The movement focused especially on mechanisms to promote more compact, walkable, and economically efficient urban development, by increasing the density of the development, ensuring a mix of uses, containing urban ‘sprawl’ and achieving social and economic diversity and vitality, often introduced as the concept of a ‘compact city’ (Jenks et al., 1996; Jenks and Dempsey, 2005).

Compact cities are argued to offer opportunities to reduce fuel consumption for traveling, as homes, work and leisure facilities are closer together. They are also favoured by many in the field of urbanism because urban land can be re-used, while rural and edible land beyond the urban edge is protected. However, the case for the compact city is far from won. There are many counter arguments highlighting its limitations. Many still consider that the focus on higher density negates the benefits of suburban living; the convenience created by concentrated housing might actually result in congestion that would outweigh any of the energy consumption benefits created by the compact city (Oktay 2002, p. 262).

Learning from the traditional Turkish (Ottoman) city

The Ottoman city is built in a geographical setting extending beyond Anatolia from Middle Asia to the Balkans. It demonstrates sensitivity to local topography, Islamic and Christian philosophies about the natural world, and local habits and traditions built from a diverse cultural perspective over centuries (Cerasi, 1999). It is a good example of a sustainable city from many points of view.



Figure 6: The typical layout of a *mahalle* on a hilly setting in Cumalıkızık, Bursa, Turkey (Bursa Metropolitan City Archive)

The main characteristic of the Ottoman city was its compartmentalisation by *mahalles*, neighbourhoods, the outcome of ethnic peculiarities and religious differences. The *mahalle* was both a geographical entity and a homogeneous community where social ties were strong and economic collaboration took place in the same relationships among the inhabitants. So, it was not only

sustainable ecologically and socially but also paved an economically sustainable ground through its religious-social centre, small local market, fountains, *imaret* (open kitchen) and at times, workshops (Oktay, 2004).

The Ottoman city possessed various attributes that generated an ecologically sustainable environment. Regional climatic characteristics were reflected in the patterns of settlements, and accordingly, every region produced its characteristic urban texture and architecture, hence identity. For instance, in Safranbolu, one of the most characteristic towns in the northwestern Black Sea region of Anatolia (Turkey), hard winters with strong winds forced the people to settle in sheltered valleys (Günay 2005, p.21), whereas, in the Mediterranean region of Anatolia, the settlements were developed along narrow streets protecting people from the sun. The materials and colours were also appropriate in terms of supporting the climatic design and a sense of place (Figures 7-9).

The green gardens, i.e. vegetable gardens and patches (*bostan*), orchards, and so forth, divided the *mahalles* (neighbourhoods). They also bounded the town and supported the self-sufficiency of the city. The small squares at the intersection of streets with trees created the opportunity for access to nature in the public realm as well. The streets, being divided into two by a 10-14 cm water canal running through the middle, helped distribute water to gardens, and prevented the rainwater from flowing into courtyards. The courtyard, with its trees of various kinds of fruits, flowers and small kitchen garden, was the closest relation the house had to nature, and thus it also provided the inhabitant with direct access to nature, enhancing both the building ecology and self-sufficiency of the house, an important aspect of economic sustainability.

The *mahalle*, formed as a unity of residential clusters consisting of dead-end streets within a hierarchical order, provided privacy for the individual houses, an important need for the Muslim community at the time, and was mostly pedestrian. The organic character of the street that was defined by high walls of the courtyards provided a protected and comfortable space, and significantly contributed to the identity in the Ottoman city (Oktay 2004).



Figure 7: The view of the traditional townscape in Safranbolu, Turkey (Photo by Faruk Soydemir)



Figure 8: The street pattern in Safranbolu, Turkey (Photo by Faruk Soydemir)

The city centre provided for all kinds of public use, such as trade and commerce, religion, education, administration and encompassed urban facilities, resulting in a fine-grain mixed-use character which enabled users to socially interact easily, to minimize distances and thus the need for transportation. The main public node and the representation of people's power were conferred to the citadel, the Friday mosque and its courtyard, and the bazaar. One of these elements, the main street or streets of the city, the bazaar or *arasta*, functioned also as a communication channel for people, connecting them to the less important facilities such as public baths, water storage points, and educational centres, hence creating a vivid public realm in a spatial continuum.

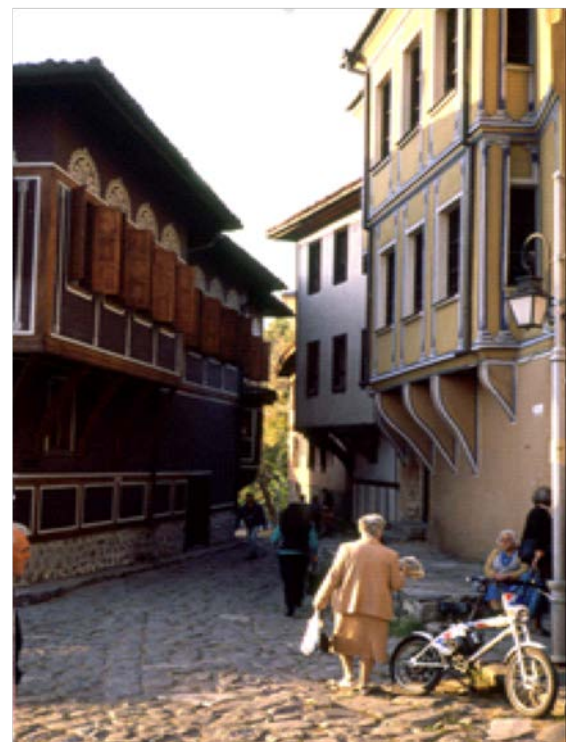


Figure 9: The typical street in the - originally Ottoman - city of Plovdiv (Filibe), Bulgaria (Photo by author)

Although it may seem less viable today, especially given the concerns facing contemporary cities, all the qualities of the Ottoman city described above make it an ideal model for an ecologically and socially sustainable city.

Determining the essentials of sustainable habitats

The above review of contemporary approaches to sustainable urbanism and our analysis of the traditional Turkish (Ottoman) city as a precedent for sustainable habitats demonstrate that the urban planning and design activities and the development process need to take into consideration the following aspects: Context-sensitive compactness; completeness: good mixed-use; sustainable movement patterns and connectedness; sensitivity to nature and ecology; sustainable public spaces; social-cultural sustainability; and sustainable lifestyle.

Context-sensitive compactness. The recent literature indicates that a denser, more compact city is a better city, and more compact denser living is a more sustainable way of living. However, as it is revealed in the traditional Ottoman city that complies with regional characteristics, it cannot be expected that all cities should fit the same model (Oktay, 2017b). What is needed is a comprehensive analysis of the given land, highlighting the physical and social characteristics of the place, its specificities, demands and dynamics, and an estimation and evaluation of the urban development processes, which compares the demand with the land's potential for urban growth.

As taught by the Ottoman city, the contemporary city could be envisioned as an entity made up of well-defined neighbourhoods, and a good range of smaller settlements that could be proposed in the vicinity of the city to avoid unacceptable degrees of urban density and population. The entity could be enhanced further through the redevelopment and densification of the existing core and the regeneration of formerly industrially used sites and docklands. Such so-called 'brownfield development' is essential for sustainable urban development. According to an ecological design approach, density should be related to design in such a way that the advantages and disadvantages of its level are investigated by considering both existing social dynamics and environmental values.

Completeness: good mixed-use. Fine-grain or good mixed-use, an important component of the public realm in the Ottoman city, is important for the presence of people, hence for vitality in central areas. Containing all the collective activities, i.e. trade and commerce, religion, education, administration, and urban facilities, the central parts of the city revealed a fine-grain mixed-use character and helped the local people meet with each other and with the outside world (despite the limited frequency by women owing to the cultural codes of the time). The Ottoman city has proved that retail, in particular, has a power to anchor a community; the *arasta*, the open-air shopping strip in the Ottoman city has supported social interaction and passive contact by supporting people's encounters and shop owners' daily communication in front of their shops. The traditional coffee-house frequented regularly has served as a community centre as well.

Sustainable movement patterns and connectedness: In the last decade of the 20th century, it has become obvious that driving must be reduced to minimize pollution, save

energy, and rejuvenate community life. Cars also impose repressive demands on developers, who come across questions of street placement, and the need for costly new roads, curbs, highways, and parking areas. It is pleasing that the idea of 'walkable' settlements is on the agenda of many planners, architects and developers in the world cities, but despite this growing awareness, most of the developments are still being largely planned to accommodate the car, forgetting the value of pedestrian-oriented or humane cities. It is agreed by a number of researchers (i.e. Lund, 2002; Kim and Kaplan, 2004; Khandokar, 2009; Oktay, 2001) that pedestrian-oriented communities can put urban environments back on a scale for sustainability of resources, both natural and economic, and lead to casual interactions and socialisation, physical fitness, safety and amenity, hence more liveable urban environments.

The traditional Turkish (Ottoman) city is a good example of a walkable city, as the streets are enhanced by human scale, physical convenience (protection from the elements) due to the narrow and winding streets following the natural contours of the land, and continuous walls of the houses and courtyards. From these, one important lesson for the contemporary city is designing the city streets first for people, taking into account their functional and aesthetic needs, and only then complying with the requirements of cars.

Sensitivity to nature and ecology. Green spaces in a city contribute to human activity, climate amelioration and ecological diversity (Oktay, 1998, p. 283). The traditional Turkish (Ottoman) city is the perfect example of the habitat's integration with the natural environment and climate. The pre-existing topographic character of the site is apparent at the urban scale even in intensely built-up areas. In this context, in the older days, it was a valuable characteristic that each house was positioned on the land with sensitivity to others so that none of the houses were blocking others' view and breeze. In the general layout of the city, gardens perforate an otherwise dense urban fabric, providing relief to streets and to public and private structures. The presence of a variety of house plans, especially those with a courtyard, *avlu*, or garden reveals the fact that there is a natural relationship between such a layout and the Anatolian life-style (Kuban, 1986). With its trees, flowers and small vegetable plot, the *avlu* is the closest relation the house has to nature; and thus it also provides the inhabitant with direct access to nature.

Owing to the fact that Ottoman urbanism was never based on the kind of strong formalism characteristic of western cultures, a generally informal character was dominant in cities. In this context, there were no formal public open spaces, i.e. well-defined squares, or monumental axes to be found in the cityscape. However, despite having no planned squares and the lack of an active use by people, there was a social and psychological tendency towards meeting and gathering in open spaces of natural character, called *meydan* (Cerasi, 1999; Eldem, 1987).

In the contemporary Turkish city, the mentioned qualities could be a basis for an attempt at integrating such features as edible landscapes of fruit trees and large vegetable patches (allotments) into the city in order to lower heating and cooling bills, lower food costs, and reduce risk of flooding and landslide damage. Trees with canopies can be used for shade, and for the definition of spaces both in

streets and courtyards. At the building scale, other important aspects to ecological sensitivity are the use of local and regional materials of natural character, conformity of the building to its environs and in particular to the climate, the flexibility to adapt to changing conditions over time, and the rich variety of spaces extending from interior spaces to open spaces through various types of semi-open spaces.

Sustainable public spaces. It is well known that the place where cities get 'remade' is in the public rather than the private sphere (Mumford, 1961; Jacobs, 1961). As emphasized by Jane Jacobs, in her pioneering book *The Death and Life of Great American Cities*, public spaces have an important role as containers of human activity and places of social interaction (Jacobs, 1961, p. 386). The same kind of detailed observation informed subsequent work in this tradition, such as Jan Gehl's studies of public space in Scandinavia (Gehl 1987, first in 1971) and William H. Whyte's *The Social Life of Small Urban Spaces* (Whyte, 1980). Bentley, on the other hand, proposes that "cities exist for processes of communication and exchange between people - that is the only reason for having them in the first place - and public space is a key medium through which these processes take place (Bentley, 1993, p. 72).

The organic street structure of the Ottoman city comprising three-dimensionally defined street-space and its social meaning, despite some limitations of privacy, both at the city centre (i.e. men's sitting at coffee-houses and in front of shops in the main street) and in the residential quarter (i.e. children's playing, gathering at wedding and circumcision parties, etc.) show that they were an integral part of our lives in the past. As such, the street was a vital part of the urban landscape with its own specific set of functions and played a key role in the formation of community.

Social-cultural sustainability. Sustainable urbanism is never complete without social sustainability. Social sustainability is a system of social-cultural relations in which the positive aspects of disparate cultures are valued and promoted and there is widespread participation of citizens in all areas of urban life environment. As stated by Keleş (2007), it is concerned with the development of a society that ensures and reconciles social justice, economic efficiency, democratic participation, cultural diversity and rational environmental governance. What could be added to these are social interaction and networks, pride and sense of place, stability, safety, and community outreach and involvement, along with the sustainable neighbourhood unit with its social benefits.

As the most appealing aspect of sustainable urbanism is the sustainable neighbourhood with its societal benefits, we must widen our definition of the sustainable urban neighbourhood to include social as well as environmental concerns as reflected in *mahalle*, the cohesive neighbourhood unit in the Ottoman city. The self-sufficient *mahalle* teaches various lessons, but most clearly paves the way towards neighbourhood identity, economic sustainability and social sustainability.

Sustainable lifestyle. Everything we do as professionals and as human beings in the name of sustainability means very little if we do not actually change the environmental behaviours of consumers, companies, communities and

governments. Adopting sustainable lifestyles requires incorporating a range of behavioural responses from energy saving and water conservation, to waste recycling and green consumption, and these would influence the quality of urban life without damaging the planet for the future. In the Ottoman city, in the early Ottoman and Seljuk periods in particular, owing to the preferred simplicity in every aspect of life and self-sufficiency in many senses, people generally adopted a sustainable lifestyle, and it was a healthy and contented community. In today's cities, what is needed for a sustainable lifestyle is "education for sustainable development" and hence a notion of 'ecological citizenship' that would enable urban residents to develop the knowledge, values and skills to participate in decisions about the ways they do things individually and collectively, both locally and globally.

Conclusions

Thoughtfully designed habitats are needed to improve the quality of life in our cities while reducing the negative effects of the global warming on the environment. In this vein, sustainable urbanism provides a reliable context through which the built environment could be designed or redesigned.

A critical review on the paradigms namely New Urbanism and Smart-Growth (Compact City) suggests that these approaches need to be understood provided that the local conditions and characteristics are taken into consideration. Urban design of compact cities can obviously contribute to a more sustainable way of life, particularly in industrialised societies. However, since cities are all different in form and structure owing to a host of place-specific factors, it cannot be expected that they should all fit the same formula when it comes to the question of a sustainable urban form and its density. The degree of compactness and/or defragmentation, an issue that is currently in the forefront of the debates about how the cities will be reshaped after the coronavirus COVID-19 pandemic, should, therefore, be context-sensitive and be decided very carefully. It should not be ignored that there is a need for balancing the competing demands of public health and environment without neglecting its ecological and social-cultural dimensions.

Traditional cities are excellent examples to learn from regarding various dimensions of sustainable habitats. Inspired by the traditional Turkish (Ottoman) city and *mahalle* that comply with local environmental and social-cultural values of the time, the contemporary city could be reconsidered as an entity made up of identifiable districts, and smaller towns of functional diversity could be created in the vicinity of the city rather than reaching unacceptable levels of density and population. In this context, the definition of the sustainable urban neighbourhood must be widened to include social as well as environmental concerns as reflected in *mahalle*. In the new settlements, there must be places that foster social-cultural rituals where all residents come together in common pursuit and observance as used to be done in the streets and courtyards. There should be places, which support multiple public activities, recreation, and settings arranged to enable people to socialise while providing alternative settings for their integration with nature.

Producing standardised urban design guides for places with different geographical and climatic conditions and

social-cultural characteristics is a major threat to quality of community life, hence, social sustainability and urban identity. In times of rampant globalisation, the need for responsible development or social sustainability is more critical than ever, and both globalisation and the imperative of sustainable development demand increased responsiveness to the local peculiarities. A sustainable community endeavours to promote multi-functional rather than mono-functional settlement patterns by providing compact and regimented urban centres, with a broad range of services and amenities in close proximity. This reduces the need for vehicular and public transport, thereby decreasing demands on infrastructure and energy resources, while promoting walkability and community. The main shopping strip and the bazaar or *arasta* in the Ottoman city functioned as a communication channel, connecting the main activities to each other, and created a vivid public realm in a spatial continuum. These characteristics can be re-interpreted as a model when planning and/or re-designing our cities whose central parts are deteriorating owing to the lack of diversity of main functions (business, commerce, housing, recreation) and the effects of privately owned, introverted spaces of modern urban commerce and design. The new urban areas could be planned and designed around a hierarchy of spaces for different purposes, the idea of main shopping strip could be revived in order to prevent the shopping malls to be the norm, and the street pattern could be organized in a way that each street has an identity through the continuity, design and functional layout of buildings. In the course of environmental transition, cities could target as many as possible of the environment-sustainability ingredients including green spaces. Since green spaces in a city contribute to human activity, climate improvement and ecological diversity (Oktay 1998), an attempt at integrating such features as edible landscapes and directing some of the efforts of greening towards streets would be beneficial. Moreover, the access to nature in the neighbourhood is important for inhabitants' well-being and may help them overcome the stress of everyday life while allowing for physical distancing needed to reduce the spread during the unfortunate times of the pandemic.

What matters in terms of 'green architecture' or 'sustainable buildings' is that the concept of the relationship between nature and the architecture as a design philosophy be restored, without resorting to superficial mimicry. It should be accepted that a city is not a simple collection of buildings and green buildings alone do not create a sustainable city. What is important to green architecture is the use of local and regional materials, conformity of the building to its environs and in particular to the climate, the flexibility to adapt to changing conditions over time, and the rich variety of spaces extending from interior spaces to open spaces through a variety of semi-open spaces as observed in the traditional houses in Turkey.

The research and documentation on changes in cities over the past decade suggests that the restricting coronavirus COVID-19 pandemic period does not look much different from what was experienced before in many cities in terms of limitations, i.e. limited social interaction in housing environments, lack of opportunities for community development, social divisions of tangible and intangible kinds, lack of availability of green spaces at the district scale, lack of variety of open and semi-open spaces at the

residence scale, inefficient use of public spaces and so forth. Therefore, any considerations about the 'new normal' must go deeper than those short-sighted solutions, i.e. dining in streets and squares or in glass cubicles provided at restaurants, creating social distancing circles to help people enjoy the outdoors or other artificial methods that mask the challenges of a human-centred perspective. In this vein, what is needed is to develop a human-centred mindset and to build solidarity to find solutions that bring people together while isolating them at the neighbourhood and public and/or semi-public spaces when needed.

To this end, it should be accepted that sustainable development is also a political challenge and requires rethinking not only the city and city region but also of current policies, approaches and professional responsibilities as well as education. For sustainable urbanism to move forward and gain power, it is essential to establish an appropriate application strategy taking into consideration the need for a broad-based, interdisciplinary and human-centred approach to the complex challenges facing today's built and natural environments.

References

- Bentley, I., Alcock, A., McGlynn, S., Murrain, P., & Smith, G. (1985). *Responsive Environments*. London: Architectural Press.
- Cerasi, M.M. (1999). *Osmanlı Kenti: Osmanlı Kentinde 18. ve 19. Yüzyıllarda Kent Uygarlığı ve Mimarisi*. İstanbul: Yapı Kredi Yayınları.
- Eid, Y. Y. (2003). Sustainable Urban Communities: History Defying Cultural Conflict, in G. Moser et al. (Eds), *People, Places and Sustainability*. Seattle: Hogrefe & Huber Publishers.
- Eldem, S.H. (1987). *Turkish Houses, Ottoman Period*, Volume III. İstanbul: T.A.Ç.
- Gehl, J. (1987, first published 1971). *Life Between Buildings: Using Public Space*. New York: Van Nostrand-Reinhold.
- Günay, R. (2005). *Safranbolu Houses*. İstanbul: Yapı Endüstri Merkezi (YEM).
- Harvey, D. (2008). The Right to the City. *New Left Review* 53, Sept-Oct 2008. <https://newleftreview.org/issues/II53>
- Hough, M. (1990). *Out of Place: Restoring identity to the Regional Landscape*. New Haven: Yale University Press.
- Jacobs, J. (1961). *The Death and Life of Great American Cities: The failure of modern town planning*. New York: Random House.
- Jim, C. Y. (2004). Green space preservation and allocation for sustainable greening of compact cities. *Cities*, 21(4), 311-320. <https://www.sciencedirect.com/science/article/abs/pii/S026427510400054X>
- Jenks, M. et al (Eds) (1996). *The Compact City: A Sustainable Urban Form*. London: E&FN Spon.
- Jenks, M. & Dempsey, N. (Eds) (2005) *Future Forms and Design for Sustainable Cities*. Oxford: Architectural Press.

- Kelbaugh, D. S (2002). *Repairing the American Metropolis: Common Place Revisited*. Seattle: University of Washington Press.
- Keleş, R. (2007). Sustainable urban development under unsustainable conditions. In D. Oktay (Ed.) *Inquiry into Urban Environment: Issues Concerning Urban, Housing and the Built Environment* (pp. 27-28). Famagusta: EMU Press.
- Khandokar, F., Price, A., Austin, S., & Paranagamage, P. (2009). Briefing: User-perspectives on Walkable Neighbourhoods. *Proceedings of the Institution of Civil Engineers: Urban Design and Planning*, 162/DP4, 155-158. <https://doi.org/10.1680/udap.2009.162.4.155>
- Kim, J. and Kaplan, R. (2004). Physical and Psychological Factors in Sense of Community. *Environment and Behaviour*, 36/X, 313-340. <https://doi.org/10.1177/0013916503260236>
- Kuban, D. (1986). *Turkish Culture and Arts*. Istanbul: BBA.
- Lang, J. (2016). Urban designing in heterogeneous cities: issues and responses, *Proceedings of the Institution of Civil Engineers: Urban Design and Planning* (Themed Issue on Urban Identity in the Era of Globalisation - Part One; Ed: D. Oktay), 169(6), 258-267. <https://doi.org/10.1680/jurdp.15.00032>
- Lehmann, S. (2010). *The Principles of Green Urbanism: Transforming the City for Sustainability*. London: Earthscan.
- Lund, H. (2002). Pedestrian environments and sense of community. *Journal of Planning Education and Research* 21, 301–312. <https://doi.org/10.1177/0739456X0202100307>
- Manzelat, R. R., & Oktay, D. (2019). The Quest for Livable City Centers: A Study in Famagusta (Gazimagusa), North Cyprus, *Journal of Civil Engineering and Architecture* 13, 23-30. <https://doi.org/10.17265/1934-7359/2019.01.003>
- McKenzie, S. (2004). Social Sustainability: Towards Some Definitions. *Hawke Research Institute Working Paper Series*. No 27.
- Mumford, L. (1961). *The City in History: Its origins, its transformations and its prospects*. New York: Harcourt Brace Jovanovitch.
- Oktay, D. (2019). Urban Transformation and Identity in Samsun, Turkey: A Future Outlook, *Open House International*, 44(4), December 2019 (Special Issue on Urban Transformations in Rapidly Growing Contexts, Ed: M. A. Salama), 27-35. http://openhouse-int.com/abdisplay.php?xvolno=45_1_5
- Oktay, D. (2017a). Reevaluating Urban Identity under changing circumstances: The Case of Samsun, Turkey, *Proceedings of the Institution of Civil Engineers: Urban Design and Planning*, 70(5), 189-204. <https://doi.org/10.1680/jurdp.17.00001>
- Oktay, D. (2017b), Lessons for Future Cities and Architecture: Ecology, Culture, Sustainability. In A. Sayigh (Ed.) *Mediterranean Green Buildings & Renewable Energy* (pp. 259-274). Cham: Springer. https://link.springer.com/chapter/10.1007/978-3-319-30746-6_19
- Oktay, D. (2011). Sustainable urbanism revisited: A holistic framework based on tradition and contemporary orientations, In O. Y. Ercoskun (Ed.) *Green and Ecological Technologies for Urban Planning: Creating Smart Cities*, Pennsylvania: IGI-Global. <https://www.igi-global.com/chapter/sustainable-urbanism-revisited/60594>
- Oktay, D. (2004). Urban Design for Sustainability: A Study on the Turkish City, *International Journal for Sustainable Development and World Ecology*, 11(1), 24-35. <https://doi.org/10.1080/13504500409469808>
- Oktay, D. (2002). Design with the climate in housing areas: An Analysis in Northern Cyprus. *Building and Environment*, 37(10), 1003-1012. [https://doi.org/10.1016/S0360-1323\(01\)00086-5](https://doi.org/10.1016/S0360-1323(01)00086-5)
- Oktay, D. (2001). *Planning Housing Environments for Sustainability: Evaluations in Cypriot Settlements*. Istanbul: Yapı Endüstri Merkezi (YEM).
- Oktay, D. (1998). Effects of green spaces on the ecological quality of housing settlements. *Ekistics*, 65(391/392/393) (Triple issue), 1998, 283-291. <https://www.jstor.org/stable/43623310?seq=1>
- Rudlin, D, & Falk, N. (1999). *Sustainable Neighbourhood: Building the 21st Century Home*. London: Architectural Press.
- Shenker, J. (2020, March 26), Cities after coronavirus: how Covid-19 could radically alter urban life. *The Guardian*. Retrieved from <https://www.theguardian.com/world/2020/mar/26/life-after-coronavirus-pandemic-change-world>
- Whyte, W. H. (1980). *The Social Life of Small Urban Spaces*. Washington DC: Conservation Foundation.
- World Commission on Environment and Development (WCED) (1987). *Our Common Future (Brundtland Report)*. Oxford: Oxford University Press.

Keywords

Sustainable habitats, contemporary paradigms, traditional Turkish (Ottoman) city, challenges, lessons for future cities.

Eco-Villages as Sustainable Human Habitats: Challenges and Conflicts in Turkey

Merve Güleriyüz Çohadar¹, Neslihan Dostoğlu¹

¹*Istanbul Kültür University, Turkey*

Abstract

Faced with the effects of global warming, energy resource depletion, and other related social problems which have steadily worsened since the 1980's, people around the world have sought to create more sustainable, resilient and 'liveable' communities. Two approaches have been developed: The first is reformist - developing piecemeal changes in response existing problems -; the second is utopian - creating new environments from scratch. Eco-villages are consciously developed as sustainable communities, and as such, are an example of the utopian approach.

This study evaluates the creation of two eco-villages in Turkey facing physical, social, economic, and sustainability issues. Our research starts by discussing two well-known eco-village initiatives, which enables us establish the key features of eco-village initiatives generally. We then analyse these key features in the context of two eco-villages selected in Turkey, using publicly available information from websites, observations from site visits, and details from personal interviews conducted with the founders of each settlement. Our findings, which relate to the physical, social, economic, and sustainable aspects of the eco-villages, are subsequently tabulated and compared with the original two eco-village initiatives discussed. In closing, several recommendations are made for the ongoing success of the initiatives in Turkey.

Introduction

Recent environmental, social, and economic transformations in the world have increased the need for considering new perspectives about the future. The world has been increasingly faced with global warming, energy resource depletion, and social problems since the third quarter of the 20th century, and especially during the last twenty years. In the context of the current harmful results of these changes, people have started to search for the means to create more sustainable, resilient, and livable communities. In this process, some proposals have been developed for finding new alternative community models. Creating eco-villages as sustainable communities is one of these proposals. In these ecologically sustainable communities, residents embrace a new lifestyle based on some rules.

There are many studies about eco-villages and the means for them to reach their sustainability goals. One of these studies has been undertaken by Coomer (1981) who defines a sustainable society as follows; "Sustainable society is self-sufficient within the boundaries of its environment. This society is not a society that does not grow. It is a society that is only aware of the limits of growth and seeks different ways of growth." Based on this definition, it can be indicated that eco-village initiatives are based on the dream of creating a sustainable and self-sufficient community. Therefore, creating eco-villages as sustainable communities can be considered as an example of the utopian approach in the world. In general, utopias comprise a discontent with the present and propose to replace the present, with the future or past image that is thought to be better than the present. In other words, there are 'regressive utopias' which aim to revive the past, and 'progressive utopias' which try to replace the present with dreams of the future (Dostoğlu, 2001). In some of these utopias aiming to revive the old times, everything is simple

as in primitive communal societies (Tümer, 1997). Since eco-villages generally reject a modern lifestyle and want to return to the traditional village lifestyle, they can be considered as 'regressive utopias'.

Utopias are often envisioned as impossible imaginary settlements. However, in history, some utopians have attempted to materialize their settlement proposals. These attempts have shown that it is possible to turn utopias into reality. For instance, Robert Owen's New Harmony, Ebenezer Howard's Garden City and Charles Fourier's Phalange are utopias, which turned into reality. In the past, most of these built utopian settlements have failed due to sustainability problems. These failures show that it is not easy to change the direction of current developments. Therefore, whether the eco-village initiatives can be successful in finding solutions to the ecological and social problems of the 21st century should be considered as another controversial issue. Eco-villages have also been built in Turkey, as initiatives based on the dream of creating sustainable and self-sufficient communities. However, although there are quite a number of studies on eco-villages in Europe and the United States, the literature on eco-villages in Turkey is scarce. The aim of this study is to discuss the history of eco-village development in Turkey and to evaluate the physical, economic and social sustainability problems of these villages. In this context, the different features of two eco-village initiatives in Turkey will be analyzed in detail, in comparison with two eco-villages from the world.

Methodology

Attempts to create eco-villages in Turkey first began in 2000 and have continued since then. There are ten eco-village initiatives in Turkey, which have generally been established in Turkey's western and southern regions. (Güleriyüz, 2013) (Figure 1). Some of these eco-village



Figure 1: Eco-villages in Turkey, 2013 (Gülyüz, 2013)

initiatives have failed. Others currently continue to function as sustainable settlements.

To select the eco-villages in Turkey to be examined in the study, the databases of an international eco-village network organization, GEN (Global Eco-village Network), and those of a local network organization for eco-villages in Turkey EKOYER (Local Network Organization for Eco-villages in Turkey) were checked. After this research, five eco-villages which are members of GEN and/or EKOYER were identified. Some eco-village initiatives are not members of such organizations and are developed independently. Due to the difficulties in identifying these initiatives within the scope of this study, only examples of eco-village initiatives that have a relationship with GEN and EKOYER were examined. As a result of these evaluations, it was discovered that the Dedetepe Eco-Farm initiative is a member of both GEN and EKOYER; Marmariç Eco-settlement and Buğday Çamtepe Ecological Life Center are members of only EKOYER, and Eko-Foça and İmece House are solely members of GEN. All five of the eco-villages in Turkey that have tried to become sustainable communities have been visited for this study (Table 1). Four of the ten initiatives (Garp Eco-Volunteer Settlement, Güneşköy, Pastoral Vadi, KNIDIA Eco-farm) have not been included in this study, since they focus on eco-tourism rather than trying to create a sustainable community. Lastly, although Bayramiç Yeniköy initiative aims to create a sustainable communal life, it was not included in this study as it was

not built when the research was conducted in 2011 (Table 2).

Following visits to these eco-villages, it was found out that there is no life in Eko-Foça. On the other hand, in İmece House, Marmariç Eco-settlement, Dedetepe Eco-farm, and Çamtepe Ecological Life Center, eco-villagers aimed to build sustainable settlements. From these four initiatives in Turkey, two eco-villages (Marmariç Eco-settlement and Dedetepe Eco-Farm) were selected as case studies for detailed review in this article. Compared with the other eco-villages in Turkey, they can be considered as "developed" eco-villages in the context of the built environment. In line with the research method and sample characteristics, a qualitative research technique has been chosen for this study to explore the concept of sustainability, and the challenges and conflicts of eco-villages through interviews. Structured face-to-face interviews were carried out in the settlements, and detailed photographs were taken to document the state of each eco-village. In this context, thirty-three questions related to the social, economic, and physical dimensions of sustainability were asked to each of the 21 people who were eco-villagers or eco-village founders.

Name	Establishment Year	Member of Organization	Aim
Marmariç Eco-settlement	2003	EKOYER	Creating a Sustainable Commune Life
Dedetepe Eco-farm	2001	GEN and EKOYER	Creating a Sustainable Commune Life
Eco-Foça Eco-village	2001	GEN	Creating a Sustainable Commune Life
İmece House	2007	GEN	Creating a Sustainable Commune Life
Buğday Çamtepe	2010	EKOYER	Creating a Sustainable Commune Life

Table 1: Eco-villages In Turkey which have been visited for the research (Source: Authors, 2019)

Name	Establishment Year	Member of Organization	Aim
Garp-Eco-volunteer	2003	GEN	No information
Bayramiç Yeniköy	2011	GEN and EKOYER	Creating a Sustainable Commune Life
Güneşköy	2000	GEN	Based on organic farming
Pastoral Vadi	2000	GEN	Based on eco-tourism
KNIDIA Eco-village	2000	GEN	Based on eco-tourism

Table 2: Eco-villages in Turkey which have not been examined in the research (Source: Authors, 2019)

In this study, firstly the eco-village movement and the concepts of sustainability will be examined in a general context by means of a literature review. Then, two world renowned eco-villages frequently referred to in literature, Ithaca in USA and Findhorn in Scotland, will be investigated according to their physical, economic, and social features. The purpose of this investigation is to highlight the means employed to build sustainable eco-villages. Thirdly, the two selected eco-villages in Turkey that have been visited and examined via personal interviews will be discussed. Through the interviews and visits, the findings concerning the physical, socio-cultural, and economic features will be exposed. In the evaluation and conclusion parts of the study, the two well-known eco-villages from the world and the two selected eco-villages from Turkey will be examined by means of tables in the context of sustainability, after which the challenges and conflicts of the two eco-village examples in Turkey will be evaluated.

Eco-Village Movement

The eco-village movement was born from the combination of the traditional ideas related to living together and environmentalist approaches of the 1960's and 70's. Eco-villages have been consciously developed for the common and particular purpose of building a sustainable community that can solve prevalent ecological, economic, and social problems. The expectation is that sustainable, peaceful communities, which are integrated with nature can change the unhealthy conditions of cities. The term eco-village (ecological village) has been explained by Robert and Diane Gilman in *Eco-villages and Sustainable Communities* (1991). According to the Gilmans, an eco-

village can be defined as "human-scale, healthy and sustainable development, full-featured settlement, and the harmless integration of human activities into the natural world" (Gilman, 1991a). Although there are many descriptions of eco-villages, there is no ideal and common definition because the features of all eco-villages are different from each other. In general, eco-villages are communities designed to be socially, economically, and ecologically sustainable. Although there is a general impression that eco-villages are built in rural areas, eco-villages can be built in urban, suburban, and rural contexts.

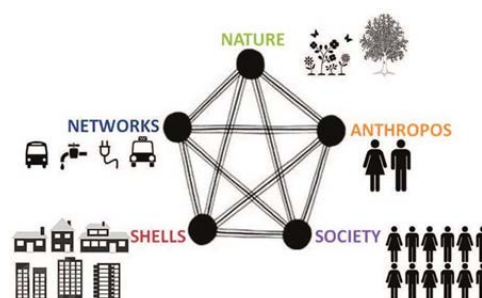


Figure 2: Five elements of Ekistics as designed initially by C.A. Doxiadis in 1942 (Fookes, 2008)

Eco-villages are human settlements which can be examined more thoroughly in the context of Ekistics, a scientific approach to the problems of human settlements. Developed by C.A Doxiadis from 1942 until his death in 1975, Ekistics considers human settlements from multiple perspectives and at various scales ranging from a future contiguous global city (ecumenopolis) to the elements of an individual dwelling. Based on five principles which

affect quality of life; Nature, Anthropos (human beings), Society, Shells, and Networks, Ekistics aims to explain the current state of human settlements and predict and improve their future development (Doxiadis, 1968) (Figure. 2). Eco-village settlements reflect the relationship between the five elements of Ekistics quite clearly.

Jonathan Dawson, in his book *Eco-villages: New Frontiers for Sustainability* has proposed five essential characteristics of eco-villages:

1. Eco-villages are not projects started by governments or corporations, but private citizens' initiatives. They are grassroots.
2. Eco-villagers value community living.
3. They are not overly dependent on government, corporate, or other centralized sources for water, food, shelter, power, and other basic necessities.
4. Eco-villagers have a strong sense of shared values, often characterized in spiritual terms.
5. They often serve as research and demonstration sites. Many offer educational experiences for others (Dawson, 2006).

However, this does not mean that all eco-villages are the same. Every eco-village has its own features and tries to find a way to create a sustainable community and a settlement in its own way. Some eco-villages focus on spiritual and social issues, while others focus on material and economic concerns. There is no one truth or way to reach the sustainability goals of eco-villages. Generally speaking, however, eco-villages reject modern lifestyles because their founders think that the current problems of the world can be solved by returning to traditional lifestyles, and by living in 'ecologically designed' villages. In other words, the eco-village movement has developed worldwide in response to the effects of the modern lifestyle on both our social and ecological environments. Although eco-village initiatives have been striving to embody the ideal sustainable community models, some have been unsuccessful in achieving their goals.

Christian (2003) has pointed out that while the number of eco-villages increased in North America between 1990 and 1995, only 10 percent of those eco-villages were successful in their aims. Analysing this situation, the authors concluded that the successful 10 percent had done the same five or six things right, whereas the unsuccessful 90 percent had made the same mistakes (Christian, 2003). Though limited to a consideration solely of North America's eco-village initiatives, Christian's research finds the most critical challenge to eco-villages is a 'structural conflict' caused by oppressive patterns arising from human relationships. These studies show how difficult it is for eco-villages to achieve their social goals.

There are many eco-villages in the world ranging in size from small settlements comprising around 50 residents up to towns of as many as 20,000 residents. It is difficult to calculate the number of eco-villages in the world, however, as some eco-village initiatives are members of some organizations which create a network between eco-villages, while others have no affiliation to any organization. The most popular network organization for eco-villages is GEN (Global Eco-village Network), the purpose of which is to exchange information among the

thousands of projects across the world identified as small, intentional, and traditional communities living in harmony with nature. The network also serves to promote projects, disseminating information about eco-villages globally.

Eco-Village Examples from around the World

Two world renowned examples of eco-villages widely discussed in the literature are the Ithaca eco-village in the United States, and the Findhorn eco-village in Scotland. These settlements can be considered as both 'developed' and 'sustainable' eco-villages because they have utilized certain methods for solving their sustainability problems. They are included in the scope of this study to identify the means for developing an ideal model for eco-villages.

Ithaca Eco-village, USA.

Ithaca Eco-village (EVI) is located in New York's Finger Lakes on a site 2.5 miles from the center of the city of Ithaca. The founders of EVI, Joan Bokaer and Liz Walker, united in 1990 to lead the "Global Walk for a Livable World" from California to New York City. The goal of the constructed eco-village in Ithaca was to create a "socially harmonious, economically viable and ecologically sustainable settlement" that would demonstrate that "human beings can live cooperatively with each other and with the natural environment" (EVI Housing Cooperative, undated). EVI can be cited as an example of eco-villages located in proximity to the cities. This location enables eco-villagers to take advantage of the social and economic opportunities to be found in cities.



Figure 3: Map of EVI based on an aerial photo
Source: (<https://ecovillageithaca.org/download/2014-map-of-evi/>)

EVI currently includes three co-housing neighborhoods that are named as FROG, SONG, and THIRD. FROG and SONG neighborhoods include 30 households, while THIRD neighborhood includes 40 households. A total of 167 people live in these neighborhoods. An organic vegetable farm, an organic berry farm, office spaces for cottage industry, a neighborhood root cellar, community gardens, and different natural areas also exist in the eco-village (Walker, 2005). Over 80% of the 175 acre site has been planned to remain as green space. The physical relationship between TREE, SONG and FROG

neighborhoods and the organic farms can be seen in Figure 3.



Figure 4: Ithaca Eco-village, a street in the SONG co-housing neighborhood Source: (<https://ecovillageithaca.org/wp-content/uploads/Song-Neighborhood-Aug-2007.jpg>)

Co-housing is defined as an intentional community of private homes clustered around a common site. Each home has traditional features, including a private kitchen and bathroom (Figure 4). Shared spaces feature a common building (called a ‘Common House’ in Ithaca Eco-village) that includes a large kitchen, dining areas, laundry room, library, and playroom. The houses, which share ecological-sourced hot water and heating systems, are constructed using environmentally friendly features such as passive solar collection, triple glazing, and super-insulation. EVI can therefore be seen as a contemporary housing model, attempting to recreate a sense of community and encourage an ecological, social, and sustainable lifestyle.

In EVI, the large Common House is sited centrally (Figure 5). It serves as an event venue for organizations (Figure 6) and provides shared facilities for eco-villagers. Organic farming generally plays an important role in employment in rural areas. Similarly, organic agriculture is key source of income for EVI. In fact, while 55% of the population of the EVI work in urban jobs or work remotely from home offices, 45% of the residents work in jobs directly related to sustaining EVI (Walker, 2005).



Figure 5: ‘Common House’ in Ithaca Eco-village Source: (<https://ecovillageithaca.org/live/>)

According to this information, it can be specified that more than half of the population of EVI still work in jobs that service the global economy. The eco-village movement defenders do not prefer this type of economic structure as they believe it to be in contradiction with a key aspect of the mission of the eco-village movement: to revive local economies.



Figure 6: A photo from an event for organizations in Ithaca Eco-village Source: (<https://ecovillageithaca.org/download/evi-introductory-slideshow/>)

EVI villagers have chosen consensus as the voting system for managing their settlement; a different approach to traditional village management and decision-making processes. To accept a proposal for the eco-village, all members have to agree. Choosing this voting system demonstrates that the eco-village management system gives equal importance to each member. Accordingly, there is no manager nor management group; instead, all members living permanently in the eco-village are deemed managers.

Findhorn Eco-village, Scotland

The foundations of Findhorn Eco-village settlement (Figure 7) were laid in 1962 by Peter and Eileen Caddy and Dorothy Maclean. These three founders took their children to the north of Scotland in 1962, arrived at a trailer park near the village of Findhorn, and began to live in a caravan. Together they created a small agricultural area for their personal food needs. Over time, it was cultivated and attracted much attention. As increasing numbers of people began to visit the garden, some moved in and started living in the settlement. This little group forms the core of today's Findhorn Eco-village. According to the 2013 census, 450 people live in the eco-village (findhorn.org). A total of 61 ecological buildings in Findhorn Eco-village have been designed according to ecological design principles, such as sustaining the integrity of both natural and managed ecosystems and the built environment through reliance on



Figure 7 : Findhorn Eco-village Settlement.
Source: (www.ecovillagefindhorn.com)

renewable resources, recycling and reusing of materials, and the efficient use of materials and energy.

According to its website, (www.findhorn.org), Findhorn Eco-village has developed its own ecological construction system through years of experience, including multiple experimental and ecologically-designed housing types. Houses in the village made from old whiskey barrels, a project begun in 1986, have gained a worldwide reputation (Figure 8). Moreover, such experiments in Findhorn Eco-village have enabled the development of a resource and training center to provide information on ecological construction to the public.

There are no completely self-sufficient building structures in Findhorn Eco-village. Nevertheless, it can be considered to have been successful in achieving ecological sustainability overall. As it is clear from the layout, Findhorn Eco-village has no relation to other settlements which are near to Findhorn; in fact, it is a closed residential



Figure 8: Whiskey Barrel Houses. Source: <http://tinyhouseblog.com/wpcontent/uploads/2010/04/barrelhouses.jpg>

area. Findhorn eco-village aims to be isolated from the outside world in social and physical contexts (Figure 9); however, many educational workshops and events on ecological issues take place in the Findhorn community, and many volunteers and visitors come from outside. Despite being contrary to the purpose of this eco-village initiative, there is constant communication between the

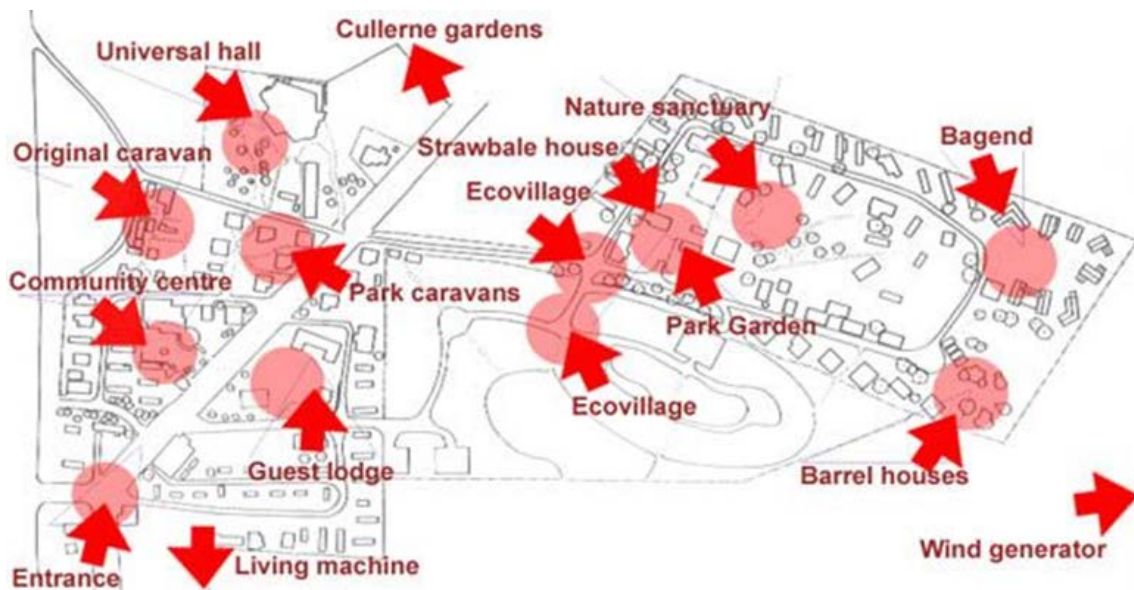


Figure 9: Map of Findhorn Eco-village
Source: (<http://www.ecohouseagent.com/findhorn-eco-village>)

eco-villagers and visitors. This relationship strengthens the connection of the eco-villagers to the outside world and contributes to the social sustainability of the settlement. Findhorn uses "echo" as its currency (Eco currency). The production of a new currency in Findhorn can be taken as an attempt to distinguish a radically defined connection with the outside world in economic terms, an initiative that is considered as a form of resistance to globalization. One Echo is equal to one Pound Sterling, and this equality does not change over time unlike other global currencies. In addition to using other conventional economic methods such as exchangeable currency, time purchases, goods exchanges and other forms of mutual aid are used.

Residents' food and beverage requirements are met from the products obtained through organic agriculture and livestock. More products are sold in the Phoenix Store, thereby providing additional income. Another income source of Findhorn Eco-village is eco-tourism, which is based on providing outside visitors with day tours, some of which include accommodation.

Findhorn Eco-village also pays attention to several important issues in the social context. Many different social and spiritual activities are carried out in the eco-village. The aim is to increase community and group activities, to strengthen its members' awareness of being a commune, to raise living standards and to ensure a healthy lifestyle. Issues or suggestions are described in detail to members and are opened to voting. In order to be considered valid, 90% of the community votes are required for all decisions (www.findhorn.org). In this way, Findhorn highlights the importance that is given to individuals in the community.

Eco-village examples In Turkey

Each of the following case studies in Turkey will begin with a brief community history, including an explanation of how the project has situated itself in the context of ecological, economic, and social sustainability. For each case study, a summary of the key sustainable lifestyle features of the eco-villages will be examined.

Dedetepe Eco-Farm, Turkey

Dedetepe Eco-farm is located next to the Mihli area, Çanakkale in Turkey. There are no active, livable traditional villages around the settlement within walking distance. In fact, the settlement is surrounded by forests. The buildings in the settlement (Figure 10) have various architectural styles, but it can be observed that they have all been built with traditional techniques and materials. On the site, there are eleven units such as a tent (B1) for daily meditations and meetings, a common dining hall (B2), a school for kids (B3), composting toilets (B4), five log houses for volunteers to stay (B5), a private house belonging to Aemdar family (the founding family of the Dedetepe Eco-Farm) (B6), and a Hamam (B7) (Figure 11). Although there are six residential buildings in the settlement, only three people and two children live permanently in the Dedetepe Eco-Farm.

In Dedetepe Eco-farm, uses renewable energy in an attempt by the founders to limit excess energy

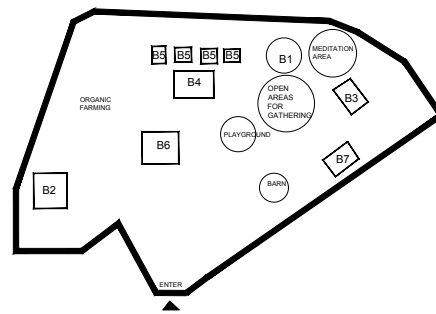


Figure 10: The Map of the Dedetepe Eco-Farm (Güteryüz, 2019)

consumption. Solar and wind sources provide electricity and heating the Hamam. Berkay Atik, a member of Dedetepe, has stated that solar collectors heat the water to be used in the baths in the settlement, and that they do not take a bath when the water cannot be warmed up using solar power. In fact, they only use hot water on days when there is sufficient sun to heat it (Personal interview with Berkay Atik, 2011).



Figure 11: Hamam, B7 Dedetepe Eco-Farm (Güteryüz, 2011)



Figure 12: Nomad Tent, Dedetepe Eco-Farm (Güteryüz, 2011)

The Dedetepe settlement has organic farming facilities. The produce (fruits and vegetables) is sold online, thereby contributing to the economic sustainability of the settlement. Olive and olive oil production are essential sources of income, as is the collection of fees from visitors

who attend educational courses in the farm's Ecological Living Centre.

Volunteers from different countries stay for a short time in Dedetepe. However, Berkay Atik has stated that this accommodation system is different from other types of traditional tourism and eco-tourism (Personal Interview with Berkay Atik, 2011). There is a nomad tent (Figure 12) and several public outdoor areas in the settlement, which are provided for social gatherings (Figure 13). And while the physical and architectural improvement of the settlement is remarkable, the current population is insufficient to create a communal life in Dedetepe Eco-farm. On the other hand, the founders' aim is to develop the commune is a long-term aspiration. They hope it will develop in time.

Marmariç Eco-settlement, Turkey



Figure 13: The outdoor gathering areas, Dedetepe Eco-Farm (Gülyüz, 2011).



Figure 14: Map of the Marmariç Eco-settlement (Gülyüz, 2013)

Marmariç Eco-settlement is located in Dernekli village, a traditional village in Izmir province that was abandoned 20 years ago. The Marmariç eco-settlement initiative is an example of eco-villages whose residents aim to revive a traditional village in the form of a sustainable settlement. Accordingly, sustainability in this context includes the preservation of the unique local environment and lifestyle within the settlement and the buildings.

Since 2003, members have been continuing their activities that aim to establish an ecological life experience. There is revitalization in the area, the purposeful use of architectural heritage, as well as the construction of new housing. The members of Marmariç Eco-settlement have decided to restore the houses which were abandoned 20 years earlier (Figure 14). During visits to the settlement, buildings with different functions and plan types were identified in the area (Figure 15). Five restored units, four old buildings in good condition, and seven ruined old buildings were identified. Thirteen people live in the five restored units (A1), (A2), (A3), (A4), (A5), while they continue to restore the other buildings.

In the settlement, there is a common social area in the form of a courtyard. This common area is well-defined, containing a central bonfire area, demarcated by a round form surrounded with stones. This area can be described as "the square of the settlement" (Figure 16).

Marmariç Eco-settlement is economically dependent on a nearby city, and remains unable to break away and function independently; its members continue working in the city as well as in the surrounding rural areas. Many Marmariç members living in the settlement continue to work in the same jobs as they had done in the cities before settling in the rural area. Others offer courses which inform entrepreneurs about issues relating to sustainability and



Figure 15: Old School Building and Housing Unit, (Gülyüz, 2011).



Figure 16: The Square of the settlement, (Gülyüz, 2011).

permaculture, which serves as another source of income for the settlement. To understand the social relations of the community, it should be emphasized that the 13 people

who are the primary founders of the Marmariç initiative have been friends for a long time. This is important because Marmariç has limited communication with the surrounding traditional villages. In fact, there is a sharp socio-cultural distinction between the villagers who live in the surrounding traditional villages and the Marmariç eco-villagers. Politically, the Marmariç initiative is based on decision-making by popular vote. In their voting system, they follow majority rule, according to which proposals that have more than a fifty-percent support are accepted.

Marmariç members define the purpose of living in this settlement as "sharing life together." They have not chosen to realize their sustainable lifestyle dreams in a city. Instead, they have opted to live in a rural area since it is more organic and ecological, making it easier to create a more sustainable way of life.

Evaluation

Our evaluation of the environmental, economic and social issues common to all case studies are discussed thematically in this section. These discussions incorporate the detailed interviews on site, analysis of the challenges faced by the eco-villagers in Turkey, and the data from the tables that follow. In order to evaluate the four eco-villages discussed in the previous sections of this study, the general characteristics (Table 3), environmental (Table 4), economic (Table 5), and social (Table 6) features of the case studies - collected from literature review and from the personal interviews - have been compared through the tables.

Environmental Issues:

Population Problems: The eco-villages in Turkey are newly developing settlements. Thus, the number of people residing in the eco-village settlements varies (Table 3). Only the founders of the eco-village initiative permanently live in the settlement. However, in Ithaca and Findhorn Eco-villages, the number of members is sufficient for creating a commune. In this context, it can be said that Turkey's examples have some difficulties in reaching a sufficient number of members to create a community.

Physical Problems: In the examination of case studies, it can be seen that Ithaca and Findhorn eco-villages and the samples of eco-villages in Turkey have maintained a sustainable architectural and environmental development. The site visits to Marmariç and Dedetepe have demonstrated that these settlements have not experienced huge problems while they were being established. Furthermore, in the examples in Turkey, it has been observed that more housing structures have been built than the number of residents (Table 4). In Ithaca and Findhorn eco-villages, on the other hand, the number of residents and the number of houses are almost equal. New houses are built only when it is necessary. Therefore, it can be said that eco-village examples in Turkey do not manage their economies and time appropriately because they have constructed unnecessary buildings.

Economic Issues:

External Dependency in Economic Problems: In some cases, it can be said that external dependency contributes to the sustainability of settlements. For example, people living in the world-famous Ithaca eco-village can work in jobs that serve the global economy in the direction of their wishes. It can be argued that people being forced to leave their profession to deal with the issues of rural areas, with which they are unfamiliar, may cause adaptation problems and threaten the sustainability of the settlements. Thus, it can be stated that economic issues are one of the reasons that cause eco-villages to fail. To solve economic problems, eco-villages should be encouraged to evaluate the job opportunities that exist outside the settlement.

Eco-Tourism Problems: In the interviews, eco-village founders were asked: "What are your thoughts on eco-tourism?" All entrepreneurs responded negatively and stated that their eco-tourism practices are contradictory to the eco-village philosophy. From these evaluations, it can be concluded that eco-village founders in Turkey generally ignore the idea of eco-tourism, whereas examples like Ithaca and Findhorn Eco-villages fully implement it (Table 5). Clearly, however, the income which is obtained from eco-tourism can contribute to the economic sustainability of eco-villages.

Social Issues:

Social Cohesion Problems with the Surrounding Area: During the visits to eco-village formations and in interviews, it was found out that the founders of the initiative were ignored by traditional villagers living in nearby settlements, as the latter thought that the eco-villagers do not belong to rural life or to the countryside.

Intra-group Conflicts: Conflicts within the group have arisen due to the disagreements among the people living in the eco-village.

Social Adaptation Problems of Eco-villagers: Eco-village initiatives are usually established by people who have lived in the city for many years. From this point of view, it can be said that adaptation problems are natural in a rural settlement formed by individuals who are accustomed to living in the city. Researchers have some proposals for preventing uneasiness caused by adaptation problems.

	Established	Location	Climate	Population	Land Size
Ithaca Eco-village	1991	New York, North America	Temperate Climate	167	70.8 hectare
Findhorn Eco-village	1962	Scotland, United Kingdom	Ocean Climate	450	12.1 hectare
Marmariç Eco-settlement	2003	İzmir, Aegean Region, Turkey	Mediterranean Climate	13	2.2 hectare
Dedetepe Eco-farm	2001	Çanakkale, Aegean Region, Turkey	Mediterranean Climate	5	3.0 hectare

Table 3: General Characteristics of Case Studies

	Architectural Approach	Specific Residential Type	Energy Production Systems (%)	Organic Agriculture Percentage of Qualification
Ithaca Eco-village	Vernacular and Innovative	Co-housing	Solar and Wind Energy %100 and above	%50
Findhorn Eco-village	Vernacular and Innovative	Barrel House and Experimental Houses-Stone House	Solar and Wind Energy %28	%50
Marmariç Eco-settlement	Vernacular and Innovative	Stone House, Wooden Bungalows	Solar Energy and Coal	not calculated
Dedetepe Eco-farm	Vernacular and Innovative	Wooden Houses, Nomad Tent	Solar and Wind Energy	not calculated

Table 4: Environmental Characteristics of Case Studies

	Currency	Specific Economic Facilities	Eco-tourism	External Dependence
Ithaca Eco-village	Global Currency	Organic Agriculture and Other Professions	Yes	Dependent
Findhorn Eco-village	'Eco' Currency	Ecological Training Courses, Accommodation	Yes	Not Dependent
Marmariç Eco-settlement	Global Currency	Ecological Training Courses, Organic Agriculture	No	Dependent
Dedetepe Eco-farm	Global Currency	Accommodation, Organic Agriculture	No	Dependent

Table 5: Economic Characteristics of Case Studies

	Manager	Decision-making System
Ithaca Eco-village	Non-identified Management Group. All members are managers.	Consensus, Union of Votes
Findhorn Eco-village	Identified Management Group	Majority of Votes (%90)
Marmariç Eco-settlement	Non- identified Management group. All members are managers.	Majority of Votes
Dedetepe Eco-farm	Non-identified Management group. All members are managers.	Consensus, Union of Votes

Table 6: Social Characteristics of Case Studies

In their proposals, they generally argue that the members who are accepted as eco-villagers should try to adapt to the eco-village lifestyle in a truly social, psychological, and physical way.

Management and Decision-Making Problems: It is a controversial question whether this kind of management is the right approach for the eco-village initiatives that are in the process of being established. In the examples in Turkey, incomplete and inaccurate application of management issues have been identified (Table 6).

Conclusion

It has to be stated that there is no single or ideal way to reach the sustainability goals of eco-villages. All eco-village initiatives have their own features and specific solutions for their problems. According to the problems facing the eco-villages indicated above, some general recommendations can be made.

In literature related to Ithaca and Findhorn, the eco-villagers have indicated that while they were building their settlements, they faced economic and social challenges rather than physical problems. As regards this issue, personal interviews conducted for this study in Turkey indicate that the technical and physical problems could be solved more quickly and easily than social and economic ones.

It can be stated that while creating an eco-village and designing houses, an integrated renewable energy system and a sustainable economic system is necessary. However, it can also be emphasized that often the most critical issue is how to resolve social conflicts. Personalized interviews have demonstrated that the most critical problems facing eco-village enterprises in Turkey were related to social and economic issues.

In addition, eco-villagers have many problems with their management and intra-group relationships. It can be said that similar to the world's successful eco-villages, the newly developed eco-villages in Turkey have serious structural conflict problems. For solving these problems it can be suggested that the recording of agreements and decisions about management and property has to be written. This method can prevent conflicts and confusion within the group.

Another problem is a misperception of the eco-tourism concept by the eco-villagers in Turkey. Considering some successful eco-tourism practices around the world (as in Ithaca and Findhorn eco-villages), implementing the eco-village initiative can make a significant contribution to the economic sustainability of eco-villages in Turkey. In fact, eco-tourism practices in Turkey can be greatly improved.

In the interviews, the eco-villagers mentioned another challenge: the adaptation problems of the eco-villagers themselves. After the new eco-villagers who had lived in the city for years started living in rural areas isolated from the city, they had to change their habits. In fact, they could not continue their jobs, which they had done in the city previously. One of the main aims of eco-villages is being socially and economically independent from the outside of the settlement. However, while the eco-villages are being built, the eco-villagers face many social challenges and economic problems. Socially, refusing all their old lifestyle reduced newcomers' sense of belonging to eco-villages. It can be suggested, then, that in the building stage of eco-villages, new inhabitants should benefit in a limited way from the economic and social opportunities of the city. It is likely that if people living in eco-villages are not isolated from their social and professional lives, adaptation problems can be reduced.

A question about traditional villages was asked to eco-village founders during the interviews: "If you did not have a chance to live and set up in an eco-village, would you want to live in a traditional village?" Significantly, all the founders answered 'no' in response. The founders think that eco-villages and traditional villages are very different from each other in physical, social, and economic terms. It can be assumed that eco-villages are conscious communities established according to concepts such as sustainability and ecology. However, completely ignoring and excluding traditional village settlements, which can sustain themselves for years in a healthy way in the countryside, could be considered as a superficial attitude that prevents the development of eco-villages and their integration into the local area.

Eco-village initiatives may adopt a traditional village awareness mission in their surroundings by interpreting the social elements of traditional villages. Turkey still has a significant number of traditional villages that can sustain themselves. However, it has been observed in recent years that the young population living in traditional villages has decreased and migration towards the city has increased. This migratory movement causes both rural and urban problems, and traditional villages and cities experience sustainability problems just like eco-villages. To solve these problems, new eco-village formations, traditional villages, and cities should share their opportunities and

experiences, adopting the idea of cohabiting together without excluding each other.

References

Christian, L. D. (2003). *Creating a Life Together: Practicle Tools to Grow Ecovillages and Intentional Communities*, B.C. Canada: New Society Publishers.

Coomer J. (1979). *Quest for a Sustainable Society*, Oxford: Pergamon.

Dawson, J. (2006). *Ecovillages: New Frontiers for Sustainability*. Dewton: Green Books Ltd.

Dostođlu, N. (2001). “Ütopya, Kent ve Mimarlık Üzerine Düşünceler”, *Arredamento Mimarlık*, No: 2001(5), 73-76.

Doxiadis, C. A. (1968). *Ekistics: an Introduction to the Science of Human Settlements*. New York: Oxford University Press.

Findhorn Foundation Website, www.findhorn.org

Fookes, T.W. (2008). *A Generic Policy Framework for Urban Sustainability* [PDF]. Shaping the Sustainable Millenium, CA, 1, (22). Retrieved April 12, 2021 from:
<https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.463.7705&rep=rep1&type=pdf>

Gilman, R. (1991a). “Guidelines for Eco-village Development.” In *Context*, Summer 29, 60. <http://www.context.org/iclib/ic29/gilman1/>

Gilman, R. (1991b). “The Eco-village Challenge”, In *Context*, Summer 29, 10-14. <http://www.context.org/iclib/ic29/gilman2/>

Güleryüz, M. (2013). *Bir Ütopya Hareketi olarak Eko-Köyler: Türkiye'deki Örnekler Üzerine Bir İnceleme*. (Unpublished Master's Thesis). İstanbul Kültür Üniversitesi, Fen Bilimleri Enstitüsü, İstanbul.

Tümer, G. (1997). “Kent Ütopyaları”, *Bilim ve Ütopya Dergisi* 55, İstanbul, 28.

Walker, L. (2005). *Ecovillage at Ithaca: Pioneering a Sustainable Culture*. Canada: New Society Publishers.

Images

Map of EVI based on an aerial photo. [Digital Image] (2019, November, 22). Retrieved April 12, 2021 from <https://ecovillageithaca.org/download/2014-map-of-evi/>

Ithaca Eco-village, a street in the SONG co-housing neighbourhood Photo. [Digital Image] (2019, November, 22). Retrieved April 12, 2021 from <https://ecovillageithaca.org/wp-content/uploads/Song-Neighborhood-Aug-2007.jpg>

Common House' in Ithaca Eco-village Photo. [Digital Image] (n.d.). Retrieved April 12, 2021 from (<https://ecovillageithaca.org/live/>)

Findhorn Eco-village Settlement Map. [Digital Image] (n.d.). Retrieved April 12, 2021 from www.ecovillagefindhorn.com

Whiskey Barrel Houses Photo. [Digital Image] (n.d.). Retrieved April 12, 2021 from <http://tinyhouseblog.com/wpcontent/uploads/2010/04/barrelhouses.jpg>

Map of Findhorn Eco-village. [Digital Image] (n.d.). Retrieved April 12, 2021 from <http://www.ecohouseagent.com/findhorn-eco-village>.

Interviews

Atik, Berkay, (2011, December 12). [Personal Interview].

Buğday, Erkan, (2011, December 13). [Personal Interview].

Diñcel, Deniz, (2011, December 19). [Personal Interview].

Keywords

Sustainability, Eco-village, Ecology, Habitat, Turkey

A Framework for Increasing Sustainability in Affordable Housing: Case Studies in Turkey

Çelen Paşalar¹, Özlem Demir², George Hallowell¹

¹ North Carolina State University, USA

² Amasya University, Turkey

Abstract

The concentration of city populations profoundly impacts the environment and human well-being, posing massive sustainability challenges related to affordable housing and its infrastructure. Turkish cities are part of this global trend resulting in new aspirations for affordable and rapidly built public housing, including those created since 2003 by the Mass Housing Development Administration (TOKI).

A major challenge for affordable housing in developing countries, such as Turkey, is the lack of a holistic and viable sustainability framework for use in their creation. Currently, empirical case studies of successful housing projects and city design and planning literature provide a rich source of background data on affordable housing strategies, yet a detailed set of urban sustainability indicators are neither well defined nor integrated. The primary goal of this article is to articulate the components of economic, environmental, and social sustainability (e.g. land-use, energy use, design process, accessibility, density, affordability), while outlining a set of guidelines for affordable housing that can be operationalized by agencies fostering a more sustainable quality of life, such as TOKI. The article begins with a review of literature to identify sustainability indicators applicable to low-income residential environments, then examines two TOKI housing projects in Turkish cities, Bursa and Amasya.

Introduction

During the United Nations Conference on Housing and Sustainable Urban Development in 2016, world leaders announced that population in the world's cities is expected to nearly double by 2050, making urbanization one of this century's most fundamental challenges (UN Habitat III, 2016). They also stated that as city populations increase, so do impacts on environment and human welfare due to socio-economic, cultural and economic activities, which pose immense sustainability concerns in terms of housing, infrastructure, basic services, food security, health, education, and so forth. A decade earlier, at the UN Habitat II (UNCHS, 2006, p. 2) meeting in Istanbul, members declared their support for the right to adequate housing, protection from discrimination and equal access to affordable, sufficient housing for all persons and their families. Further, UN Habitat II (UNCHS, 2006) proclaimed the goal of creating affordable housing by "enabling markets to perform efficiently and in a socially and environmentally responsible manner."

This global trend is also seen in Turkish cities and has resulted in new aspirations for affordable and rapidly built public housing projects, including those by the Mass Housing Development Administration (TOKI) since 2003. In most cities in Turkey, there are economically, socially, and environmentally deteriorated neighborhoods and living areas, which lack identity and quality, and do not follow planned or orderly urbanization (Tas et al., 2014). The quality of urban life in most cities in the country must be improved and urban transformation activities should be carried out to create safe, resilient, and healthy living spaces for residents. To develop sustainable urban spaces, it is essential that true partnerships and involvement should exist among residents, planners and legal/institutional

agencies. Housing buildings and spaces must also be designed and built according to user needs, lifestyles, and local conditions (Tas et al., 2014). This includes the idea that neighborhoods should be built up from a hierarchy of human association with elements, such as the environment, the house, the street, the district, and the city with efficient mobility among these units (Jagadisan & Fookes, 2006). It is also important to understand that research and new knowledge about how communities develop should be holistic and transdisciplinary (Ibid, 2006).

The central government of Turkey has played a major role in urban renewal and neighborhood improvement projects under various regulations introduced after the 2000s. TOKI is responsible for housing production for low-income residents including the renewal of the housing stock in areas at risk of disaster. An examination of housing units produced by TOKI reveals that most of these developments followed a top-down planning process resulting in uniform housing types in almost every city including similar physical features (Tas et al., 2014; Bican, 2019). However, environmental issues, local qualities, physical characteristics, and cultural features should be taken into consideration, while closely examining the local conditions of the areas under transformation. Disregarding such features may lead to problems in the change of existing communities and in new housing zones, which are being considered for permanent housing development.

The design of the built environment, including its local, physical, and cultural characteristics can reinforce the sustainable lifestyles and social relationships among community members (Oktay, 2001). Housing is one of the most important building types that constitutes the built environment. At the Second United Nations Conference on Human Settlements, housing was defined as a social unit

supporting the individuals in the household and their relationships with other subjects in the society (Tas et al., 2014). It is also a physical unit allowing for realization of various functions necessary for integrity of life (Tas et al., 2014). Improving the spatial and social quality of life in the built environment from single building, to a neighborhood, and a citywide scale underlies sustainable development. Objective attributes that make up physical conditions affect each stage of the housing production process (i.e. planning, design, construction, and usage) influencing the subjective attributes that ultimately form a person's experiences in the environment.

This article examines the formal and spatial characteristics of four selected affordable housing projects in Turkey. The goal is to provide an initial review of the various components of sustainability, such as land-use, natural features, societal characteristics, accessibility, density, and affordability, and to outline a set of guidelines that can be utilized for further research and operationalized by agencies, such as TOKI. This study provides a background using the relevant literature and existing sustainability assessment strategies in the context of affordable housing. The four case study projects in this study are then reviewed using these initial indicators to evaluate their performance as both affordable and sustainable housing. The outcomes of case study evaluation, as well as a summary of the assessment framework, including the suggested additions and updates to the framework itself, are then discussed in detail. The article concludes with a summary of outcomes, their implications for practice, as well as the identification of future research opportunities.

Background

Affordable housing has been a critical issue over the last several decades, especially where large and rapidly growing urban areas around the world have seen severe shortages in adequate and suitable housing (Özdemir Sari & Aksoy Khurami, 2018; Gan, et al., 2017; Muazu & Oktay 2011; Salama & Alshuwaikhat, 2006). Although a wide range of definitions have been suggested for affordable housing, the term generally refers to the provision of living accommodations for eligible households whose income is not adequate to acquire appropriate housing on the open market (Adabre & Chan, 2018; Gan, et al., 2017; Winston & Eastaway, 2008). Stone (2006, p. 151) states that "affordability expresses the challenge each household faces in balancing the cost of its actual or potential housing, on the one hand, and its non-housing expenditures, on the other, within the constraints of its income." One commonly used international definition refers to housing affordability as an assessment of expenditure on housing compared to income of the household (Gopalan & Venkataraman, 2015). In India for example, affordable housing is measured against a comparable criterion, such as income level of the family, the size of the dwelling unit, or affordability in terms of Equated Monthly Installment (EMI) quantity or ratio of house price to annual income (Gopalan & Venkataraman, 2015, p. 130). Three typical methods to examine affordability by comparing housing cost and household income are: 1) the ratio approach, using the ratio of housing cost to household income tested against a threshold level (often approximately 30%); 2) the residual income approach, looking at income remaining after

housing costs are deducted, usually tested against the poverty line; and 3) the subjective approach, using households' assessment of the incremental financial burden imposed on household income due to housing cost (Özdemir Sari & Aksoy Khurami, 2018; Pullen et al., 2010).

The goal of government affordable housing initiatives is generally to increase the availability of cost-effective housing for low-income groups (De Azevedo, Silva & Silva, 2010). Numerous government initiatives have been deployed for exactly this purpose around the world. However, studies disagree as to whether the affordability of housing has actually improved in the years following the implementation of these various programs (Been, Ellen & O'Regan, 2019; Fuhry & Wells, 2013; Isalou, Litman & Shahmoradi, 2014). Been, Ellen & O'Regan (2019, p. 25) argue theoretically and empirically that adding additional housing units does moderate price increases, and thereby encourages more affordable housing for low- and mid-income families. Other studies have concluded that economic viability cannot be considered alone in attempting to improve affordability (Mulliner, Smallbone & Maliene, 2013). For example, offering cost-controlled housing in new developments that do not consider location, access to retail, healthcare, and transportation can create situations where any cost savings in rent or mortgage payments are more than off-set by other increases in daily expenditures (Gan et al., 2017). Hamidi, Ewing, and Renne (2016) contend that the U.S. Department of Housing and Urban Development (HUD) rental assistance properties are affordable from the standpoint of direct housing cost, but do not have limitations on transportation costs. Therefore, in highly sprawling urban areas, transportation cost can easily exceed the 15% HUD ceiling, suggesting that location and hence transportation costs should be considered in developing new affordable housing.

Recent studies have concluded that a multidisciplinary approach to housing that is both affordable and sustainable presents a more comprehensive and inclusive route for attaining truly affordable housing (Gan, et al., 2017; Isalou, Litman & Shahmoradi, 2014; MacKillop, 2013; Salama & Alshuwaikhat, 2006). It has also been argued that using an integrated and comprehensive approach to affordable and sustainable housing development has the added advantage of reducing costs in other areas, such as energy bills, transportation, healthcare, work opportunities, life-cycle and maintenance expenditures, and so forth (Isalou, Litman & Shahmoradi, 2014; MacKillop, 2013).

Sustainable Housing

As the idea of sustainable development gained prominence in the 1970s and 1980s, it was defined in the most general terms as "development that meets the needs of today without compromising the needs of future generations" (Gan et al., 2017; U.N. Habitat, 2012; WCED, 1987). The U.S. National Environmental Policy Act of 1969 also committed the United States to sustainability; establishing a national policy to develop and maintain conditions within which humans and nature can harmoniously and productively co-exist, thereby meeting our social, economic and other obligations to present and future

generations. Muazu & Oktay (2011, p. 109) suggest that the notion of sustainability has developed over the intervening years into a more holistic concept, linking goals such as “maintaining ecological integrity, meeting human needs for food, shelter and health and attaining social self-sufficiency and inter-generational equity.” In simple terms, this vision of sustainability and sustainable development requires integrated goals in the areas of environmental, social and economic performance (Pullen et al., 2010).

A fundamental social condition, such as housing, helps to determine the quality of life and welfare of people and places. The UN Habitat program (U.N. Habitat, 2012, p. 3) states that “where homes are located, how well designed and built, and how well they are [woven] into the environmental, social, cultural and economic fabric of communities are factors that, in a very real way, influence the daily lives of people, their health, security and wellbeing, and which, given the long life of dwellings as physical structures, affect both the present and future generations.” Singh & Pandey (2012, p. 6) promote the idea that “sustainable housing has the potential to produce good quality housing at a price that is affordable both in the short and long term.” The need for using sustainability standards for determining location and construction methods is paradoxically strongest in the affordable housing sector (Pullen et al., 2010, p. 48). This is due to the fact that increasing environmental standards can provide long-term economic benefits such as lowering transportation, maintenance and energy costs for the most economically vulnerable households (Wallbaum et al., 2012; Winston & Eastaway, 2008). Ecologically sustainable design has also been increasingly integrated into affordable housing due to the use of various financing tools such as the Low-Income Tax Credit in the U.S. Tax code (Fuhry & Wells, 2013).

The idea of combining sustainability and affordability within the same set of assessment parameters requires equitable, comparable and comprehensive performance levels in environmental, social and economic terms (Gan et al., 2017, p. 428). Mulliner et al. (2013, p. 270) state that sustainability and affordability are now commonly discussed mutually and interdependently. For example, incentives commonly exist to provide a percentage of affordable housing within sustainable communities, but also, to deliver minimum levels of sustainability within new affordable housing developments. Economic viability should not be the only consideration in assessing and improving housing affordability (Isalou et al., 2014; Mulliner et al., 2013). Instead, consideration of issues such as transportation density and routes, neighborhood environment, access to nutritious food and services, nearby employment opportunities, and so forth, should be included for a more complete picture of a viable affordable housing development. Integrating sustainability goals and assessment parameters into new affordable housing developments can thus offer improved long-term economic viability, both for the operation of the housing development, and for the economic and social sustainability of the residents.

Assessment Strategies for Sustainable and Affordable Housing

One of the earliest comprehensive and holistic assessment frameworks for examining sustainable and affordable housing was completed for the Australian Housing and Urban Research Institute using a triple bottom line (TBL) strategy (Pullen et al., 2010, p. 51). For this framework, Blair et al. (2004) developed a triple bottom line strategy with seven themes that showed either a direct or indirect relationship to the social, economic or environmental general categories of sustainability and affordability. Within each of the seven themes, the authors provided a total of 37 weighted indicators to develop an assessment framework. The seven themes were; housing affordability, neighborhood and community, transportation, environment and biodiversity, energy, other environmental resources, and water / wastewater /storm water (Ibid, 2004, p. 36). Within each theme, such as affordability, the authors then provided measurable indicators such as median house prices and housing cost as a percentage of income.

In the years following the Australian study, researchers have suggested pursuing similar assessment categories, but with a broader and more transdisciplinary approach (Ibem & Azuh, 2011; Salama & Alshuwaikhat, 2006). After recognizing some of the limitations of the TBL strategy used in the Blair et al. (2004) study, Pullen et al. (2010, p. 54) pursued a systems thinking approach, recognizing that the component parts of any complex system, such as sustainability, can be best understood through the interconnected relationships with other factors and with other related systems, rather than in isolation. The Pullen et al. (2010) study developed nine general assessment categories, with 29 indicators. The categories included efficiency in water and energy, construction materials and methods, financial procurement, affordability of rent or purchase, dwelling size, appropriate density, adaptability, social acceptability, and desirability. In addition to a more holistic systems thinking approach and mixture of indicator measurements, the authors also added several useful factors to the assessment strategy that are of interest in this study, such as a consideration of construction materials and methods, universal design principles as a form of adaptability, social acceptance to the surrounding communities, and the idea of measuring desirability in some form. Over the last decade, studies have also suggested enhancing assessment frameworks by integrating both qualitative and quantitative strategies for each indicator (Adabre & Chan, 2018), by utilizing quantifiable success factors (Oyebanji et al., 2017), or by integrating well-tested sustainability rating tools developed by organizations such as LEED or BREEAM-Community (Charoenkit & Kumar, 2014).

Many of the strategies developed for assessing sustainable affordable housing in the last decade have organized themselves following the same general structure proposed by Blair et al. (2004), with measurable indicators of success assembled into categories of social, economic and environmental factors. The indicators utilized in various assessment studies, as expected, vary according to the specific requirements of the cases under review, such as; location, governmental structure, business environment, geographic and ecological condition, social and cultural environment, and so forth.

The Mass Housing Development Administration (TOKI): Program and Goals

The concept of housing as a human right is enshrined in the Universal Declaration of Human Rights (Assembly, U. G., 1948). This right is also included in Article 56 of The Republic of Turkey Constitution: "Everybody has the right to live in a healthy and balanced environment" and in Article 57 as "Our State shall take measures to meet the housing need within the framework of a plan to observe the characteristics and environmental condition of the cities" (TOKI, 2019).

According to Turkish Statistical Institute's Income and Living Conditions Survey conducted in 2018 the median annual household disposable income in Turkey was determined to be 24,199 Turkish liras (about \$4,576) in 2017 (Turkish Statistical Institute Press Release, 2019). The relative poverty rate for Turkey was also determined as 13.9%. The people having incomes below a specified line compared to the general population is defined to be the poor in a relative meaning. As of January 2019, the poverty threshold for a family of four was 6,543 Turkish Liras (\$1,232) as announced by the Confederation of Turkish Labor Union (Turk-Is). The poverty threshold depicts the amount of expenditures necessary for a family of four to purchase healthy food, while also including sufficient spending for clothing, housing (rent, electricity, water and fuel), transportation, education, health and related outlays (Hurriyet Daily News, 2019). Established in Turkey in 1984, the Mass Housing Development Administration (TOKI) aims to provide housing projects for people who do not have sufficient income to afford a house under the current market conditions (TOKI, 2013). In addition, TOKI is involved in the renovation of squatter areas; provision of new housing stocks in cooperation with municipalities; production of luxury housing for the purpose of creating blended social housing projects, production of land with infrastructure; provision of credit support to individuals, cooperatives, and municipalities; provision of mortgage loans to beneficiaries of projects; application of disaster housing, agriculture village projects and migrant dwellings; restoration of historically and/or culturally important buildings; as well as the organization and application of international projects and new partnerships with private investors (Devrim, 2016).

According to TOKI, 85% of the governmental mass housing investments were designed and built using accepted social housing concepts; but Turan (2012) states that only 25% of them actually provide social housing conditions. According to Devrim (2016), TOKI over the years has turned into a profit-oriented investor for high income customers in cities instead of ensuring social, physical and economic conditions for low income people as a non-profit public foundation. He further claims that TOKI's housing projects are designed and planned in ways that lack spatial cohesion, thereby producing weak or unsuitable socio-spatial relations with surrounding urban areas. According to Bican (2019) these projects use a set of ready-made architectural plans to design apartment blocks by replicating them in a vertical order depending on the volume of demand and the limitations coming from the site. The main concern is typically securing the maximum number of apartment units with the preferred spatial layouts. Furthermore, these residential areas lack local characteristics and they are designed in high density using

the same typology of housing style triggering the low profiled, uniform design across Turkish cities and neighborhoods (Devrim, 2012). In most projects, regional features such as urban form, topography, climate, cultural or regional differences are ignored, disregarding both environmental and cultural sustainability. Turkey, as a developing country, requires a substantial amount of housing stock. According to TOKI's vision, it is anticipated that approximately 7.5 million houses will be constructed from 2012-2023 in response to the expected population increase and urbanization in Turkey (TOKI, 2019). TOKI, as the leading public foundation, has a significant role in the affordable housing sector. However, in most of these affordable housing projects, sustainability has not been considered as a central issue of planning and architectural practice. While improving the quality and speed of building affordable housing projects, it is essential to also integrate sustainability and minimize the tension between housing demand and profitability (Bican, 2019). Sustainability is an inevitable expectation, when the environmental, social, cultural and economic benefits are concerned. A principal goal of this study is thus to help reintegrate sustainable goals and assessment strategies into future TOKI project development projects.

Methodology

This study incorporates a review of existing literature on affordable sustainable housing in order to outline previous assessment frameworks in city planning and urban design literature. It then examines four housing projects, developed by the Mass Housing Development Administration (TOKI), in two prominent cities in Turkey, Bursa and Amasya. These project reviews include on-site contextual observations, literature review on the current status of affordable housing in Turkey, archival search of documents on the selected TOKI projects provided by the Republic of Turkey Prime Ministry and the Mass Housing Development Administration, and eight face-to-face open-ended interviews conducted with the TOKI management of each of the four case housing projects. This study is intended to be an initial step in helping to develop sustainability guidelines and assessment strategies for use in designing future housing developments as well as improving current projects. This investigation also serves as a baseline for future research on these and other TOKI projects.

Overview of TOKI Projects in Bursa and Amasya

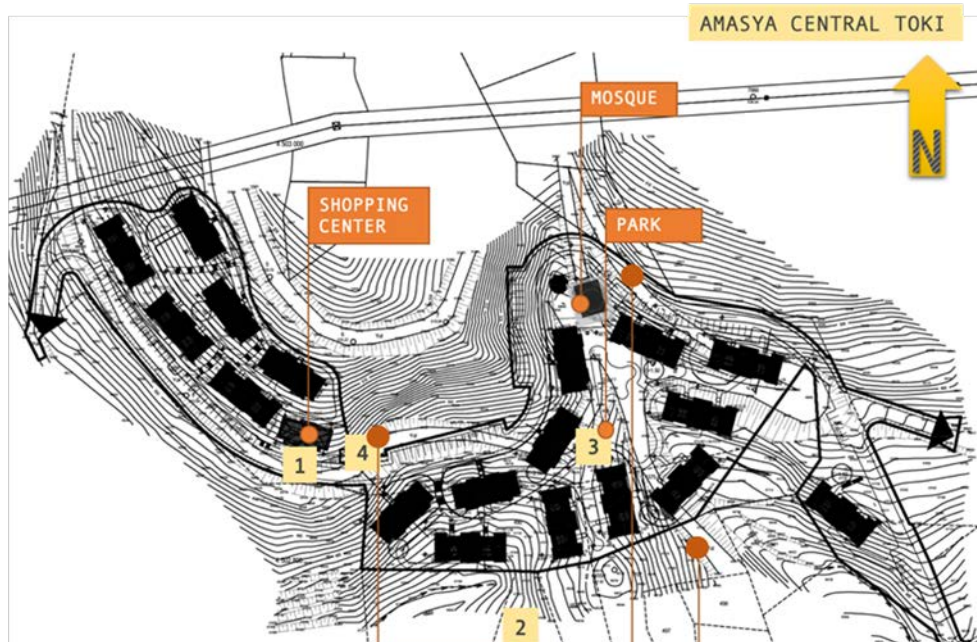
TOKI has developed numerous housing projects across Turkey over the years. This study examines two public housing projects located in Amasya and another two located in Bursa, which have been specifically selected as cases to appraise the strengths and challenges associated with sustainability in the context of affordable housing. Amasya Province, located in the Black Sea Region, next to the Yesilirmak River Valley, has a population of 329,888 (as of 2017) and is known for its ecological, historical, and cultural values. Amasya is in the group of cities which comprise the lowest 20% of Turkey in terms



Figure 1: Map view of selected housing project areas and downtown, Amasya (Map Source: Google Earth Pro, 2018; Photo source: July, 2019 by authors)

of population growth. However, it is in the highest 20% of Turkey in terms of population density because its location has limited land area in between the surrounding rugged mountains (Ocakci, 1998). The City of Amasya provides examples of traditional urbanism and architecture, particularly from the Ottoman period, even though the city

is challenged with modern developments that tend to ignore existing qualities of site, climate, urban scale, architectural character, history and cultural appropriateness.



2b: Amasya Central TOKI site plan (Source: Republic of Turkey Prime Ministry, Housing Development Administration-TOKI)

Figure 2: Site plans of two TOKI housing projects located in Amasya.



2a: Amasya Ziyaret TOKI site plan (Source: Google Earth Pro, 2018)

The two housing projects from the City of Amasya include Amasya Central TOKI and Ziyaret TOKI. The recent development of Amasya Central TOKI (see Figures 1, 2, 5 and 6) includes 18 seven-story buildings with a total of 284 dwelling units, with two housing units per floor. 178 of these units are considered as low-income housing. Located outside of the city center this social housing project is remote to the city center and other amenities available within the area. The land value in the area ranges from 10.00 Turkish Liras (\$1.79 USD) to 40.00 Turkish Liras (\$7.17 USD) per square meter. Similar to Amasya Central TOKI, another social housing project was recently completed on the opposite outer edge of the city within the boundaries of Ziyaret Township, named Ziyaret TOKI (see Figures 1, 2, 5 and 6). This development has a total of 12 six-story buildings with 288 dwelling units with a total of 176 of them considered to be dwellings for low-income residents. The land value in the area ranges from 20 Turkish Liras (\$3.59 USD) to 40 Turkish Liras (\$7.17 USD) per square meter.

The City of Bursa, located in the northwestern Marmara Region of Turkey, is one of the most important cities in the country with its geographical, cultural and historical background as the first capital of the Ottoman Empire. Today it is the fourth most-developed city in Turkey with a population of 2,936,803 (as of 2017), which is expected to reach 3,231,286 by 2023. After the 1980s, due to the impact of a liberal economy in Turkey and the practice of spatial production due to the rapid population growth in the area, urban regeneration projects have occurred in various regions of the city, such as a well-known Doganbey area development (Eren & Tokmeci, 2012). This area is very close to the historical commercial center of the city. In 2006 a partnership between the Bursa Osmangazi Municipality and the Mass Housing Development Administration (TOKI) resulted in the Bursa Osmangazi Doganbey Urban Renovation Project, which enabled the building of 2500 luxury houses and 50,000 square meters of open space on the 282,000 square meter area of the Doganbey community. Different from the original intentions, however, the Doganbey TOKI housing

project, located in the Tayakadin neighborhood, resulted in 17, 23-story buildings including 3,200 dwelling units (see Figure 3). The residential land value in the area ranges from 75 Turkish Liras (\$13.44 USD) to 2,500 Turkish Liras (\$449 USD) per square meter. The Osmangazi Yunuseli TOKI project, located in the Hamitler neighborhood within the Osmangazi area of Bursa is farther outside of the city center, and includes 19 nine-story buildings with 912 dwelling units (see Figures 3, 4, 5 and 6). The land value in this area is estimated to range from 75 Turkish Liras (\$13.44 USD) to 163 Turkish Liras (\$29.22 USD) per square meter.

Findings and Discussion

Overview

Many factors are involved in helping to shape a more sustainable built environment. These factors can be defined and assessed based on interrelated measurable indicators that often fall into general categories such as economic/affordability, society, and nature/environmental. Current theory does not rely on any single factor to achieve a sustainable outcome, but on co-determinant and interconnected factors at many scales to create successful urban places. This common sense, comprehensive, and holistic approach should be utilized for developing goals and assessment strategies for affordable sustainable housing projects. Within this study of four TOKI housing projects, the following findings are presented within general categories of economic/affordability, society, and environmental/nature indicators, drawing out specific challenges or strengths within each category, and including details as to which of the four TOKI cases best illustrates that finding. In the conclusion section, the sustainability and affordability indicators are summarized (see Figure 6), and suggestions are made for improving assessment strategies in the future,

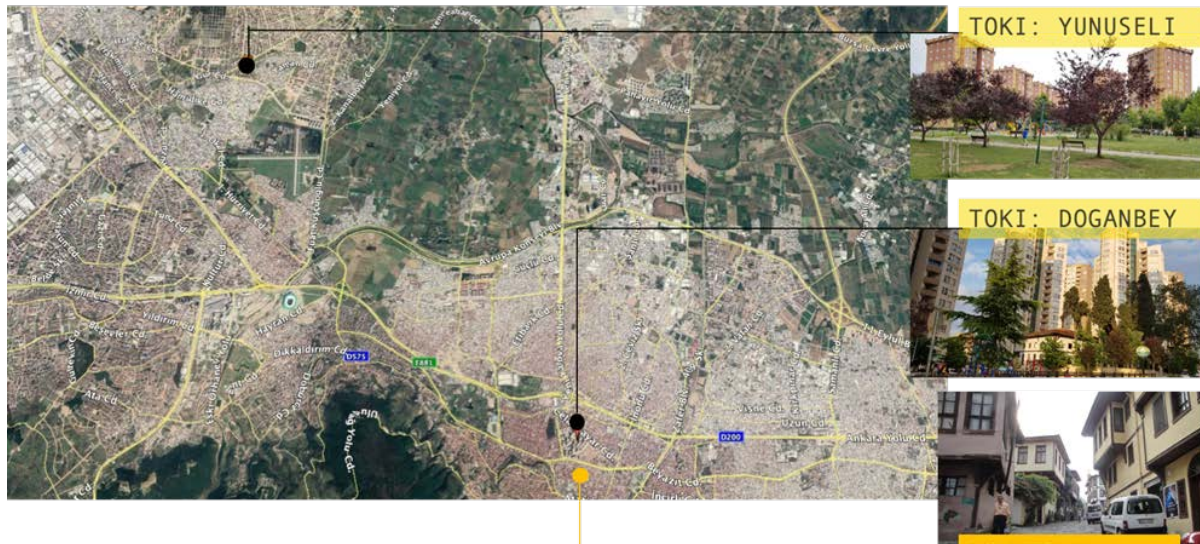


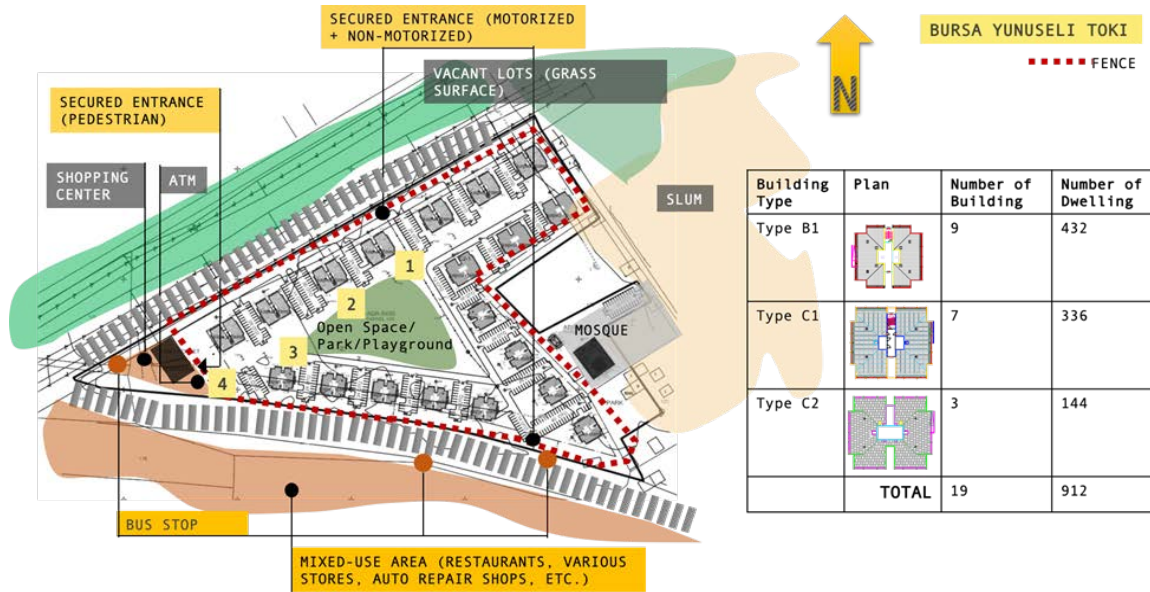
Figure 3: Map view of selected housing project areas and downtown, Bursa (Map Source: Google Earth Pro, 2018; Photo source: July, 2019 by authors)

such as including universal access, social acceptability, maintaining a holistic viewpoint, and so forth.

Economic Indicators for Assessing Affordable Sustainable Housing

Özdemir Sarı and Aksoy Khurami (2018, p. 17) note that affordability in Turkish housing policy has been a significant concern since the early 2000s. Furthermore, the authors state that affordability is of particular concern in socio-economically developed parts of the country such as Bursa, since increased levels of economic development are usually coincident with housing shortages, at least for in the short-term. Part of the concern with examining and measuring affordability in Turkey has been in the “dynamics of the housing system at hand, which differs from the developed countries, particularly in ways of access to homeownership and the operation of the private rented sector” (2018, p. 18). Currently, Turkish housing policies support a home ownership approach based largely on the ability of a household to afford the purchase price or loan requirements, yet Özdemir Sarı and Aksoy Khurami (2018, p. 18) contend that for low-income households the long-term costs of maintenance, utilities, and other monthly expenses are considerable hurdles that are often not included in affordability assessment. They suggest a more holistic and qualitative approach to both developing, designing, and assessing affordable housing. Open-ended interviews with the Doganbey Management team revealed that one issue of immediate concern is an increasing annual maintenance cost factor for the TOKI housing projects. The annual maintenance cost for these housing developments is based on material, labor, required changes, and fluctuating or additional demands. Therefore, purchasing a home is almost certainly followed by additional spending after moving in, and presents another significant burden for low and middle-income households. For TOKI, focusing on long-term sustainability goals and measurable indicators may be better suited for low and middle-income households than short-term strategies that require higher lifetime maintenance and operating costs, such as power, elevators, streetlights, maintenance of open areas, and water/wastewater/stormwater. For instance,

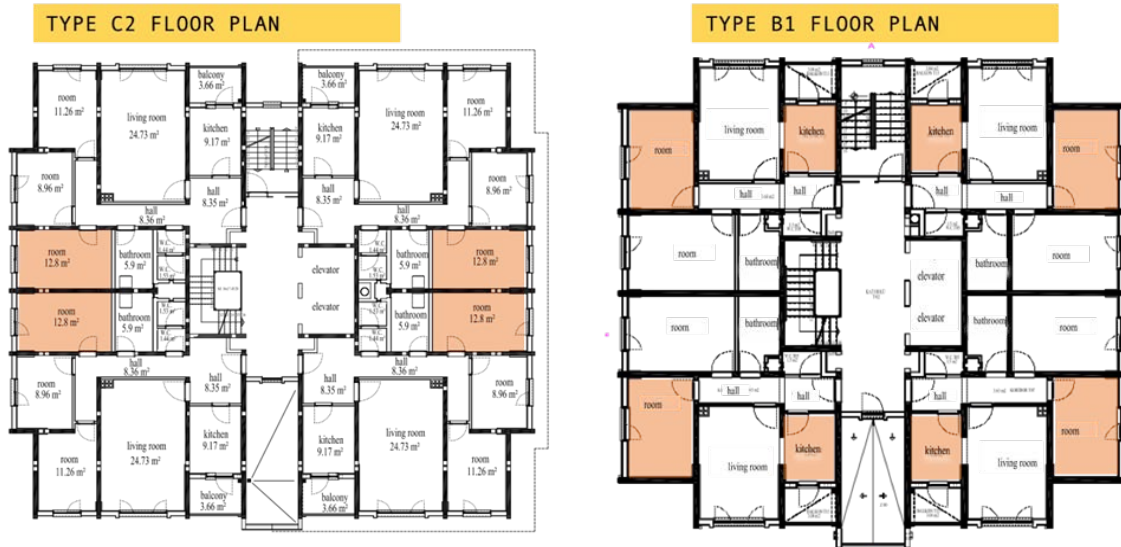
interviews with the management of Bursa Yunuseli TOKI revealed that in 2018 after heavy rains, the management team spent 8,000 Turkish Liras (\$1,398 USD) for maintenance and repairs in addition to 5,000 Turkish Liras (\$874 USD) that had already been used from January until the end of July 2019. When homeowners cannot afford ongoing operating or maintenance costs, a common result is postponing or totally disregarding the first stage repair or maintenance requirements (Özdemir Sarı & Aksoy Khurami, 2018, p. 18). This in turn can have a deleterious effect on the entire building. One significant factor to consider in assessing both economic and social issues in affordable sustainable housing in Turkey is the cost and availability of transportation for residents. Although a further discussion of access and transportation also occurs under social and environmental findings, there is a significant and immediate economic impact due to transport choices and availability. The Osmangazi Yunuseli has access to a frequent bus and dolmuş service through weekdays (every 10-12mins) and weekends (every 10-20 minutes) but has a limited number of bus stops around the neighborhood. Amasya Central, and Ziyaret TOKI case projects also have some access to local bus or dolmuş services, but there are concerns related to schedule, stop density and future availability of the taxi or dolmuş. The Doganbey TOKI site has both bus and light rail available in close proximity and it is at a relative proximity to downtown amenities. However, all four projects rely to some degree on personal automobile use as a primary form of transportation by providing parking spaces and easy street access. Both Amasya TOKI projects have reasonable time/distances (5-15 minutes) to downtown amenities by private vehicle, but that can be a difficult equivalent in walking distance; even assuming that there are continuous sidewalks along the necessary routes, or that the routes are walkable at all. The obvious concern with assuming that TOKI project households can, or will, use automobiles for necessary transportation is that private auto ownership in Turkey was still relatively low at 149/1000 in 2016, compared to other countries in Europe and Asia, such as 625/1000 in Italy or 615/1000 in Japan (Demiroğlu & Yüncüler, 2016). Even though car



4a: Bursa Osmangazi Yunuseli TOKI site plan (left) and types of buildings developed (right) (Source: Republic of Turkey Prime Ministry, Housing Development Administration-TOKI)

ownership has been increasing in Turkey in recent years, simply owning a car does not account for costs in fuel, maintenance, insurance, loan interest, and so forth - all of which are significant burdens on low and middle-class residents.

Social Indicators for Assessing Affordable Sustainable Housing



4b: Bursa TOKI Yunuseli (Osmangazi) floor plans (Source: Republic of Turkey Prime Ministry, Housing Development Administration-TOKI)

Figure 4: Bursa Osmangazi TOKI Yunuseli Housing Project



Figure 5: Images of four TOKI housing project areas located in Amasya and Bursa (Photo source: July, 2019 by authors)

Successful urban design projects usually strive to provide accessible, flexible, and safe places for all users. Residential environments should be designed in consideration of each criterion of universal design in order to carefully and consistently provide safe and comfortable places for all demographics and physical abilities. Although livability, sustainability, social integration, planned urbanity, and development of design standards have been addressed in the national development plans as policies, these intentions were not fully transformed into practice in the building of residential environments. For example, Bican (2019) reveals that the principal of land choice in most TOKI projects falls short of maintaining the perception of social justice and equity, as it reserves valuable and centrally located land for high-income groups, while forcing those on a low-income to move out. Instead the low-income groups are provided with the option of living in the periphery with inevitable social exclusion caused by the classification of housing districts according to income levels and stacked into apartment blocks, as seen in the Bursa Osmangazi Yunuseli TOKI, Amasya Central, and Ziyaret TOKI housing projects. The use of standardized typological housing units, the focus on profitability, as well as the limited time considered for site planning by TOKI, lead to disregard for major context-dependent topographical, geographical, ergonomic, social, and cultural factors in many cases (Bican, 2019). This approach repeatedly resulted in major physical and functional shortcomings, notably, dull context-free residential settlements lacking in opportunities for local and innovative solutions.

Various levels of access to common urban amenities were observed for the TOKI projects in Bursa and Amasya (see Figure 6). For instance, Bursa Doganbey TOKI has easy access to numerous stores for essentials as well as leisure

activities because of its proximity to downtown. In addition, there are two modes of transportation, with both light rail and bus stops within walking distance of the TOKI housing development. Bursa Osmangazi Yunuseli TOKI, however, has a major issue that came to light during interviews with the management group. The housing project is quite distant from downtown and has limited minibus stops near the site. This distance to downtown creates a burden for residents who must travel most weekdays for work or school. As noted previously, the use of private automobiles for required access is not necessarily an option for low to middle-income groups already struggling to cover normal monthly expenses. Amasya Central, and Ziyaret TOKI case projects also have some access to local bus or dolmuş services, but face limitations due to schedule, stop density and future availability.

Transportation, often a primary focus for urban-centered research, should be evaluated within various scales and dynamics. For example, determining appropriate distances from home to various locations for obligatory and /or leisure purposes, may not in and of itself help to reduce residents' monthly expenditures. Several questions need to be answered before suggesting locations for affordable housing projects. First, evaluating factors should include available modes of transportation, frequency, closeness to transportation nodes, available routes, cost of a ticket, and safety and security. If a location is not selected based on those criteria, low and middle-income families could end up with a significant financial burden. Likewise, long-distance travel with extended duration removes valuable time from the commuters' workday and often increases stress levels. Therefore, the chosen location may not be psychologically and financially reasonable for those who already struggle with time and budget. Osmangazi

Sustainability and Affordability Indicators		Case 1: Osmangazi Yunuseli TOKI, Bursa	Case 2: Doganbey TOKI, Bursa	Case 3: Amasya Central TOKI, Amasya	Case 4: Ziyaret TOKI, Amasya
NATURE (Nearby or on Site)	<i>Open space/parks/landscapes/bike paths Nearby</i>	3 nearby neighborhood parks within 0.5 miles range	9 nearby neighborhood parks within 0.5 miles range	6 nearby neighborhood parks within 0.5 miles range	No neighborhood parks within 0.5 miles range
	<i>Biodiversity</i>	Limited tree and plant types	Limited tree and plant types	Limited tree and plant types	Limited tree and plant types
	<i>Open Space Availability & Condition on the Site</i>	Access to green space (Only for residents); no bike path available	No direct access to green space (One for residents only with pass required) ; no bike path available	Semi-public green space with limited access); no bike path available	Semi-public green space with limited access); no bike path available
	<i>Energy Conservation</i>	No Energy/Water/Waste Efficiency systems	No Energy/Water/Waste Efficiency systems	No Energy/Water/Waste Efficiency systems	No Energy/Water/Waste Efficiency systems
	<i>Solar Orientation</i>	Buildings not oriented based on the sun path	Buildings not oriented based on the sun path	Buildings not oriented based on the sun path	Buildings not oriented based on the sun path

Figure 6a: Comparative analysis of four TOKI housing areas using sustainability and affordability indicators: NATURE (Nearby or on Site).

Sustainability and Affordability Indicators		Case 1: Osmangazi Yunuseli TOKI, Bursa	Case 2: Doganbey TOKI, Bursa	Case 3: Amasya Central TOKI, Amasya	Case 4: Ziyaret TOKI, Amasya
AFFORDABILITY	<i>Housing Cost</i>	<u>Low-Income:</u> 47,956.46 TL for 84.04 m ² (336 dwellings) <u>Middle-Income:</u> 109,850.43 TL for 125.12 m ² (396 dwellings) <u>Institutional Group:</u> 109,850.43 TL for 100.91 m ² (180 dwellings) (by TOKI)	Based on current real estate market (2019): around 300,000+ for 156 m ² (3+1)	<u>Low-Income:</u> 46,636.49 TL for 82.32 m ² (176 dwellings) <u>Middle-Income:</u> 81,496.03 TL for 132.89 m ² (108 dwellings) (by TOKI) Based on current real estate market (2019): around 145,000+ for 137m ² (3+1)	Based on current real estate market (2019): around 130,000+ for 100-105 m ² (2+1)
	<i>Land Value - Turkish Liras per meter²</i>	75.00 to 163.00	75.00 to 2510.00	10.00 to 40.00	20.00 to 40.00

Figure 6b: Comparative analysis of four TOKI housing areas using sustainability and affordability indicators: AFFORDABILITY

Yunuseli TOKI and Amasya Ziyaret TOKI seem to be an example for that issue.

Pullen et al., (2010, p. 56) contend that one category for designing and assessing affordable sustainable housing should be social acceptability, meaning “the acceptability of a development by the surrounding community.” Although defining and measuring this category of indicators is somewhat complex, the overall acceptability level might be evaluated through a variety of indicators such as complaints filed with local governments or with the TOKI housing authority, or by the acceptance or

rejection of building permits from local authorities. Social acceptability could also be part of a post-occupancy effort by TOKI to enlist the opinions of both residents and neighborhoods adjacent to the property. Surveys or interviews conducted at several points of time after occupation of the development would aid in both the design and location choices for future projects. Social acceptability may also be affected by the design and layout of new housing developments compared to pre-existing buildings and streetscapes in the community. For example, constructing new 23-story residential buildings using a modern western style of design and materials on a large

Sustainability and Affordability Indicators		Case 1: Osmangazi Yunuseli TOKI, Bursa	Case 2: Doganbey TOKI, Bursa	Case 3: Amasya Central TOKI, Amasya	Case 4: Ziyaret TOKI, Amasya
LAND USES (Nearby or on Site)	<i>Commercial and Industrial On site/Nearby</i>	Plenty options - >15 groceries/retail etc. available within 0.5 miles range	Plenty options, >15 groceries/retail within 0.5 miles range	6 options or less, groceries/retail within 0.5 miles range	None within 0.5 miles range
	<i>Community Services & Facilities On Site/Nearby</i>	- 1 middle school within 0.5 miles range - Pharmacy/Post Office/Banks available within 0.5 miles range	- Only private (dershane) after school facilities available within 0.5 miles range - Pharmacy/Post Office/Banks available within 0.5 miles range	- Three primary and middle schools within 0.5 miles range - No Pharmacy/Post Office/Banks available within 0.5 miles range	- 1 middle school within 0.5 miles range - 2 post offices within 0.5 miles range
	<i>Residential Type on Site</i>	Multi-story apartments complex - detached	Multi-story apartments complex - detached	Multi-story apartments complex - detached	Multi-story apartments complex - detached
	<i>Recreational/ Leisure (restaurants, coffee, bars, entertainment etc.)</i>	Varying options within 0.5 miles range	Plenty options, >15 within 0.5 miles range	6 options or less, groceries/retail within 0.5 miles range	None within 0.5 miles range
	<i>Mixed-Use On Site</i>	No (only residential)	No (only residential)	No (only residential)	No (only residential)
	<i>Building Density and Dwelling Units on Site</i>	19 buildings / 912 units 9-story height	17 buildings / 3,200 units, 23-story height	18 buildings / 284 units 7-story height	12 buildings / 288 units 6-story height

Figure 6c: Comparative analysis of four TOKI housing areas using sustainability and affordability indicators: LAND USES (Nearby or on Site)

undifferentiated and isolated property within an older neighborhood of five story buildings using traditional materials and historic streetscapes may not contribute to high levels of acceptance with neighbors. During the interview process, both the Bursa Osmangazi Yunuseli and Doganbey management groups were quite emphatic in describing the issue of loss of communication and contact between residents in their housing developments. The interviewees noted that loss of communication often creates low tolerance among residents and thereby results in constant complaints and arguments. Certainly, many factors can add to a loss of communication and contact between residents or groups of residents, but large dense building layouts with little ability to see or talk with the public at street level can contribute to this isolation. Part of the solution to this concern might include creating public spaces near or within the development where residents can engage and recognize each other, if only in an incidental way. The writings and research of Jane Jacobs (1961) and William Whyte (1980) have extolled the virtue of public spaces and streetscapes to engage and connect the public and have been used as a model for successful urban gathering places for the last half-century. One measure of social sustainability is the perception of safety and security (see Figure 6). Partially due to their size and location, both TOKI building complexes in Bursa

installed fences to create a secure environment. Access to those complexes are limited to their residents and requires a key fob for entry. Management groups from each TOKI development stated that before the fences were installed, there were many criminal incidents. In addition, the Osmangazi Yunuseli management group reported having to deal with the high cost of maintaining playgrounds, lights, and other outdoor elements due to the improper use of the building complex by non-residents. Further research should review the fenced areas over several time periods to understand whether these areas have any unintended consequences, such as further isolating residents or creating zones where no one feels comfortable gathering. This study also visually reviewed the grounds of the case study developments to highlight areas that were hidden from view from the standpoint of safety and security. Both Amasya TOKI developments and the Doganbey project in Bursa did have hidden areas within the grounds, some of which were protected by fencing. The Amasya Ziyaret Project used fences primarily to protect plant and gardening areas rather than as a security/privacy measure. In addition, the housing units have fixed layouts that do not allow for remodeling or adapting the interior spatial organization and thereby ignore the demography of the households. The units for low-income households typically are between 45 and 87 square meters in the form

Sustainability and Affordability Indicators		Case 1: Osmangazi Yunuseli TOKI, Bursa	Case 2: Doganbey TOKI, Bursa	Case 3: Amasya Central TOKI, Amasya	Case 4: Ziyaret TOKI, Amasya
NETWORK / TRANSPORTATION / INFRASTRUCTURE	<i>Vehicular Access (car, taxi)</i>	Yes (on site and adjacent streets)	Yes (on site and adjacent streets)	Yes (on site and adjacent streets)	Yes (on site and adjacent streets)
	<i>Public Transit (bus, minibus, light rail)</i>	Bus and minibus (dolmus) service, limited stops nearby	Light rail and bus stops within walking distance	Access to minibus - dolmus. limited Schedule and stop density	Access to minibus - dolmus. Limited Schedule and stop density
	<i>Walkability</i>	Score: 53 out of 100 (somewhat walkable - some errands can be accomplished on foot)	Score: 97 out of 100 (high walkability - daily errands do not require a car)	Score: 37 out of 100 (car dependent - most errands require car)	Score: 25 out of 100 (car dependent - most errands require car)
	<i>Universal Design/ Accessibility</i>	Inadequate - barriers with no clear alternate path (e.g. stairs, curbs or steep grades)	Inadequate - barriers with no clear alternate path (e.g. stairs, curbs or steep grades)	Inadequate - barriers with no clear alternate path (e.g. stairs, curbs or steep grades)	Inadequate - barriers with no clear alternate path (e.g. stairs, curbs or steep grades)
	<i>On-site parking</i>	Only for residents - pass is required	Only for residents - pass is required	Semi-public access	Semi-public access

Figure 6d: Comparative analysis of four TOKI housing areas using sustainability and affordability indicators: NETWORK / TRANSPORTATION / INFRASTRUCTURE

of apartments with either 2 or 3 rooms on average (TOKI, 2019). These units also fall short of providing flexibility in spatial organization and design that can support the needs of people with limited mobility and abilities. These projects lack proper universal design considerations both outdoors and indoors, such as ramps with proper slopes, walking routes with even surfaces, width of circulation areas and doors, window configurations, surface materials, and fixtures.

Environmental Indicators for Assessing Affordable Sustainable Housing

Energy efficiency is one of the critical long-term factors that should be mandatory when developing or assessing the performance of any sustainable affordable housing project. However, the four TOKI housing projects reviewed here did not appear to integrate proper solar orientation or provide water/wastewater/stormwater management systems in order to optimize energy efficiency and water use. As stated previously, the buildings were not properly aligned according to the path of the sun for optimal passive solar efficiency. Designing four dwellings or more on each floor also makes it more length than the north-south axis, while the east-west axis should be within fifteen degrees of geographical east-west.

The reliance on private automobiles versus public transportation, or the minimizing of distances between TOKI housing projects and common amenities needed by project residents, should be of primary concern, both in assessing environmental factors for current developments, but also in early decision making for future TOKI project

design and location. As discussed earlier, transportation modes and availability have a very direct impact on the environment, including increasing carbon footprint, air and noise pollution, heat-island effect, and so forth. There are also significant additional ecological costs that are less visible, such as dedicating large areas of land in TOKI housing projects to impervious parking surfaces instead of green space, sports and recreation, or public gathering. Large areas of impervious surface also raise the potential for storm water management or flooding concerns. Simply taking care to locate future TOKI projects near resident amenities, such as retail, food, schools and mosques can significantly reduce transportation needs and thereby increase ecological sustainability. Where a central location or available public transportation are not options, it may be possible to integrate things like basic retail, schools, food and services directly into the lower floors of new or existing TOKI housing developments, allowing for a mutually beneficial mixed-use design.

Conclusion

During the last quarter of the twentieth century, sustainable development and livable communities have been the focus of the planning and design fields with an overemphasis on ecological consequences of the relationship between human settlements and the environment. However, this focus created inevitable conflicts among its social, economic, and environmental principles due to the lack of an integrated approach in the

Sustainability and Affordability Indicators		Case 1: Osmangazi Yunuseli TOKI, Bursa	Case 2: Doganbey TOKI, Bursa	Case 3: Amasya Central TOKI, Amasya	Case 4: Ziyaret TOKI, Amasya
SOCIETY	<i>Safety</i>	Perimeter fence with limited access; Minimal hidden spaces on property	Perimeter fence with limited access; Hidden spaces do exist on property	Hidden spaces do exist on property	Some hidden spaces do exist on property
	<i>Privacy / Security</i>	Semi-private: Residents have pass to enter (protected by partial transparent fence)	Semi-private: Residents have pass to enter (protected by partial transparent fence)	Semi-public access	Semi-public access
	<i>Local Identity and Character</i>	No clear local characteristics - very similar to other TOKI projects in other cities	No clear local characteristics - very similar to other TOKI projects in other cities	No clear local characteristics - very similar to other TOKI projects in other cities	No clear local characteristics - very similar to other TOKI projects in other cities
	<i>Neighborhood</i>	Hamitler	Tayakadin	Seyhcu	Ziyaret Township

Figure 6e: Comparative analysis of four TOKI housing areas using sustainability and affordability indicators: SOCIETY

social and spatial transformation of cities and their neighborhoods.

In Turkey, TOKI is the leading public foundation in housing and has a significant role in the affordable housing sector in the country. However, in most cases, sustainability and universal design have not been considered as central issues in the planning and design of the TOKI housing projects. While trying to improve the quality and speed of building affordable housing, it is essential to also integrate sustainability and minimize the tension between housing demand and profitability (Bican, 2019). Sustainability is an inevitable expectation, when the environmental, social, cultural and economic benefits are concerned. This study aims to provide a framework that reintegrates sustainable goals and assessment strategies into future TOKI project development projects.

After carefully reviewing the literature and examining the four examples presented within this study, one fundamental asset appears to be crucial: achieving a balance between quality and quantity for affordable sustainable housing. Although there is high demand for affordable housing in the short term, after experiencing significant maintenance, repair, and replacement costs, there are increasing expenditures per dwelling every year, thus triggering more demand on sustainability. Developing and implementing sustainability goals for affordable housing projects can lower the expenses of maintenance, repair, and replacement, as well as diminishing the human-footprint. Advancing sustainability can also significantly increase residents' mental and physical health. As a major player in the housing sector, TOKI has the potential to improve the quality of the built environment by increasing standards and setting exemplary sustainability performances for the rest of the housing developers and construction sector in Turkey.

After reviewing the findings from the four TOKI projects, the following factors and associated indicators were of significant importance, and should be considered in addition to the typical assessment strategies employed in previous studies referenced here.

Transportation: Use a more comprehensive set of indicators to assess transportation costs in economic, social and environmental factors. For future TOKI projects, also try to balance the real cost in resident private automobile ownership and lack of public transit or walkability against land cost per square meter. That may mean, instead selecting sites that are less expensive in initial land cost, choose sites with more long-term value due to good access to public transport, or closer proximity to necessary amenities such as nutritious food outlets and health services.

Universal design standards: Future projects should maintain at least minimal standards of Universal Design as adopted by most developed countries and commonly required international building standards.

Social acceptability: Future TOKI housing projects should be developed with reference to adjoining neighborhoods, typical building styles, materials, spatial layouts, streetscapes and block patterns.

Context-based design and planning: Future TOKI projects should apply context-based local and innovative solutions that consider topographical, geographical, ergonomic, social and cultural factors. In this study, regional features such as urban form, topography, climate, cultural or regional differences were largely ignored, disregarding both environmental and cultural sustainability.

Energy efficiency: The future TOKI projects should integrate proper solar orientation and provide water/wastewater/stormwater management systems in order to optimize energy efficiency and water use.

A comprehensive and holistic view of affordability: Long-term sustainability goals and measurable indicators may actually be more affordable for TOKI households than short term strategies that require higher lifetime maintenance and operating costs such as energy.

In summary, it should be noted that this study is merely the beginning of a conversation, rather than a comprehensive evaluation of affordable sustainable housing projects. Future research and cooperative efforts with TOKI and its residents will be necessary to gauge the continued success of TOKI housing developments by using and refining the assessment framework presented here. The second stage of this research will benefit from randomized questionnaires with residents from all four cases as participants. Research-based practice and pre- and post- occupancy sustainability assessment of projects should become a common practice for public housing rather than an occasional methodology and activity based on sporadic preferences of agencies.

References

- Adabre, M. A., & Chan, A. P. (2018). The ends required to justify the means for sustainable affordable housing: A review on critical success criteria. *Sustainable Development*, 4, 1–14. <https://doi.org/10.1002/sd.1919>
- Assembly, U. G. (1948). Universal declaration of human rights. *UN General Assembly*, 302(2).
- Been, V., Ellen, I. G., & O'Regan, K. (2019). Supply skepticism: Housing supply and affordability. *Housing Policy Debate*, 29(1), 25-40.
- Blair, J., Prasad, D., Judd, B., Zehner, R., Soebarto, V., Hyde, R. (2004). Affordability and sustainability outcomes: a triple bottom line assessment of traditional development and master planned communities—Volume 1, AHURI Final Report No. 63, Australian Housing and Urban Research Institute Limited, Melbourne. Retrieved from <https://www.ahuri.edu.au/research/final-reports/63>
- Bican, N. B. (2019). Public mass housing practices in Turkey: The urgent need for research-based spatial decision-making. *Journal of Housing and the Built Environment*, 1-19. <https://doi.org/10.1007/s10901-019-09692-w>
- Charoenkit, S. & Kumar, S. (2014). Environmental sustainability assessment tools for low carbon and climate resilient low-income housing settlements. *Renewable and Sustainable Energy Reviews*, 38, 509-525.
- De Azevedo, N. J. D., Silva, J. J., & Silva, P. M. W. (2010). Definition of indicators for sustainable social housing: In search of a model. *International Journal for Housing Science & Its Applications*, 34(2), 79-92.
- Demiroğlu, U., & Yüncüler, Ç. (2016). Estimating light-vehicle sales in Turkey. *Central Bank Review*, 16(3), 93-108.
- Devrim, I. A. (2016). Housing policies in Turkey: Evolution of TOKI (Governmental Mass Housing Administration) as an urban design tool. *Journal of Civil Engineering and Architecture*, 10, 316-326. doi: 10.17265/1934-7359/2016.03.006
- Eren, I. O., & Tokmeci, E. O. (2012). A view on urban regeneration in Turkey with local implications: Bursa case in terms of sustainability. *WIT Transactions on Ecology and the Environment*, 162, 205-216.
- Fuhry, L., & Wells, W. (2013). Green goes mainstream in low-income housing. *Planning*, 79(9), 31-35.
- Gan, X., Zuo, J., Wu, P., Wang, J., Chang, R., & Wen, T. (2017). How affordable housing becomes more sustainable? A stakeholder study. *Journal of Cleaner Production*, 162, 427-437.
- Gopalan, K., & Venkataraman, M. (2015). Affordable housing: Policy and practice in India. *IIMB Management Review*, 27(2), 129-140.
- Habitat, U. N. (2012). Sustainable housing for sustainable cities: A policy framework for developing countries. Nairobi: Kenya. UN-Habitat.
- Hamidi, S., Ewing, R., & Renne, J. (2016). How affordable is HUD affordable housing?. *Housing Policy Debate*, 26(3), 437-455.
- Housing Development Administration. (2013). Building Turkey of the future. Ankara: Republic of Turkey Prime Ministry.
- Hurriyet Daily News. (2019, January 29). Turkish poverty threshold rises 3.5 percent in January. *Hurriyet Daily News*. Retrieved from <https://www.hurriyetdailynews.com/turkish-poverty-threshold-rises-3-5-percent-in-january-140862>
- Ibem, E. O., & Azuh, D. E. (2011). Framework for evaluating the sustainability of public housing programmes in developing countries. *Journal of Sustainable Development and Environmental Protection (JSDEP)*, 1(3), 24-39.
- Isalou, A. A., Litman, T., & Shahmoradi, B. (2014). Testing the housing and transportation affordability index in a developing world context: A sustainability comparison of central and suburban districts in Qom, Iran. *Transport Policy*, 33, 33-39.
- Jacobs, J. (1961). *The death and life of great American cities*. New York, NY: Random House.
- Jagadisan, S. & Fookes, T. (2006). Antecedents for the ekistic grid and the anthropocosmos model: A critical view of ekistic methodology. *Ekistics*, 73, 436-441.
- Council, U. G. B. (2009). LEED for neighborhood development: A prescription for green healthy communities. Retrieved from http://www.greenhomeguide.org/living/green/led_for_neighborhood_development.html
- MacKillop, F. (2013). Sustainable as a basis of affordable? Understanding the affordability 'crisis' in Australian housing. *Australian Planner*, 50(1), 2-12.

- Muazu, J., & Oktay, D. (2011). Challenges and prospects for affordable and sustainable housing: The case of Yola, Nigeria. *Open House International*, 36(3), 108.
- Mulliner, E., Smallbone, K., & Maliene, V. (2013). An assessment of sustainable housing affordability using a multiple criteria decision-making method. *Omega*, 41(2), 270-279.
- United Nations Conference on Housing and Sustainable Urban Development. (2017). The new urban agenda: Habitat III : Quito 17-20 October 2016. Habitat III Secretariat; .
- Okacqi, M. (1998). Urban identity: The case of Amasya in Turkey. *European Spatial Research and Policy*, 5(2), 81-91.
- Oktay, D. (2001). An overview of the theoretical framework of urban design: Our cities, quality of life, and sustainability. *Mimarlik, Chamber of Architects of Turkey*, 302, 45-49.
- Oktay, D. (2002). Design with the climate in housing environments: an analysis in Northern Cyprus. *Building and Environment*, 37(10), 1003-1012.
- Oktay, D., & Pontikis, K. (2008). In pursuit of humane and sustainable housing patterns on the island of Cyprus. *The International Journal of Sustainable Development & World Ecology*, 15(3), 179-188.
- Oyebanji, A. O., Liyanage, C., & Akintoye, A. (2017). Critical success factors (CSFs) for achieving sustainable social housing (SSH). *International Journal of Sustainable Built Environment*, 6(1), 216-227.
- Özdemir Sarı, Ö. B., & Aksoy Khurami, E. (2018). Housing affordability trends and challenges in the Turkish case. *Journal of Housing and the Built Environment*, 1(1) 1-20. doi:10.1007/s10901-018-9617-2.
- Pullen, S., Arman, M., Zillante, G., Zuo, J., Chileshe, N., & Wilson, L. (2010). Developing an assessment framework for affordable and sustainable housing. *Australasian Journal of Construction Economics and Building*, 10(1/2), 60.
- Salama, A. M. & Alshuwaikhat, H. (2006). A trans-disciplinary approach for a comprehensive understanding of sustainable affordable housing. *Global Built Environment Review*, 5(3), 35-50.
- Singh, V. S., & Pandey, D. N. (2012). Sustainable housing: Balancing environment with urban growth in India. *RSPCB Occasional Paper*, 6, 17.
- Stone, M. E. (2006). What is housing affordability? The case for the residual income approach. *Housing policy debate*, 17(1), 151-184.
- Tas, M., Tas, N., & Aydin, Z. B. (2014). Production of quality housing in urban transformation in areas under disaster risk: Osmangazi and Yildirim, Bursa, Turkey. *Urban Studies Research*, 2014, Article ID 616198. 1-15. <http://dx.doi.org/10.1155/2014/616198>
- TOKI. (2019). Background [Governmental]. Retrieved from <https://www.toki.gov.tr/en/background.html>
- Turan, M. E. (2012). The annual report of TOKI. Istanbul, Turkey: TOKI (Governmental Mass Housing Administration) Publishing.
- Turkish Statistical Institute. (2019). Income and Living Conditions Survey Press Release. No 30755. Retrieved from <http://www.turkstat.gov.tr/OncekiHBArama.do?jsessionid=TF2xpIgmRM9572LvITbjJ5Rf5mZmgZ34W2VvH95LKNrvxpxCnydLv!1488530914>
- United Nations Centre for Human Settlements, & United Nations Human Settlements Programme. (2006). The state of the world's cities. UNCHS (Habitat). Retrieved from https://new.unhabitat.org/sites/default/files/download-manager-files/Istanbul_Declaration_EN.pdf
- Wallbaum, H., Ostermeyer, Y., Salzer, C., & Escamilla, E. Z. (2012). Indicator based sustainability assessment tool for affordable housing construction technologies. *Ecological Indicators*, 18, 353-364.
- Winston, N. & Eastaway, M. P. (2008). Sustainable housing in the urban context: international sustainable development indicator sets and housing. *Social Indicators Research*, 87(2), 211-221.
- World Commission on Environment and Development (WCED). (1987). Our common future. Oxford, UK:Oxford University Press.
- Whyte, W. H. (1980). The social life of small urban spaces. Washington D.C.: Conservation Foundation.
- Yilmaz, E. (2016). Konut sorunu ve toplu konut üretiminde TOKI'nin ve belediyelerin rolü. Gazi

Keywords

Affordable housing, sustainability indicators, TOKI, Turkish cities

The Changing Landscapes of Ankara: A Critical Ground for Integrative Urban and Landscape Development¹

Selin Çavdar Sert¹, Funda Baş Bütüner²

¹OSTİM Technical University, Turkey

²Middle East Technical University, Turkey

Abstract

This article offers a critical reading of the changing landscapes of Ankara, exposing the still existing potential for framing integrative urban strategy-making. Ankara has undergone intense urban expansion since the 1950s, and like other cities, it is still dealing with large scale construction/destruction engendering dramatic landscape loss in various contexts and scales. Although change in the landscape is typical of urbanization, nature and landscape were largely undervalued in the implementation of urban development strategies in Ankara. Contradicting per capita green space policies, the well-structured urban landscape, including both natural and planned/designed landscapes from the Republican Period were fragmented and reduced. Valleys creating corridors for fresh air and offering a reserve for agriculture were engulfed by squatter houses, then by new housing projects; streams, defining a blue infrastructure accompanied by fertile lands were partially covered over or canalized. Furthermore, the landscape heritage of the early Republican Period, which played a key role in the modernization of societal and urban life, was also undervalued, while the urban park system has been diminished. This article identifies representative examples of fragmentation and loss of the landscape fabric, as well as the latent potential of the landscape to articulate a sustainability agenda for Ankara.

Introduction

Sustainability challenges in natural resources, infrastructure and communities have undoubtedly necessitated a shift in the conception of urbanization, design thinking and strategies. Cities, which have heretofore been seen as one of the sources of environmental problems, have now emerged as resilient grounds for coping with environmental degradation and climate change (UN, 2017; Mostafavi, 2010). By giving definition to the urgent agendas of cities, these challenges have introduced an expanded problem area that requires well-structured strategies on various topics, including education, production, urbanization, and others. However, one critical point that becomes apparent is the necessity of framing strategies which prevent "...unnecessary land-use change and the loss of productive land and fragile and important ecosystems." (UN, 2017, p. 19). This statement once again highlights the critical role of integrated land use development and landscape strategies, and points to the necessity of an integrated mind-set amongst architecture, planning and landscape architecture for a new conception of urbanization.

A new conception of urbanization comes along with a new conception of landscape. Developing and sustaining landscape fabric that operates as infrastructure has become part of the agenda in many cities worldwide. Continuity, network quality and generative nature enforce infrastructure's prominent role in integrated urban strategies. However, for a large number of cities, the topic is still dormant, or quite blurry and distant, as in the case

of Ankara. Conflicting with the remarkable increase in the amount of the per capita green space in the city over past decades, Ankara has suffered greatly and is still suffering from the fragmentation and homogenization of its landscape. Although changes in the landscape fabric might be interpreted as the inevitable outcome of the evolving relationship between human culture and nature, and also as a typical outcome of urban expansion, the case is quite drastic in Ankara. The well-structured green system generated by designed/planned landscapes and existing natural assets at the time when the city was planned as the capital of Turkish Republic have been greatly undervalued over time. The diversified landscape fabric of the city, operating on different scales, in different contexts and for different purposes, have either been lost, fragmented or shrunken. Especially after the 1960s, similar to many other cities, Ankara started to experience intense urban expansion and transformation, mainly caused by squatter housing developments, the construction of inner city expressways and the pollution of its natural resources. Yet today, the city is still witnessing large scale construction/destruction and urban transformation projects that impose a restricted frame on landscape, that is, mainly for the purpose of beautification.

This article intends to frame the dramatic loss of Ankara's landscape fabric and bring forward the necessity for an integrative landscape in the city. It dwells on three cases – undervalued heritage landscapes, deformed urban parks and razed nature – each typically representing a transformation of the characteristic former landscape of the city. Although each instance manifests through

¹ An earlier version of this article was presented by Funda Baş Bütüner at IFLA World Congress 2019 "Common Ground", Oslo.

numerous cases in Ankara, this discussion concentrates particularly on those that have defined the city over time. Atatürk Forest Farm (AFF), being a unique cultural landscape of the Republican Period, undoubtedly qualifies as an “undervalued heritage landscape”; the integrated parks system and inclusive landscape section along Atatürk Boulevard characteristically represents “deformed urban parks”; and the contiguous rural landscape of the east, filigreed with topography, streams and productive lands, equates to “razed urban nature” in Ankara. By narrating landscape loss in different contexts and on different scales, the main motivation of this paper is not only to criticize the massive destruction of landscape, but also to point out the still-existing potential for an integrative landscape fabric which might operate as infrastructure for future sustainable land-use strategies in Ankara.

Grounding Landscape through Infrastructure in Cities

“If well-planned and well-managed, urbanization can be a powerful tool for sustainable development for both developing and developed countries.”

(UN New Urban Agenda, 2017, p. iv)

The terms “well-planned” or “well-managed” might refer to an expanded field that necessitates various strategies for environmentally sustainable and resilient urban development in different domains: architecture, engineering, landscape architecture, planning, economy, sociology, etc. Landscape, particularly with the rise of Landscape Urbanism in the 1990s, has proclaimed its critical position in the field and has been propounded as a model for urban strategies. The major focus introduced by landscape urbanism has been not only on increasing the amount of green surface in cities, but also mainly on generating an infrastructural landscape that operates for improving the condition of the community and the environment, and also for mediating urban development (Meyer, 1997; Allen, 2001; Bélanger, 2012; Waldheim, 2016).

Dwelling on the infrastructural quality of landscape provides the necessary ground for a sustainable urban development agenda in today’s cities. Taking into consideration the etymology of the term, “the installations that form the basis for any operation or system”, infrastructure can mainly be understood as a system. On the other hand, the generic dictionary definition explains the term in a more limited way by grounding it on a built environment: “The basic facilities, services, and installations needed for the functioning of a community or society, such as transportation and communications systems, water and power lines, and public institutions including schools, post offices, and prisons.” However, both definitions refer to a system, and this underscores infrastructure’s prominent position in modern cities for sustaining landscape fabric, particularly when the substructures which enable and regulate the flow and exchange in the system are considered (Allen, 1999). Landscapes, whether located in urban areas (parks, gardens, cultivated areas, urban forests, or vacant lots) or urban peripheral zones (agricultural zones, forests, natural conservation areas, etc.) operate as parts of a whole – a

system – comprising various layers and deep sections of different qualities, from earth to air and from surface level to ground reserves: “It [landscape] is one of the components of a “megastructure”, namely the nature” (Jackson, 1976). Various typologies of landscape conjoin each other through earth and form a network with other natural systems (groundwater, the water basin, and geomorphological outlines). However, this network operates not only with natural systems; it also runs with engineered systems, indicating hybrid infrastructure. Currently, the homogenized and fragmented landscapes of modern cities have obscured the perception of such a system, and landscape and city are mostly considered polar opposites. The city is portrayed as a place of high density, pollution and tension, while landscape – parks, gardens and tree-lined streets and boulevards – is depicted as moderating the unhealthy impacts of the urban milieu (Corner, 2006).

In this context, the intermingled relationship between landscape and infrastructure might frame the new conception of landscape. Landscape, serving as the original dwelling of humans, can be defined as the earliest infrastructural milieu where various flows – energy, resources, people and animals – and interaction among them were operating before the development of built environment and engineered infrastructure (Whiston Spirn, 1998; Carlson, 2013). The infrastructural quality of landscape can also be highlighted by J.B. Jackson’s definition of landscape: Jackson (1984), while criticizing the restrictive perception of civil engineering and landscape architecture as two unrelated disciplines and searching for common points between them, delineated a definition which interpreted landscape as infrastructure: “a composition of man-made or man-modified spaces to serve as infrastructure or background for our collective existence” (Jackson, 1984, p. 8).

In view of this, interpreting landscape through infrastructure emphasizes certain points that elucidate the critical position of landscape for sustainable urban development. First, the network quality of infrastructure, generating a link between and interaction among diverse components, reveals certain invisible or undervalued landscapes of various qualities and on various scales. Yet this system is not self-contained: it not only affects components that are directly linked to it, but it also shapes the surrounding environment. This expansive stance might formulate the lens needed to recover lost diversity in the urban landscape fabric, and might also contribute to the development of a spatially, socially and ecologically integrated environment (Nijhuis & Jauslin, 2015).

Thus, one critical task is to discover latent landscape fragments in the city. Searching for landscapes that have changed from a system into fragments might reveal formerly existing diversity in the landscape fabric. As argued by Antrop (2005), landscape changes, triggered by natural events or human action, appear in various ways, either gradual or sudden; and urbanization is one of the main reasons behind these changes. Although each city has its own development pattern with certain differences – chronologic, geographic, cultural, morphologic, and aesthetic – landscape change has been reflected as a common concern in the history of urbanization: “Traditional landscapes with their ecological and cultural values become highly fragmented and gradually lose their

identity. Regional landscape diversity decreases and a new diversity emerges with land use designed for urbanites.” (Antrop, 2004, p. 24). Urban expansion that has not been integrated with landscape development and conservation strategies has inevitably resulted in landscape loss and transformation in various contexts and scales. Thus, understanding this change might form a basis for a new conception of landscape for framing strategies of an integrated landscape and urban development.

Grounded on this theoretical basis, the following part of the study concentrates on Ankara’s changing landscapes to search for latent components of urban landscape fabric. After briefly revisiting Ankara’s landscape, instances of changing landscape will be discussed to delineate the need for a new conception of urban landscape – infrastructural landscape – in Ankara.

Revisiting Ankara’s Landscapes over Time

Ankara is located in the habitable zone between Central Anatolia and the mountain series which demarcates Ankara plain on its north, south and east, while lowland extends openly toward the west (Akçura, 1971). Valleys and the hydrological system comprising various creeks accompanied by fertile lands form the topography of the city. These geomorphologic properties also shaped the urban form and landscape of Ankara when the city began to grow, first around the Ankara Citadel on the east, and later expanding west toward the lowland. In the last quarter of the 19th century, Ankara was made up of wooden dwellings and lacked infrastructure. The wetlands had not yet been reclaimed, and agricultural techniques were quite primitive. After the declaration of Ankara as the new capital city of the Turkish Republic, an intensive urban planning and development agenda was started. The early planning studies prepared by Carl C. Lörcher between 1924 and 1925 (Cengizkan, 2006) and later by Hermann Jansen between 1928 and 1937 shaped the modern urban core and urban landscape fabric of the city. At that time, Anatolian steppe was the primary vegetation dominating the urban scenery, and the eastern lands were demarcated by vineyards, orchards, and truck gardens accompanied by water sources (Büttner et al., 2017). The western lowland was dominated by marshlands, which were seen as a threat to public health and also to the modern image of the new capital (Atay, 1968). Thus, at the end of the 1920s, modern farms (Atatürk Forest Farm and Etimesgut Village and Farm) were established in order to replace the marshlands with a productive and modern landscape and also to continue the urban and agricultural revolutions (DZİK, 1939).

By keeping to the main statements of Lörcher’s plan on the articulation of the old and new town, the master plan, dated 1932, proposed a compact macro-form and expanded the city towards the northern-southern and eastern directions. Topography was one of the main references in determining the locations of new neighborhoods, public areas and transportation routes. As one of the main statements of the plan, the green network had a sophisticated outline. Contrary to the beaux-arts school tradition, 19th century planning approaches interpreted green elements and landscapes as continual-structural components of planning scenarios (Choay, 1969). Keeping to the 19th century planning culture, Jansen’s plan classified landscape components according to their scales, functions and natural contexts. Designed landscapes (parks, small

gardens, green strips, modern farms, and open spaces) and existing natural assets (valleys, creeks, and hills) were the main features of the green network (see Figure 1). Typically, green areas were recognized as functional components of urban plans, expected to be accessible to all and offered in every neighborhood. Similar to Lörcher’s approach, Jansen (1937) also underscored the significance of contiguous green strips, since the skeleton of the city, for him, should be composed of continual and linear elements (main arteries, railway lines and green strips). In this way, linear elements would contribute to the articulation of the existing landscapes and the urban core (Jansen, 1937). The approach towards the hydrological structure was also promising, in the sense that those features were counted as natural assets in addition to being functional entities (recreation grounds) of the plan. The creeks were recognized as essential components of the urban green network and infrastructure.

For the founders of the Republic, green areas (sports arenas, parks and gardens) were seen as one of the most significant elements of societal modernization (Atay, 1968). Varied in scale, they adjoined the main arteries. Besides the parks and gardens offered on urban and neighborhood scales, the public institutions and embassy quarters had enclosed green areas that also contributed to the emerging landscape fabric of the capital city. Along Atatürk Boulevard and the Kayaş-Sincan commuter line, the continual landscape fabric was notably legible. In brief, the green scenario of the plan and the modest expectations of the state could intermingle on the basis of the creation of self-sufficient and modern urban environments: various scales of landscape (parks, gardens and farms) were offered to the public. The plan provided a green layout for further planning studies.

Together with the establishment of Atatürk Forest Farm (AFF), the western side of the city needed new road connections that had not been foreseen in the 1932 plan. In addition, continual changes such as density increases and speculative pressures begun to be made to the plan by coactions of the local administration (Tankut, 1993; Günay, 1988). For these reasons, the existing plan was renewed by Jansen between 1934 and 1937. After Jansen’s resignation in 1938, land speculation and emerging squatter-belts started to shape the urban form, and Ankara was faced with an unplanned development process (Günay, 2006). In the 1950s, the single-family houses with small gardens in the city center had already been replaced by apartment blocks with commercial enterprises on the ground floors (Göksu, 1994). These developments also altered the green silhouette of the city: squatter areas began to cover the hills and valleys. A later planning study, dated 1956, could not offer a solution for these spontaneous growth dynamics since it was utilized as a tool for approving speculative decisions rather than controlling urban development (Günay, 1988). Setting aside land speculation, the landscape fabric dominated by the AFF land and the eastern landscape was not ascribed any value at all in the 1956 Master Plan. AFF land was designated vacant land for transferring certain industrial and service areas from the city center and for new construction uses, such as an Olympic Village and new factories (Çavdar Sert, 2017a). Uncontrolled urban growth and the planners’ ignorance of the previous connected green network wrought certain consequences upon the former landscape fabric of the city. Starting in the 1960s, the landscape

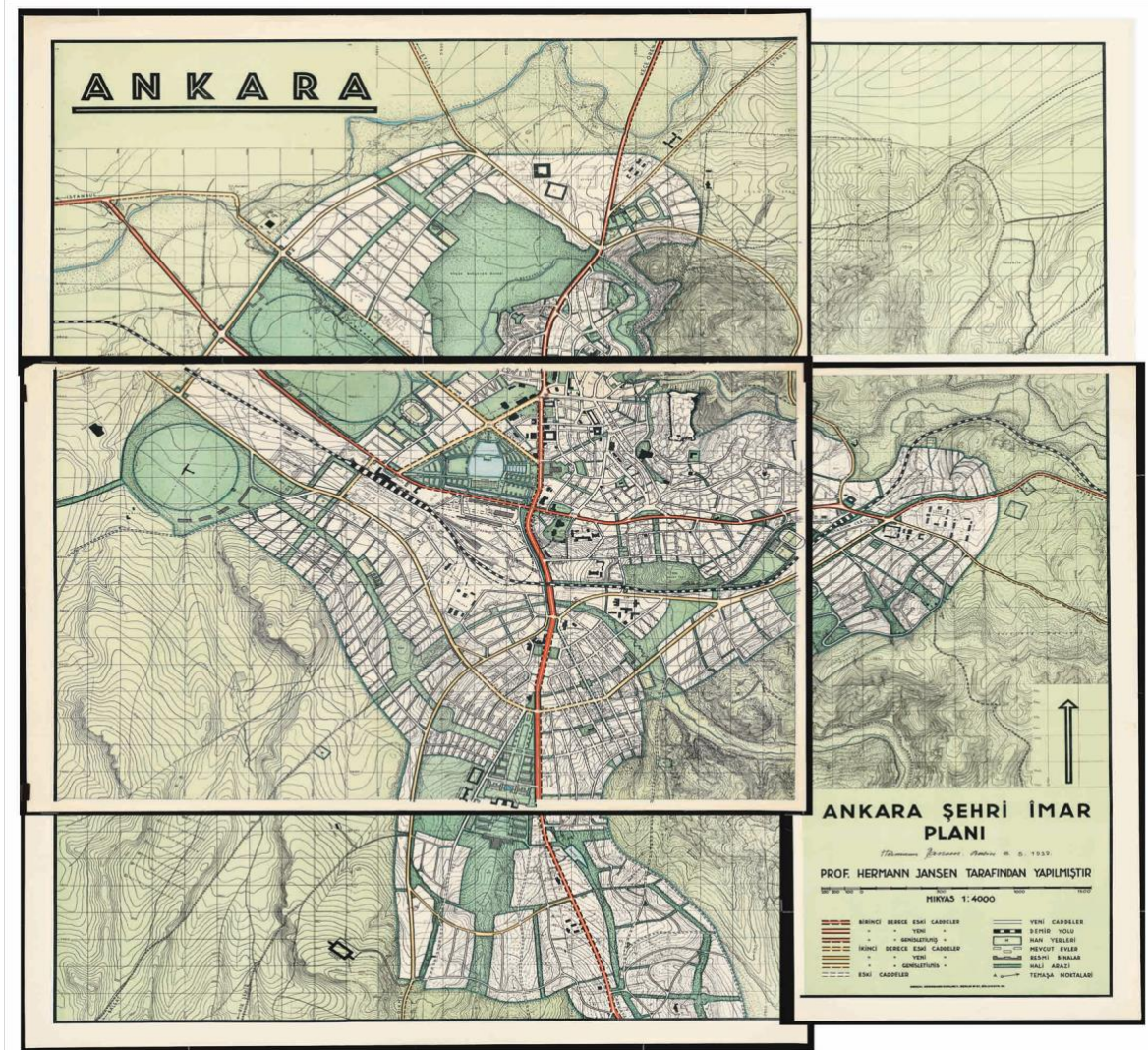


Figure 1: Ankara Master Plan, 1932, by Jansen, H. (Source: TU Berlin Architekturmuseum archive)

fabric of the east also began to change, and the orchards, vineyards and Hatip Creek, which had constituted the recreational field of the city until that time, started to be occupied by squatter houses. The urban development of Ankara continued through piecemeal plans until the 1970s. Moreover, the density increase in parcels became apparent in the urban core in the 1960s: the city was divided into zones, each assigned different building heights (Göksu, 1994). However, in spite of this transformation, the urban parks at the city center still remained untouched and new green fill-ins were also planned along the main arteries. This rapid development period triggered the expansion of the city beyond the geographical limits of Ankara basin. Accordingly, landscape change became visible when the large components of the landscape fabric (heritage landscapes and cultivated lands) began to shrink; this would further exacerbate air and water pollution.

The next planning study, dated 1980, incorporated the features of a structural plan approach and became a milestone for its removal of the former master plan approaches. By suggesting long-term strategies and proposing a realistic growth scenario for Ankara, it mainly aimed to control squatter development. New service areas were designated and new lands for urban development

were opened up. A linear development scenario towards the west – without supplying north-south road connections – was adopted by recognizing Ankara Creek, AFF and the commuter line as ‘planning thresholds, barriers and macroform generators’ for preserving AFF land (Çavdar Sert, 2017b). However, this linear development resulted in the stratification of new boulevards parallel to the commuter line, the fragmentation of landscape infrastructure by later north-south road connections, and the visual and physical isolation of the Ankara Creek (Bütüner et al., 2020). Despite these problems, local authorities and central governments adopted a disruptive approach in the following years. In the 2010s, the larger size AFF lands were transferred to the central government, and, conflicting with site conservation decisions and the AFF Establishment Law, certain historic buildings were demolished. Currently, the AFF lands have lost more than half of their size, with more than 14% of the total loss realized between 2013 and 2017. Consequently, the interplay between the continual elements of Ankara’s landscape fabric and its creeks was diminished.

Starting in the 1990s, urban regeneration and transformation projects initiated a new phase in Ankara’s urban landscape by introducing residential blocks in place

of the squatter settlements. Natural reserve areas – valleys, hills and slopes – which once were favorable grounds for the construction of squatter settlements, have now been covered by state-owned and high-density residential areas or luxury compounds developed through private sector investment. Although these changes introduced an improved infrastructure and environment, the newly developed quarters have not given value to the once existing urban nature (Sargin, 2012). Furthermore, on another scale, the parks and open spaces that once operated as a system within the city along Atatürk Boulevard have become deformed and shrunken. Thus, Ankara's urban core was transformed into a monotonous, high-rise, high density environment lacking diversity in landscape fabric.

Needless to say landscape change and loss in Ankara is substantially effected by urban politics and the economy, but one may also question the role of the lack of cross-disciplinary and integrated frameworks. In Turkey, landscape planning and management was undervalued until the 2000s as if it were an invisible layer within the planning agenda and plan hierarchy. Turkey evidently has also long underestimated the disciplinary framework of urban planning, while landscape and planning theories have been restructured and evolved together and systematically integrated in many European contexts. In Turkey, the concept of landscape was reduced into restricted functional categories (parks, natural and cultural preservation areas, and agricultural lands) without paying attention to evolving landscape theory, which emphasizes the infrastructural nature of landscape in recovering the urban milieu. Distinctive large-scale landscapes have become more vulnerable to threats, mainly due to the absence of sufficient value identification and character-definition studies. There is neither sufficient landscape data that clearly depicts, maps and categorizes what values have been lost until now, nor a future agenda that aims to bring out what would be the scales of change in the future. By taking into consideration the multi-faceted reasons for landscape change and loss, this paper departs from the stance that the city of Ankara cannot grow with its distinctive landscape fabric. The former landscape fabric, which once operated as infrastructure, was fragmented at a rampant pace. After reconsidering Ankara's landscape in relation to the city's development timeline, three instances – heritage landscapes, urban parks and urban nature – which clearly narrate the changing landscape, will be discussed concerning their latent potential for Ankara's future urban agenda.

Instances of Ankara's Changing Landscape

Revisiting Ankara's landscape clearly shows that the urban landscape fabric conveys heritage and natural values consisting of certain scales and typologies of landscapes. Once a continual and well-structured network, the components of its landscape fabric have been interrupted at a greater pace. To widen the critical perspective on Ankara's landscapes, this section dwells on particular manifestations and scales of landscape change in the urban core through three instances – undervalued heritage landscapes, deformed urban parks, and razed nature – which expressively form a necessary discussion ground toward creating an integrated and sustainable urban landscape infrastructure in Ankara. These instances indicate that landscape change and loss may occur regardless of scale, function and context. Dating back to

the establishment of the city, the selected cases are constructive elements of Ankara's urban identity. Each of them has its own particular historical significance and landscape character defined by natural and built properties. Atatürk Forest Farm has a unique heritage, having been established by the founder of the Republic, and is a national brand that symbolizes the agro-industrial revolution and food safety. On another scale, the study's selected parks are the very first parks of Ankara, representing societal modernization. The cultivated lands of eastern Ankara, on the other hand, are a long forgotten case, since they have never been part of a landscape planning scenario or the subject of any academic work. All these cases frame a promising lens for reviving and sustaining a continual landscape fabric which will operate as an infrastructural landscape within the city.

Undervalued Heritage Landscapes

Landscape change doubtlessly raises critical discussions on heritage landscape studies in Turkey since many landscapes, regardless of their broad range of values, are under the threat of transformation and loss. In that sense, heritage landscape conservation is a challenging matter in Turkey, from the individual to the institutional level. Strategic integration of urban development, landscape management and conservation have always raised a challenge within the framework of the Turkish planning system and policies. Thus, the heritage landscapes of Ankara have been greatly undervalued, not only in the cultural sense, but also in terms of management and policy implementation, and their potential has been never recovered.

The majority of Ankara's heritage landscapes date back to the early Republican period. AFF and Etimesgut Farm are canonical examples of early Republican period heritage, representing the success of the young Republic on the basis of the agricultural revolution and societal modernization (Keskinok, 2019). Giving an identity to the western peri-urban zone, these two farms were established during the same period. Both had a mixed-use character: cultivation areas, agricultural industry, forests, parks, gardens and social areas for farm workers were all planned together. In this way, production and recreation grounds were interrelated and the interaction between nature and human beings could be improved compared to the possibilities available in the small- and medium-sized landscapes in the urban core. The designed landscapes of these peri-urban areas embraced installed green surfaces (cultivated areas, forests, and plantation areas) in harmony with the low-density settlement pattern of the farms. This multifarious landscape enfolding Ankara Stream dominated the silhouette of the area until the 1970s, the time when the city began to grow toward the west.

Covering 52,000,000 sqm and established in 1925, AFF offered recreation grounds, agricultural education facilities, and modern agricultural and agro-industrial production. Envisioned by Jansen in 1937, the historic core of the farm was a planned environment. In addition to cultivation areas, poultry coops and barns, the Farm was also formed by its built components: administrative buildings, a brewery, a wine factory, a Turkish bath, a museum, housing compounds with their social facilities, restaurants and swimming pools and the private mansion of Atatürk (see Figure 2). This large-scale farm project, together with the railway line, attracted industrial development such as the cement factory (1926), the cartridge factory (1955) and the sugar factory (1962) along Ankara's western lowlands.

new estates and sports facilities (an Olympic Village) (Çavdar Sert, 2017a). After the 1970s, planning activities left AFF exposed as a planning tool and threshold for shaping the urban macroform. Land transfers and rental giveaways have continued, even though AFF was pronounced a conservation site in 1993. Although the Farm has its own managerial cadres and establishment law, a landscape conservation and management plan were never worked out. There were not even a value identification or an assessment study undertaken by the management, and eventually the farm land, landscape and its built assets became highly vulnerable. The current state authorities have not only designated the farm land as void, available for the construction of highways parallel to Ankara Creek, large-scale governmental estates and

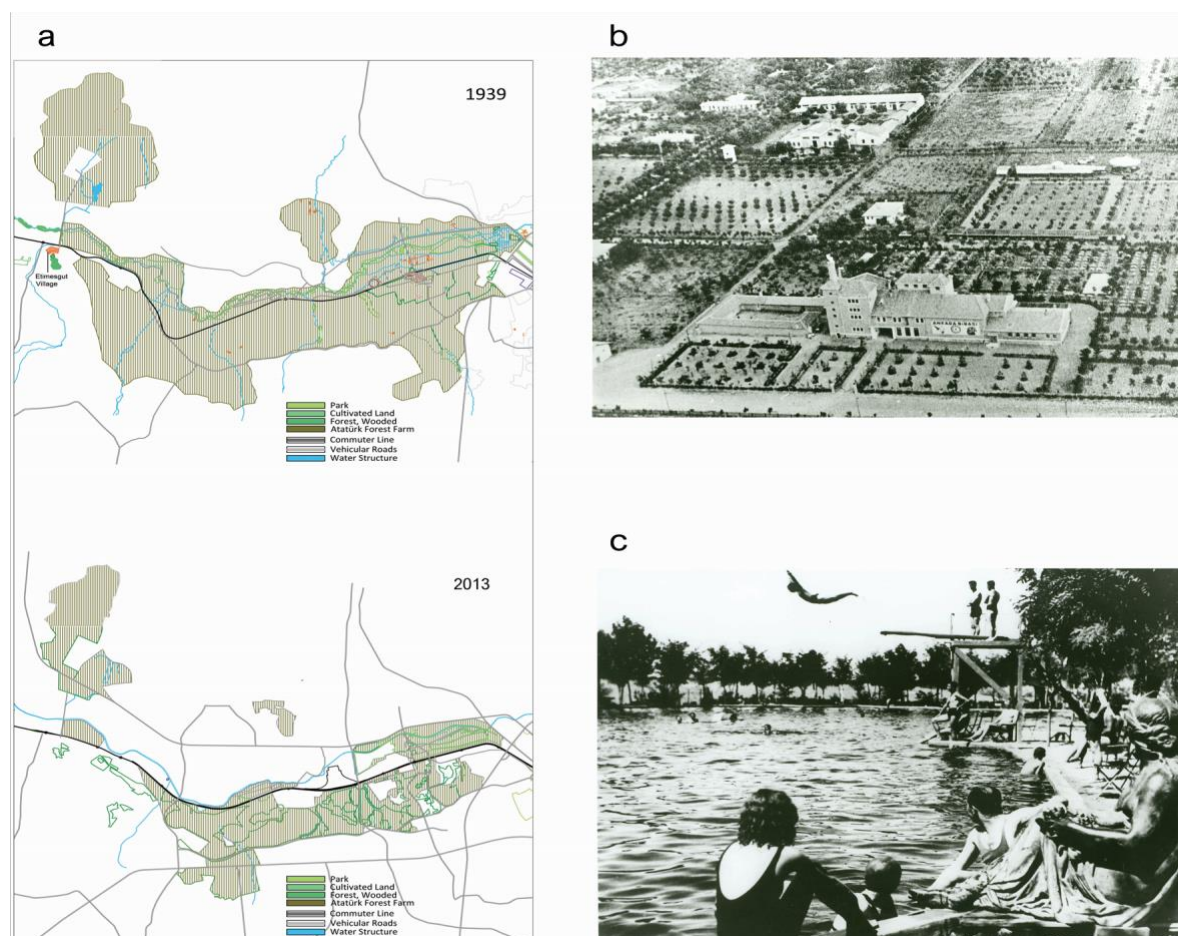


Figure 2: The changing boundaries and land use of AFF (a). Atatürk Forest Farm, aerial view of the Brewery, 1930 (Source: VEKAM Library and Archive: Ankara Photograph, Postcard and Engraving Collection) (b). Atatürk Forest Farm, Karadeniz Swimming Pool, 1936. (Source: VEKAM Library and Archive: Ankara Photograph, Postcard and Engraving Collection) (c).

After the donation of the Farm to the National Treasury, AFF began to lose its landscape and built assets. Land transfers and rental giveaways, particularly triggered by governmental decisions and master plans made after the 1950s had started, and the value and potential of AFF were greatly underestimated. The 1956 Ankara Master Plan – the first plan interrelating urban uses and the farm – poorly defined its cultivated lands as a ‘buffer zone’ and a void, and suggested the transfer of industrial facilities from the city to the lowland of AFF as well as the construction of

privately owned projects, they have also propagated their political identity and discourse by demolishing invaluable modern farm buildings and compounds dating back to the establishment period of the Farm. Consequently, the land totality and manifold landscape pattern of AFF have been lost (see Figure 2).

Currently, AFF is being fragmented at a greater and greater pace. The standing architectural assets are under threat of demolition, and the cultivated lands and food gardens have not been sustained. The tight relationship between the

Farm and Ankara Creek has been disrupted by the bold canalization of the creek. Nevertheless, despite its land losses the Farm still has significant potential for reformulating the human-nature relationship in a natural setting, eliminating Ankara's air pollution, re-assembling its water and green features, and consolidating its urban green by offering a mixed-use landscape.

Deformed Urban Parks

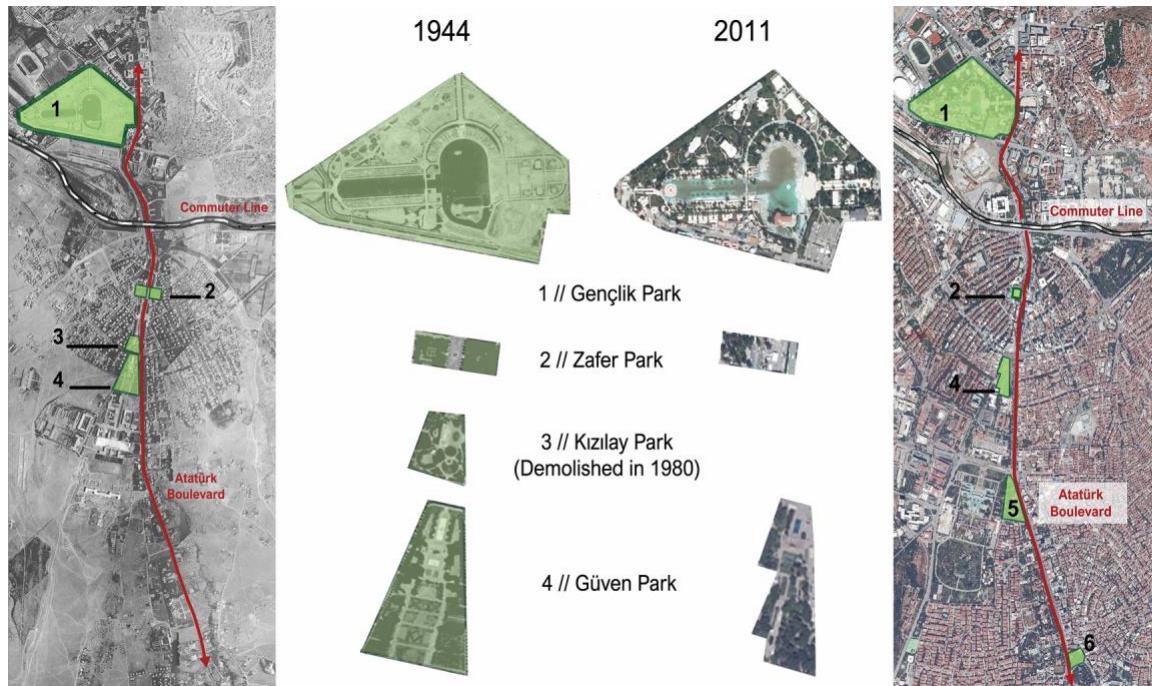


Figure 3: The parks of Atatürk Boulevard in 1944 and 2011 (Rendered by the author)

The Republican Period parks have always been essential parts of Ankara's urban identity. The majority of these parks in the urban core were planned along Atatürk Boulevard. Lying between Hakimiyet-Milliyet Square in Ulus and the Presidential Mansion in Çankaya, the boulevard has been the main axis not only for structuring the urban form in the 1930s, but also in the decentralization process of the central business district from Ulus to Yenışehir by the 1950s (Göksu, 1994). Starting in the 1970s, the expansion of commercial use (predominantly textile and electronic shops, passages and office buildings) in Yenışehir-Kızılay dramatically resulted in the elimination of certain cultural uses (e.g. cinemas and theatres) and recreation activities in Yenışehir from the 1990s onwards. The shift in the city-center doubtlessly resulted from the influence of broader social, cultural, and economic contexts; however, with reference to the paper's main focus on grounding landscape as continual infrastructure, this section concentrates on the changing parks of the boulevard.

In the 1930s, parks were an unfamiliar milieu for Turkish society in certain senses: the spatial experience, the spatial design, the participation of women in everyday life, and the recognition of green open spaces as a democratic right. In this respect, the presence of green areas was equated with the modernization of cities and urban cultural life by the Republican cadres. Indeed, the 1930s was a headstone in the recognition of new public life and societal values. Accordingly, the construction of parks as central

community areas started even before the construction of public buildings (see Figure 3) (Keskinok, 2009). The very first parks in Ankara's urban core, namely Gençlik Park, Zafer Park and Square, Kızılay Park, and Güven Park were constructed between the 1920s and the 1940s as the patches of a green network designed by Jansen. These parks, aligned with Atatürk Boulevard, manifested a linear landscape in the city. In the 1940s, the parks and the boulevard identified Ankara's cultural life. Experiencing this new urban milieu, walking along the boulevard and

enjoying the parks were distinctive experiences for all citizens. The boulevard, with its inclusive section covering wide, tree-lined sidewalks, monuments, and public buildings, was not only the main artery connecting the new and old city, but it also identified a continuous system of space – landscape infrastructure (see Figure 4).

As a noteworthy patch of the boulevard, Gençlik Park – dedicated to the young generations of the Republic – has always been a niche in the cultural life of Ankara. Gençlik Park first appeared in the 1924 Master Plan, and later in Jansen's plan with certain locational changes. The master plan of the park was finalized by French architect Theo Leveau in 1936, and construction started in 1938 (Memlük, 2009). Covering 28 hectares, the main components of the park were a pool, a casino and gardens. After its opening on 19 May 1943, sports (1944) and amusement grounds (1951) were installed in the park. Another patch of the boulevard, namely Zafer Park, was located at the mid-point of the boulevard where Ulus District met with Yenışehir District. The park with its poplar trees, pool, and Atatürk Monument posed as a welcoming area of Yenışehir District. Defining the two parallel edges of the Boulevard, Zafer Park was organized into two venues in the late 1920s. These square-shaped twin parks were favorite spots for those who wanted to take the air during their walks. Covering the western portions of Kızılay junction, Güven and Kızılay Parks were designed to provide a link between the ministry and

residential quarters in the late 1920s (Vardar, 1989). With their geometric orders defined by hardscape and softscape components, they manifested a bold continuous green in the 1940s.

Together with the end of the decade and further into the 1960s, a shift from state-driven to market-driven planning policies occurred that had evident impacts on Ankara's urban core (Günay, 2006). Importation of private consumer goods increased, investors gained strength, and eventually the urban core started to become a hub for commercial activities. As a result, the density of the Yenışehir-Kızılay District increased, low rise apartment

original softscape and hardscape design was replaced by new ones, and eventually, the park lost its characteristic spatiality. The trees in the eastern part of Zafer Park were removed, and the park was transformed to a haunted open space identified by new commercial buildings. Together with the demolition of Kızılay Park in the 1980s, the integrated landscape of Kızılay junction and the boulevard was interrupted. Moreover, conflicting with the conservation decisions, the western portion of Güven Park was transformed into a transport interchange area, and is still an unorganized node both for vehicles and pedestrians.



Figure 4: Atatürk Boulevard, 1954 (a); Gençlik Park, 1953 (b); Zafer Park, 1953 (c); Kızılay Park and Güven Park, 1930 (d); (Source: VEKAM Library and Archive: Ankara Photograph, Postcard and Engraving Collection).

blocks were replaced by higher ones in piecemeal plans within the cycle of the make-and-sell process, and the district was demolished and reconstructed (Göksu, 1994). Due to the increasing number of stores, the boulevard, the tributary roads and eventually the whole district was transformed from a residential to a commercial area consisting of high-rise shopping and office buildings. This transformation process drastically affected the legibility, function and spatial features of these parks from the 1980s onwards. The insertion of commercial uses and transport interchange points into the parks accelerated their deformation process. Until the decentralization of the Ulus and Kızılay Districts in the 1980s, Gençlik Park was a well-to-do park and famous leisure place for Ankara. Since then, the park has undergone several reconstructions: the

Starting from the 1990s, the lanes of Atatürk Boulevard were expanded, the sidewalks were narrowed, new transport options and routes were offered, the integrated park system was interrupted and the old and new parks and open spaces attached to the boulevard continued to be deformed and shrunken (see Figures 3 and 4). The inclusive section of the boulevard transformed into a monotonous one, with high-rise buildings and lacking sufficient green areas.



Figure 5: Hatip Creek and social life, 1925 (a) (*Source:* VEKAM Library and Archive: Ankara Photograph, Postcard and Engraving Collection); Canalized Hatip Creek and the deserted landscape in the Mamak vicinity (b), 2016 (*Source:* METU BAP-08-11-2015-035 Scientific Research Project archive)

Razed Nature

The natural assets shaping the urban form also guided landscape strategies during the establishment period of Ankara. The built and green fabrics were harmonized with the topography. The streams, enfolded by gardens, parks, vineyards, and orchards, operated as parts of an integrated landscape fabric. Six streams dominated the hydrological structure of Ankara basin: Çubuk Creek coming from the north-east, Hatip Creek from the east, and İncesu from the south-east met at the western lowland of the city and formed Ankara Creek, and there were also Macun and Kutugun Creeks. Demarcated by these creeks and later aligned with the Kayaş-Sincan commuter line, the cultivated lands were characteristic constituents of the

lowlands. The western peri-urban area was delineated by AFF and Etimesgut Farm, whereas the east side was identified by spontaneous green areas and cultivated lands strictly following the creek. The landscape of the east enabled the urbanites' interaction with nature, differing from the formal gardens and parks of the urban core and the densely cultivated farms of the west side (see Figure 5). The recreational life in the eastern area and its rich habitat were narrated in various literature sources and periodicals of the 1930s. According to the Ankara City Guide, dated 1934, the Kayaş vicinity was called the 'garden of the city', and people enjoyed the rural landscape (Mamboury, 1934) (see Figure 5). In the early 1950s, the area still served as the garden of the city with continuous

green – vineyards, orchards and truck gardens – between Demirlibahçe and Kayaş districts.

Unfortunately, the potent role of the eastern creeks and landscape continuity in consolidating the landscape fabric of the city were not noticed at all – like the heritage lands on its western side – and they began to diminish when the city started to expand in the mid-20th century (Bütüner et al., 2020). The rural landscape along Hatip Creek became fragmented, particularly with the development of squatter housing in the 1960s. In the following decades, the unregistered housing developments in the Mamak vicinity were made permanent by the enactment of squatter amnesty laws, new residential areas were developed, and a waste disposal site was established. The orchards and gardens were replaced with industrial and residential uses; the creek was boldly canalized and isolated, similar to the other creeks within the city. The landscape assets of eastern Ankara have never been considered a potential landscape planning tool, mainly due to the lack of planning strategies and conservation decisions. Eventually, this long forgotten landscape was grossly ruined.

Today, despite the densely built scenery of the east, the majority of landscape fragments following Hatip Creek remain as unoccupied areas. Varying in scale, these grounds hold promise for the expansion of a landscape fabric and the designation of an infrastructural landscape in Ankara.

Envisioning a Landscape Agenda in Ankara

The three instances elaborated on in this paper – undervalued heritage landscapes, deformed urban parks, and razed nature – represent certain facets of landscape change and loss. Occurring on different scales and in different contexts, they clearly reveal the need for an integrated urban and landscape development strategy. Multi-scale landscape identification and assessment would be one immediate step toward staging a landscape agenda for Ankara, and maintaining the significance and recovering the potential of landscapes would be the other. The cases discussed are not just remnants of earlier planning legacies, but also potent components of a possible integrated landscape fabric that might operate as infrastructure. Therefore, despite their fragmented and illegible stance in today's urban scenery, the bold traces and fragments of the former landscape fabric still existing in the city hold a latent promise to make landscape an inclusive ground in Ankara's urban development.

The urban park system of the former central business district (CBD) along the boulevard is vital for the social, cultural, spatial and natural revitalization of the district as well as for the city. With its linear character, the boulevard and its parks might operate as a critical link for a city-wide landscape system, and taking the commuter line as a unifying reference, it might reach the AFF lands in the west and fragments of the razed urban nature in the east.

Remaining at the geometric center of the city, AFF, owing to its scale and function, is still able to intermingle various forms of spatial continuity and interactions. The farm land with its accompanying landscapes formed by the green areas of the ex-military zone, universities, and industrial

heritage sites, as well as Ankara Creek, offer great potential for reviving and sustaining urban nature and the contiguous landscape fabric of the city. These areas might be identified as a rural extension penetrating into the city to provide an experience of nature and sustain the natural assets of the city. On the other hand, the current disrupted image of the eastern landscape fabric does not represent its former continuity, but instead has a deserted and vacant appearance at particular segments. However, it is still possible to identify and articulate these fragments in the development of an integrated landscape fabric. Consequently, all three instances recall and uncover a once well-structured landscape fabric and its traces, which may aid in programming a landscape infrastructure and integrated landscape agenda for Ankara.

Conclusion

The dramatic loss of Ankara's former landscape fabric has uncovered a need for an integrated urban development and landscape strategy accompanied by a landscape policy and management framework. As mentioned in the UN New Urban Agenda (2017), the problems that cities face today necessitate a new conception of urbanization: a shift from seeing cities as sources of problems to remedies for problems. This new outlook, once again, points to the critical role of landscape policy-making and recent landscape theory in repositioning against urban challenges. Thus, development of coherent land use and landscape strategies, which is in opposition to the destructive impacts of urban policies on landscape fabric, is raised as a noteworthy matter. This new understanding also entails the inclusion of recent landscape theory in cross-disciplinary frameworks, ranging from urban planning to conservation mainstream, to draw the future roles of urban landscapes.

In this way, the changing landscapes of Ankara, mainly discussed through three cases in this paper, clearly outline a necessity for a new conception of urban landscape: infrastructural landscape. Regarding the diversity in scale and context, each case presents a characteristic fragment which operated as a part of Ankara's landscape infrastructure in the past, and which still houses latent potential for generating a well-connected and well-distributed network of landscape. The generation of such landscape infrastructure will undoubtedly form a basis for solving not only apparent problems – flooding, air and basin pollution, etc. – but also unnoticed challenges – climate change, preservation of endemic species, livability etc. – in Ankara.

References

- Akçura, T. (1971). Ankara: Türkiye Cumhuriyeti'nin başkenti hakkında monografik bir araştırma [Ankara: A monographic research about the capital of the Republic of Turkey]. Ankara: Orta Doğu Teknik Üniversitesi Mimarlık Fakültesi.
- Allen, S. (2001). Mat urbanism: the thick 2-D. In H. Sarkis, (Ed.), CASE: Le Corbusier's Venice Hospital and the revival of Mat Building (pp.118-126). London: Prestel.
- Ankara Büyükşehir Belediyesi. (2019). Kişi Başına Düşen Yeşil Alan. Retrieved 5/2019, Retrieved from

- <https://www.ankara.bel.tr/cevre/peyzaj-uygulama/kisi-basina-dusen-yesil-alan/>
- Antrop, M. (2004). Landscape change and the urbanization process in Europe, *Landscape and Urban Planning*, 67, 9-26.
- Antrop, M. (2005). Why landscapes of the past are important for the future, *Landscape and Urban Planning*, 70, 21-34.
- Atay, F.R. (1968). *Çankaya. İstanbul: Pozitif Yayınları.*
- Baş Bütüner, F., Alanyalı Aral, E., Çavdar S. (2017). Kentsel mekân olarak demiryolu: Sincan - Kayaş banliyö hattı [A railway as urban space: the Sincan – Kayaş commuter line]. *Ankara Araştırmaları Dergisi*, 5(1), 73-97.
- Baş Bütüner, F., Çavdar Sert, S., & Alanyalı Aral, E. (2020, April 1). Decoding infrastructural terrain: the landscape fabric along the Sincan-Kayaş commuter line in Ankara. *Landscape Research*. <https://doi.org/10.1080/01426397.2020.1740663>
- Bélanger, P. (2012). Landscape infrastructure: Urbanism beyond engineering. In S. N. Pollais, D. Schodek, A. Georgoulas & S. J. Ramos (Eds.) *Infrastructure, sustainability and design* (pp. 276-315). New York, NY: Routledge.
- Bilsel, C. (2010). Ankara’da kentsel başkalaşım karşısında kentsel kimlik sorunu: Kent merkezleri ve kamusal mekânlar, *Dosya*, 10(2), 33-46.
- Burat, S. (2011). Resting by Moving on the Greenways: Design of the Urban Green Spaces in Jansen's Plans for the Capital and Their Implementation and Modification Process (1932-1960). *İdealkent* (4), 100-127.
- Carlson, D. (2013). The humanity of infrastructure: Landscape as operative ground. *Scenario Journal* 03. Retrieved from <http://scenariojournal.com/article/humanity-of-infrastructure/>
- Cengizkan, A. (2004). Ankara’nın ilk planı 1924-25 Lörcher Planı. Ankara: Ankara Enstitüsü Vakfı ve Arkadaş Kitabevi.
- Cengizkan, A. (2015, May). Yitirilen Etimesgut. Retrieved September 10, 2019, Retrieved from <http://aocarastirmalari.arch.metu.edu.tr/yitirilen-etimesgut/>
- Choay, F. (1969). *The Modern City: Planning in the 19th Century*. New York: George Brazillier Inc.
- Corner, J. (2006). Terra fluxus. In C. Waldheim (Ed.), *Landscape urbanism reader* (pp. 21-33). New York: Princeton Architectural Press.
- Çavdar Sert, S. (2017a). Atatürk Forest Farm as a heritage asset within the context of Turkish planning experience 1937-2017. Unpublished Ph.D. Dissertation, Middle East Technical University Faculty of Architecture, Ankara.
- Çavdar Sert, S. (2017b) Bir fikir mirası olarak Atatürk Orman Çiftliği’nin somut ve somut olmayan değerleri [Tangible and intangible values of Atatürk Forest Farm as a heritage of ideas]. *Ankara Araştırmaları Dergisi*, 5(2), 225-256.
- Devlet Ziraat İşletmeleri Neşriyatından. (1939). *Atatürk Çiftlikleri*. İstanbul-Ankara: Alaeddin Kırıl Kلیşe Fabrikası ve Basımevi.
- Göksu, S. (1994). Yenişehir: Ankara’da Bir İmar Öyküsü. In İ. Tekeli (Ed.), *Kent, Planlama, Politika, Sanat: Tarık Okyay Anısına Yazılar* (pp: 257-276). Ankara: ODTÜ Mimarlık Fakültesi Yayınları.
- Günay, B. (2006). Ankara Çekirdek Alanın Oluşumu ve 1990 Nazım İmar Planı Hakkında Bir Değerlendirme. In T. Şenyapılı (Ed.), *Cumhuriyet’in Ankara’sı* (pp. 60-118). Ankara: ODTÜ Yayıncılık.
- Günay, B. (1988). *Our Generations of Planners: The Hopes, The Fears, The Facts*. SCUPAD Seminars. Salzburg.
- Jansen, H. (1937). *Ankara İmar Planı Raporu*. M. Yenen (Ed.). İstanbul: Alaeddin Kırıl Basımevi.
- Jackson, J.B. (1984). The word itself. In J.B. Jackson (Ed.), *Discovering the vernacular landscape* (pp. 3-8). New Haven, CT: Yale University Press.
- Keskinok, H.Ç. (2009). *Ankara Kentinin Planlaması ve Atatürk Bulvarının Oluşumu. Cumhuriyet Devrimi’nin Yolu Atatürk Bulvarı* (pp. 37-59). Ankara: Koleksiyoncular Derneği.
- Keskinok, H.Ç. (2019). *Şehircilik Yazıları*. Ankara: METU Faculty of Architecture.
- Mamboury, E. (2014). *Ankara Gezi Rehberi*, Ç. Eroğlu (Ed.) Ankara: Ankara Üniversitesi Yayınları.
- Memlük, Y. (2009). Bulvarın yeşil parçaları. In H.Ç. Keskinok (Ed.), *Cumhuriyet Devrimi’nin yolu Atatürk Bulvarı* (pp. 73-87). Ankara: Koleksiyoncular Derneği.
- Meyer, E.K. (1997). The expanded field of landscape architecture. In G.F. Thompson & F.R. Steiner (Eds.), *Ecological design and planning* (pp. 45-70). New York, NY: John Wiley & Sons, Inc.
- Mostafavi, M. (2010) Why Ecological Urbanism? Why Now? In M. Mostafavi, G. Doherty (Eds.), *Ecological urbanism* (pp. 12-53). Switzerland: Lars Muller.
- Nijhuis, S., Jauslin, D. (2015). Urban landscape infrastructures: Designing operative landscape structures for the built environment. In S. Nijhuis, D. Jauslin & F. van der Hoeven (Eds.), *Flowscales: Designing infrastructure as landscape* (pp. 13-34). Delft, the Netherlands: TU Delft.
- Online Etymology. (September 10, 2019). Infrastructure. In [etymonline.com dictionary](https://www.etymonline.com/dictionary). Retrieved from <https://www.etymonline.com/word/infrastructure>
- Ozdil, N. C., Vejre, H., Bilsel, F.C. (2020). Emergence and evolution of the urban public open spaces of Ankara within the urban development history: 1923 to Present, *Journal of Planning History*, 19(1), 26-51.
- Whiston Spirm, A. (1998). *The Language of Landscape*, USA: Thomson-Shore, Inc.

- Sargin, G.A. (2012). *Ankara Kent Atlası*. TMMOB Mimarlar Odası Ankara Şubesi.
- Tankut, G. (1993). *Bir başkentin imarı*. İstanbul: Anahtar Kitaplar.
- The American Heritage Dictionary. (September 10, 2019) (n.d.). Infrastructure. In *ahdictionary.com dictionary*. Retrieved from <https://www.ahdictionary.com/word/search.html?q=infrastructure>
- United Nations. (2017). New Urban Agenda. <http://habitat3.org/wp-content/uploads/NUA-English.pdf>
- United Nations. (September 10, 2019). The Sustainable Development Goals. Retrieved 2019, from <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>
- Uybadin, R., Yücel, N. (1956). *Ankara Nazım İmar Planı Raporu*. İstanbul: Alaaddin Matbaası.
- Vardar, A. (1989). Başkentin ilk planları. *Planlama*, 2-3-4, 38-50.
- Waldheim, C. (2016). *Landscape as urbanism: As general theory*. New Jersey: Princeton University Press.

Keywords

Landscape change, landscape infrastructure, landscape fabric, Ankara

Measuring Walkability for More Liveable and Sustainable Cities: The Case of Mersin City Centre

Müge Akkar Ercan¹, Züleyha Sara Belge²

¹Middle East Technical University, Turkey

²Mersin University, Turkey

Abstract

Walkability is of rising importance in planning and design circles. In Turkey and the world, it is increasingly recognized as an urban strategy to create healthy societies within sustainable and 'liveable' cities. Despite this interest, the extent to which Turkish cities are walkable remains questionable. Defining the performative features of walkability, this research offers a micro-scale walkability assessment model with eight qualitative and quantitative factors of urban design. Describing the model with its factors, this article first presents a research methodology, then explores the walkability level of the historic city centre of Mersin, specifically Ataturk and Uray Streets (AUS). Finally, it discusses the major planning and design strategies that can improve walkability and liveability level of the historic city centre of Mersin, and underlines the contributions the model can make to current planning practice with reference to inclusive, human-centred and flexible design approaches. The research concludes that a sensitive qualitative and quantitative assessment of walkability is necessary to identify the walkability level of urban space. Additionally, it suggests that a comprehensive, integrated, and multi-dimensional planning and design approach regarding micro-scale, meso-scale and macro-scale is required to develop holistic and integrated urban design strategies to achieve walkable, liveable and sustainable cities.

Introduction

Walkability is of rising importance in planning and design circles. In Turkey and the world, it is increasingly recognized as an urban strategy to create healthy societies within sustainable and 'liveable' cities (Gehl and Gemzøe, 1996; Living Streets, 2003; 2006; TfL, 2004; 2005). Walking is not only a mode of transport, but also a means of benefiting individuals, communities and the environment. Walkable cities increase basic mobility of urbanites, improve their physical health and emotional well-being, and operate as restorative, relaxing or recreational environments (Forsyth, 2015). Walkable, attractive and safe public spaces often strengthen social life and social cohesion within the community, and contribute to community liveability (Forsyth, 2015; Leyden, 2003). By making commercial areas more attractive for consumers and investors, walkable environments increase commercial and business capacities of enterprises, foster new business and employment opportunities, increase property values, thereby contributing to economic vitality and regeneration of declining urban environments (Sohn et al., 2012; VTPI, 2014).

Walkability is also the foundation for sustainable cities. As a 'green' mode of travel, it has low environmental impact; reducing congestion and conserving energy without air and noise pollution (Forsyth and Southworth, 2008). In compact or polycentric urban forms, walkable environments reduce the distances between home, work, shopping, recreational and public transit stops, and hence restrict urban sprawl (Hildebrand, 1999; Jabareen, 2006; VTPI, 2015). By decreasing car dependency, walkable cities help reduce energy consumption and greenhouse gas emissions, fostering more efficient use of public resources, lowering the costs of infrastructure and services, thereby formulating more economical urban ways of life (VTPI, 2015). Also, walking is a socially equitable mode of transport that is available to the majority of the population,

across classes, including children and seniors (Forsyth and Southworth, 2008).

The New Urban Agenda supports walkable and cyclable cities to improve health and well-being of societies (UNCHSD, 2016). In the early-2000s, walkable streets became an issue in the agenda of local authorities in Turkey to increase the mobility of people with disabilities in urban spaces. With the onset of the Healthy Nutrition and Active Life Program launched in 2013, it has been recognized as a way of combating obesity and promoting a healthy lifestyle. Despite these promising advances, similar to many countries, urban sprawl, the inefficient and insufficient provision of public transport infrastructure and services, as well as rising private car ownership have hindered the development of walkable cities in Turkey. Focusing on the question of the extent to which Turkish cities are walkable, this research examines the walkability level of the historic city centre of Mersin, specifically Ataturk and Uray Streets (AUS). It first proposes a micro-scale assessment model and describes the factors to measure the walkability level of urban space, then explains the research methodology, and summarizes the research findings. Finally, it discusses the major planning and design strategies which can improve the walkability and liveability level of the historic city centre; underlining the contributions of the model to the current planning practice with reference to an inclusive, human-centred and flexible design approach.

How to measure walkability in urban space

The literature on walkability and pedestrian-friendly environments is so vast that there are at least fourteen literature surveys on the built environment and travel (including pedestrian travel), another fourteen literature surveys on the built environment and physical activity (including walkability and biking), and three reviews of the many reviews (Ewing et al., 2016). According to a

FACTORS	QUALITY INDICATORS AND PARAMETERS	
A. Attractiveness and convenience	A1. Clean and well-maintained walking paths A2. Presence of interesting urban scenes and destinations (historic streetscape, public artworks, good-looking and well-maintained shopfronts, etc.) A3. Aesthetic quality of streets A4. A variety and diversity of activities and events in urban space	
B. Safety	B.1 Actual safety B1a. Street width and enclosure B1b. Design and management measures/features to improve pedestrian safety in traffic B1c. Design and management measures to reduce traffic congestion, noise and crime B1d. Traffic calming measures	B.2. Perceptual safety B2a. A clear demarcation between public and private space B2b. Urban design measures to provide ‘eyes on the street’ B2c. Common use facilities and activities to add more ‘eyes on the street’
C. Integration of pedestrian network with other transportation modes	C1. An integrated and holistic transportation planning strategy C2. The presence of internally well-connected pedestrian network C3. Integration of the pedestrian network with other public transit modes (tram, bus, metro, etc.), train station, intercity bus terminal, parking and service zones within a walking distance	
D. Quality of street pattern	D1. Street pattern type D2. Length of streets and/or blocks D3. Number of intersections per unit area D4. Number of dead-end streets per unit area D5. Design features of building blocks	
E. Connectivity of network	E1. The presence of continuous road network, sidewalks and pedestrian paths E2. The intensity of connectivity within an urban network system (<i>Connectivity index</i>)	
F. Connection to open space systems	F1. Strong connections of natural spaces, meeting and gathering places with unique features and visual interests through continuous sidewalks and pedestrian pathways freed from physical obstacles and clutters F2. High level of pavement quality for the accessibility of pedestrians and disadvantaged groups (<i>related to factor G</i>)	
G. Quality of sidewalks and pedestrian paths	G1. Sidewalk width G2. Continuous sidewalks and paths without pits, bumps or other irregularities G3. Clear walking zones on sidewalks G4. Quality of pavement for the comfort and safety of pedestrians with varied ages and physical abilities G5. Raised or textured pavement at crosswalks G6. Public amenities and service areas G7. Street furniture G8. Street and traffic signposts G9. Street lighting G10. Street trees, flower pots and other landscape elements	
H. Accessibility	H1. Accessibility of pedestrians to public service areas (schools, health, religious and administrative buildings/sites) and the major public spaces within a walking distance H2. Unimpeded pedestrian movement to public service areas and the major public spaces (<i>related to factor G</i>) H3. Orientations (‘permanency’ and ‘legibility’)	

Table 1: Factors of walkability, their quality indicators and parameters

meta-analysis, there are 200 individual studies of the built environment and travel; but only six of them include variables that have some relationship to streetscape and urban design (Ewing and Cervero, 2010). Walkability is a multi-dimensional and measurable notion with a series of factors. This research, proposing eight qualitative and

quantitative factors of urban design, provides a micro-scale assessment model to measure the walkability level of urban space and to guide streetscape projects seeking to create walkable environments (Table 1). This set of factors, along with the corresponding spatial parameters and indicators, has been produced through a literature

review on the issue of walkability. That is, it has been identified through the *a priori* framework that relates to or denotes reasoning or knowledge which proceeds from theoretical deduction rather than from observation or experience.

One of these factors is 'attractiveness and convenience' of the pedestrian network. Well-maintained and clean walking paths with interesting urban scenes and destinations, the aesthetic quality of streets, as well as variety and diversity of activities/events improve the attractiveness and convenience of walkable environments (Appleyard, 1981; Jacobs, 1995; Krambeck and Shah, 2006).

Another walkability measure is the 'safety' of streets, comprising two dimensions: 'actual' and 'perceived'. 'Actual safety' of pedestrians can be achieved through the physical properties of urban space, including street widths and enclosure, design and management measures that improve safety of pedestrians, disadvantaged groups and cyclists, and reduce traffic congestion, noise and crime (Southworth, 2005; Forsyth, 2015). Traffic calming measures, such as separating pedestrian and vehicular traffic, creating safe pedestrian crossings, slowing down traffic through chokers, speed bumps, narrow streets, and traffic diverters are the prominent measures that improve actual safety. The extent to which pedestrians feel safe in a space is related to 'perceived safety'. Evans (2009) and Wheeler (2001) define it as the protection of pedestrians from the feeling of crime or the danger of vehicular traffic. Urban environments with a high crime rate, traffic congestion and noise are generally perceived as insecure and less walkable by pedestrians (Appleyard, 1981; Evans, 2009; Wheeler, 2001). Improving the actual safety of streets positively affects the perceived safety, and encourages people to walk more (Southworth, 2005). Jacobs (1961) defines three main qualities necessary for perceptual safety: a clear demarcation between public and private space, buildings oriented towards the street to provide 'eyes on the street' (natural surveillance), and common use facilities to add more 'eyes on the streets'. She (1961) argues that the declining vitality of public spaces reduces the possibilities for natural surveillance, while increasing the possibilities for crime occurrence. Walkability, in this sense, improves the level of perceived safety.

'Integration of pedestrian network with other transportation modes' is another measure to create walkable environments. The presence of an integrated and holistic transportation planning strategy with a focus on pedestrians, an internally well-connected pedestrian network and its integration with other public transit modes (tram, bus, metro, etc.), train station, intercity bus terminal, parking and service zones within a walking distance are all critical to create walkable cities (Southworth, 2005).

'Quality of street pattern' directly affects the walkability level of urban space (Southworth and Owens, 1993). Street patterns are assessed through the physical configuration of street network (grid, curvilinear, etc.), the length of streets and/or blocks, the number of intersections and dead-end streets per unit area, and design features of block patterns. Grid or modified-grid patterns are highly walkable, as they ensure high level of accessibility between destinations and easy approachability to public services by providing

shortest trip distances, numerous intersections and alternative travel trip routes between destinations (Southworth and Owens, 1993). Curvilinear street patterns provide much safer environments than grid-street patterns by mitigating the nuisance and dangers of through traffic (Carmona et al., 2010). Also, they protect and promote privacy of community by enclosing views, reducing visual permeability and discouraging non-residents from entering into the area (Carmona et al., 2010). However, they are less walkable, as they contain a small number of intersections per unit area, and provide longer trip distances and less alternative travel trip routes (Southworth and Owens, 1993; Southworth, 2005).

Many tools for measuring the quality of the walking environment have emerged in the past few years. Active Living Research website maintained by R.W. Johnson suggests sixteen walking audit instruments that also include the length of streets and/or blocks, the height of buildings, the number of intersections and dead-end streets per unit, and design features of block patterns (Ewing & Clemente, 2013). These qualities help us to define two important sub-factors to define the walkability level: 'enclosure' and 'human-scale':

(...) In an urban setting, enclosure is formed by lining the street or plaza with unbroken building fronts of roughly equal height. The buildings become the 'walls' of the outdoor room, the street and sidewalks become the 'floor', and if the buildings are roughly equal height, the sky projects as an invisible ceiling. Buildings lined up that way are often referred to as 'street walls' (Ewing & Clemente, 2013).

Alexander et al. (1977, pp. 489–491) state that the total width of the street, building-to-building, should not exceed the building heights in order to maintain a comfortable feeling of enclosure. Allan Jacobs (1993) is more lenient in this regard, suggesting that the proportion of building heights to street width should be at least 1:2. Other designers have recommended proportions as high as 3:2 and as low as 1:6 for a sense of enclosure (Ewing & Handy, 2009: 74)

Several authors suggest that both the height and width of buildings define the notion of human scale (Ewing and Handy, 2009). In other words, to attain a feeling of 'human scale', building widths should be in proportion with building heights (Ewing and Handy, 2009). These are the perceptual qualities of the urban environment that may influence walking behaviours or user preferences. According to the research of Ewing et al. (2005b, 2006), the number of long sightlines and building height on the same side of the street detract from the perception of human scale, while the presence of first-floor windows, small planters and street furniture increase the perception of human scale (Ewing and Handy, 2009).

'Connectivity of street network' shows how far the street network eases the movement of pedestrians, cyclists, and vehicles. It is measured by: a) the presence of continuous road networks, sidewalks and pedestrian paths, and b) the level of connectedness within an urban network system (Southworth, 2005; VTPI, 2010). There are several

FACTORS		Codes of quality indicators	Direct observation	Morphological Analyses	Questionnaires
A. Attractiveness and convenience		A1	■	<ul style="list-style-type: none"> Street pattern analysis Mapping symbolic, historic buildings/sites, public artworks, meeting and gathering places Land-use maps of Z1, Z2, Z3, Z4 and their surroundings Land-use maps of each distinct zone for ground and upper floors 	■
		A2	■		Mentalmaps
		A3	■		Mental maps
		A4	■		x
B. Safety	B1. Actual safety	B1a	■	<ul style="list-style-type: none"> Figure-ground maps Mapping street width 	■
		B1b	■	Mapping traffic calming measures, traffic lights, pedestrian crossings, sidewalk widths and car-parking spaces	■
	B2. Perceived safety	B2a	■	Mapping landscape elements, pavement materials and changes in pavement levels in public and private spaces	x
		B2b	■	<ul style="list-style-type: none"> Land-use maps for each distinct zone Mapping street lighting 	■
		B2c	■		■
		B2d	■		Average daily number of pedestrians and vehicles in each distinct zone
C. Integration of pedestrian network with other transportation modes	C1	◇	x		x
	C2	x	Mapping pedestrian network (sidewalks and pedestrian path)	x	
	C3	x	Accessibility analysis (mapping and analysing whether train stations, public transit stops/stations, car-parks are accessible within a 800-meter walking distance)	x	
D. Quality of street pattern	D1	■	<ul style="list-style-type: none"> Figure-ground maps Mapping street/building block lengths Number of intersections per hectare Number of dead-end streets per hectare Mapping building heights 	■	
	D2	■		x	
	D3	■		x	
	D4	■		x	
E. Connectivity network	E1	■	Mapping streets and sidewalks to see the continuity of street network, sidewalks and pedestrian paths	x	
	E2	■	Calculation of Connectivity Index (CI)	x	
F. Connection to open space systems	F1	■	<ul style="list-style-type: none"> Spatial analysis of the relation between open public spaces and street and pedestrian networks Spatial analysis on the continuity of sidewalks and pedestrian networks 	x	
	F2	■	Spatial analysis of the quality of pedestrian and sidewalk network (related to the parameter G)	■	
G. Quality of sidewalks and pedestrian paths	G1	■	<ul style="list-style-type: none"> Mapping sidewalk width Mapping vehicular road width 	x	
	G2	■	Spatial analysis of the continuity of pedestrian and sidewalk network	■	
	G3	■	Spatial analysis of sidewalks (including walking zone) in terms of obstacles and other irregularities	■	
	G4	■	Spatial analysis of pavement quality	■	
	G5	■	Spatial analysis of pavement quality (raised or textured pavement at crosswalks)	■	
	G6	■	Spatial analysis of sidewalk or pedestrian network in terms of public amenities and service areas	■	
	G7	■	Spatial analysis of street furniture and locations on the sidewalks	■	
	G8	■	Spatial analysis of street and traffic signposts	■	
	G9	■	Spatial analysis of street lighting	■	
	G10	■	Spatial analysis of street trees, flower pots and other landscape elements	■	
C. Accessibility	H1	■	Accessibility of pedestrians to service areas (education, health, religious, administrative buildings/sites) and the major public spaces within a walking distance	x	
	H2	■	Spatial analyses on the parameter G	■	
	H3	■	Mental maps	■	

■ The research tool is used for the assessment of the parameter.

— The research tool is not used for the assessment of the parameter.

◇ Different from other parameters, data regarding C1 was collected through archival documents and interviews. To study C1 (i.e., an integrated and holistic transportation planning strategy), this research used Mersin Transportation Strategy- Final report (2010) and results of interviews that were conducted with the expert academics on urban transportation in the Department of City and Regional Planning of Mersin University.

Table 2: Research tools for the data collection regarding the factors of walkability, their quality indicators and parameters

methods to measure the level of connectedness within an urban network system, one of which is 'connectivity index (CI)'. The score of CI is calculated by dividing the number of roadway links to the number of roadway nodes (Litman, 2016). The higher the CI score, the smaller the size of building blocks, and the greater the internal connectivity (Southworth, 2005). The CI of traditional grid patterns is 1.65, indicating a high level of connectivity, while CI of curvilinear street patterns are much lower than that of grid

or modified-grid patterns (Southworth, 2005; Zhang, 2013). The minimum CI for a walkable community is 1.4 (Litman, 2016). Highly-interconnected and continuous street patterns enable destinations to connect quickly and directly each other, distribute the traffic equally in many roads rather than a single arterial, increase legibility, and they ultimately have high potentials to create more pedestrian-friendly streets (Southworth and Owens, 1993; Forsyth, 2015).

Another quality of walkability is 'connection to open space systems'. Natural spaces, meeting and gathering places should be strongly connected to each other through continuous sidewalks and pathways with a good quality pavement for accessibility of pedestrians and disadvantaged groups (Southworth, 2005). Accessing such public spaces, open places with unique features, meeting and gathering places by walking contribute to social life, and help generate liveable and walkable urban spaces (Montgomery, 1998).

'Quality of sidewalks and pedestrian paths' improves the comfort of pedestrians. It is affected by a number of variables, such as sidewalk width, continuous sidewalks and paths providing a smooth surface without irregularities, clear walking zones on sidewalks, the quality of pavement for the comfort of pedestrians with varied ages and physical abilities, raised or textured pavement at crosswalks, the locations of public amenities and service areas (e.g., public toilettes, breastfeeding facilities), street furniture, street and traffic signs, trees, and flower pots, and quality of street lighting (Southworth, 2005, Duany et al., 2010; Pedestrian and Streetscape Guide, 2003).

Finally, 'accessibility to public service areas and gathering spaces' can be measured first by the accessibility of pedestrians to education, health, religious and administrative buildings, and the major public spaces that should be within a 10-20 minute-walking distance (i.e., maximum 800 meters) (Lotfi and Koohsari, 2009). Unimpeded pedestrian movement to such service areas and public spaces, and orientation are other sub-measures of accessibility (Jacobs, 1995, Southworth, 2005). Orientation enables pedestrians to realise public space network and to recognise the most important landmarks in public spaces in order to avoid from the fear of being lost. 'Permeability' and 'legibility' play crucial roles in terms of orientation of people in urban space. Permeability is the extent to which an environment allows a visual and physical choice of routes both through and within it; and 'legibility' means the extent to or the ease with which the cityscape can be 'read' and its layout can be understood (Carmona et al., 2010). The visual assessment literature, which attempts to measure how individuals perceive their environments, and better understand the features that individuals value in them, adds other potentially important qualities. It goes beyond the boundaries of urban design to the fields of architecture, landscape architecture, park planning, environmental psychology, etc., as perceptual qualities of the environment figure prominently in these fields as well (Ewing et al., 2006: 224). In this research, we suggest the use of mental or cognitive maps to have a better understanding on the users' perception of space legibility. Because Lynch (1960) suggests the use of mental maps (cognitive maps) to study legibility of urban space based on paths, edges, districts, nodes and landmarks. He (1960) claims that a clear mental map gives people an important sense of emotional security, it is the framework for communication and conceptual organization, and heightens the depth and intensity of everyday human experience. A street network made up of short and direct route choices generates a permeable and legible urban pattern for pedestrians (Forsyth, 2015).

Methodology

This research, providing a micro-scale walkability assessment model, and employing descriptive and exploratory case study method, examines the walkability level of the main commercial streets of Mersin, i.e. Atatürk and Uray Streets (AUS). It studies the spatial development of the city and the city centre over the last 85 years to reveal the morphological changes, the current problems, and the potentials at the levels of city and city centre regarding walkability. The spatial analyses on the land-use functions, building density, design and architectural features, landmarks, intersections, boundaries, and traffic management policies in AUS revealed four specific zones with different characters, represented as Z1, Z2, Z3 and Z4 (Figure 2). The walkability level of each zone was studied individually regarding walkability factors to reveal the positive and negative aspects of the space effecting its walkability level (Table 2).

The case study relies on multiple sources of qualitative and quantitative evidence, involving a mixture of primary and secondary data. Table 2 presents the sources of evidence for investigation in connection with the walkability factors, quality indicators and parameters. Archival documents (reports, books, master and doctoral theses, academic articles, newspaper cuttings, maps, plans, photos, etc.) constitute the first source of evidence. The second source of evidence is direct observation. The site was visited several times during December 2011, March 2012 and March 2015 on both week and weekend days between the hours of 7.00-9.00, 9.00-12.00, 12.00-13.30, 13.30-17.00, 17.00-19.00, 19.00-22.00 to observe the user profile, their frequencies, the current spatial organization and features of these streets, and their management and operation (Table 3).

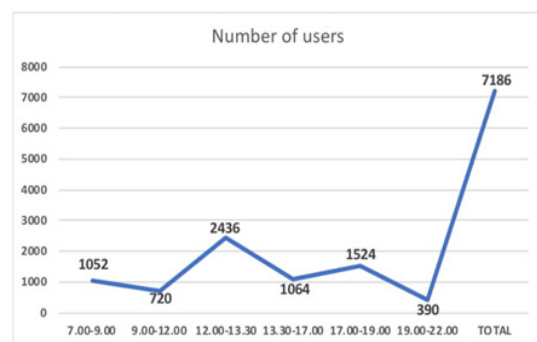


Table 3: Number of visitors of AUS according to different time intervals in a day

Detailed notes about the factors positively and negatively affecting the walkability level of each zone were recorded in a research diary to attain primary data. Photos were taken to provide evidence for direct observations. Third, a survey of 72 questionnaires was conducted in December of 2011 on both week and weekend days between the hours of 10:00-12:00 and 13:00-17:00 with user groups from different age, gender, education and occupation groups to reach varying perceptions and opinions (Table 4).

Survey questions cover the user evaluation regarding the factors of attractiveness and convenience, safety, quality

of street pattern, quality of sidewalks and pedestrian paths, and accessibility. Last, spatial analyses were mapped to show the factors effecting the walkability level of the site. Four types of questions were used in the survey. Demographic questions were asked to identify the user profile of the streets in terms of gender, age, educational status, occupation, place of living, visiting frequency and visiting part of these streets to assure that a variety of participants was included in the survey research. Closed-ended, open-ended and multiple-choice questions were used to understand the user perceptions regarding the walkability aspects of these streets. The answers of the closed-ended questions were examined in SPSS software; descriptive statistical analyses through frequency tables were prepared to reveal the factors affecting the walkability level of AUS. Likert scale was used to make comparison between four zones. The answers of the survey questions were scored from 1 to 4. In Likert scale, 1 represented ‘unfavourable zone’ for survey respondents; 4 represents ‘the most favourable zone’; and 0 referred to ‘not applicable’, as the respondents could not evaluate the factor for some zones (Tables 5, 6). Between 1 and 4, 2

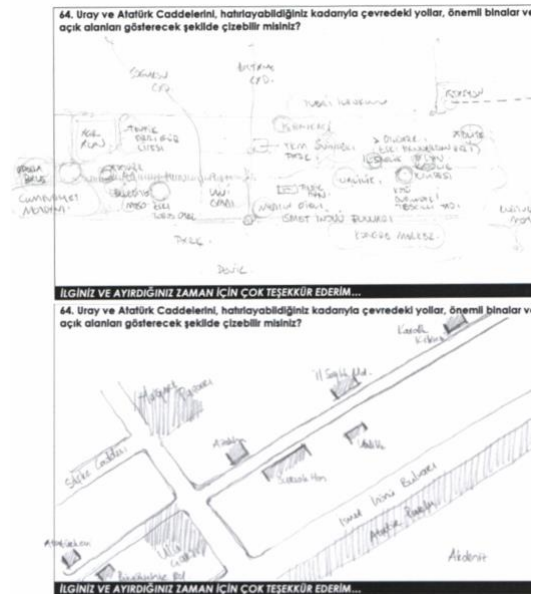


Figure 1: Two mental map examples of survey participants showing that Ataturk and Uray Streets are highly legible for users (Authors, 2012)

questions. Further, mental maps, drawn by the survey respondents, were used to understand how far AUS and their surroundings are legible for the users and which aspects of the public space are memorable for them (Figure 1). These mental maps were very useful to show memorable buildings and places in AUS according to the users’ perception (See Figure 9). Last, four zones were compared between each other regarding each walkability factor to reveal their walkability level under three categories: “high level of walkability” scored as +1, “moderate level of walkability” scored as 0, and “low level of walkability” scored as -1 (Table 9). This qualitative categorisation and quantitative scoring enables us to compare multiple zones between each other in qualitative and quantitative terms to attain an ultimate assessment of walkability level of urban space.

Mersin and the Historic City Centre

Mersin is a cosmopolitan city located in the south of Turkey. It became an important Eastern Mediterranean port city in the 19th century. Starting from the 1930s, the city developed linearly along the coast, and grew in a compact form towards the north, north-east and north-west directions until the mid-1980s. Thereafter, urban sprawl has become the dominant tendency shaping the urban macroform. The city centre developed around AUS since the 19th century, parallel to the coast, and later it sprawled along the main roads to the north and north-east directions (Figure 2). Both streets, connected to each other linearly with squares and parks, are surrounded by Kurtuluş Square, Istiklal Street and the Central Station to the north and north-east; İsmet İnönü Boulevard, Ataturk Park, Mersin international port and the old marine to the south and south-east; and Sakarya Street, Cumhuriyet Square and Çamlıbel neighbourhood to the south-west (Figure 3). To the north and north-east of these streets, the city centre extends with commercial, administrative, cultural and residential functions.

Metrics	Frequency	Valid percent (%)
Gender		
•Men	43	59.7
•Women	29	40.3
Age		
•16-34	32	44
•35-59	31	43
•60+	9	13
Education		
•Illiterate	1	1.4
•Primary school	6	8.3
•Secondary school	3	4.2
•High school	16	22.2
•University& higher education	46	63.9
Occupation		
•Shopkeepers	21	29
•Officers	11	15
•Street vendors	6	9
•Pedestrians	34	47
Pedestrian types		
•Pedestrians	60	83.4
•Pedestrians with disabilities	12	16.6
Place of living		
•Northern Mersin	5	6.9
•Southern Mersin	0	0
•Eastern Mersin	5	6.9
•Western Mersin	46	64
•Outside of Mersin	5	6.9
•Centre of Mersin	11	15.3
Visiting frequency		
•Every day	16	22.2
•Every weekend	0	0
•Every day from Monday to Friday	15	20.8
•3-4 times a week	2	2.8
•Once or twice a week	9	12.5
•Once or twice a month	30	42.7
Utilization of Ataturk and Uray Streets by pedestrians		
•Zone 1	15	20.8
•Zone 2	12	16.7
•Zone 3	24	33.3
•Zone 4	21	29.2
Mode of transition to arrive at Ataturk and Uray Streets		
•Private car	30	41.7
•Walking	15	20.8
•Bus/Minibus	26	36.1
•Train	1	1.4

Table 4: Demographic composition of the current users of AUS.

and 3 were given for the zones which had a ratio from lower to higher. If the same ratios were found for a factor, both were given the same point score. Content analysis was employed for the analysis of the open-ended

AUS contain four distinct zones: Zone 1 (Z1) extends from the roundabout of Uray Street and 5210th Street to Kurtuluş Square; Zone 2 (Z2) stretches from Akdeniz District Governorship to the intersection of Uray and Kuva-i Milliye Streets; Zone 3 (Z3) is a square (old Custom Square) enclosed by Ulu Mosque and Ulu Market; and finally, Zone 4 (Z4) extends from 4706th Street to Cumhuriyet Square (Figure 2).

results show that especially Z4 is attractive and comfortable for walkers. The presence of interesting urban scenes and destinations such as historic landmarks, well-kept shop windows, traditional shopping malls, food and beverage shops, banks on the ground floors of buildings make AUS attractive for pedestrians (Figure 3). According to the questionnaire results and mental map analyses, Z3 and Z4 are the most preferable parts of walkers due to its memorable symbolic places, and ‘diversity’ and ‘variety’ of activities and events. Overall, the findings show that Z4

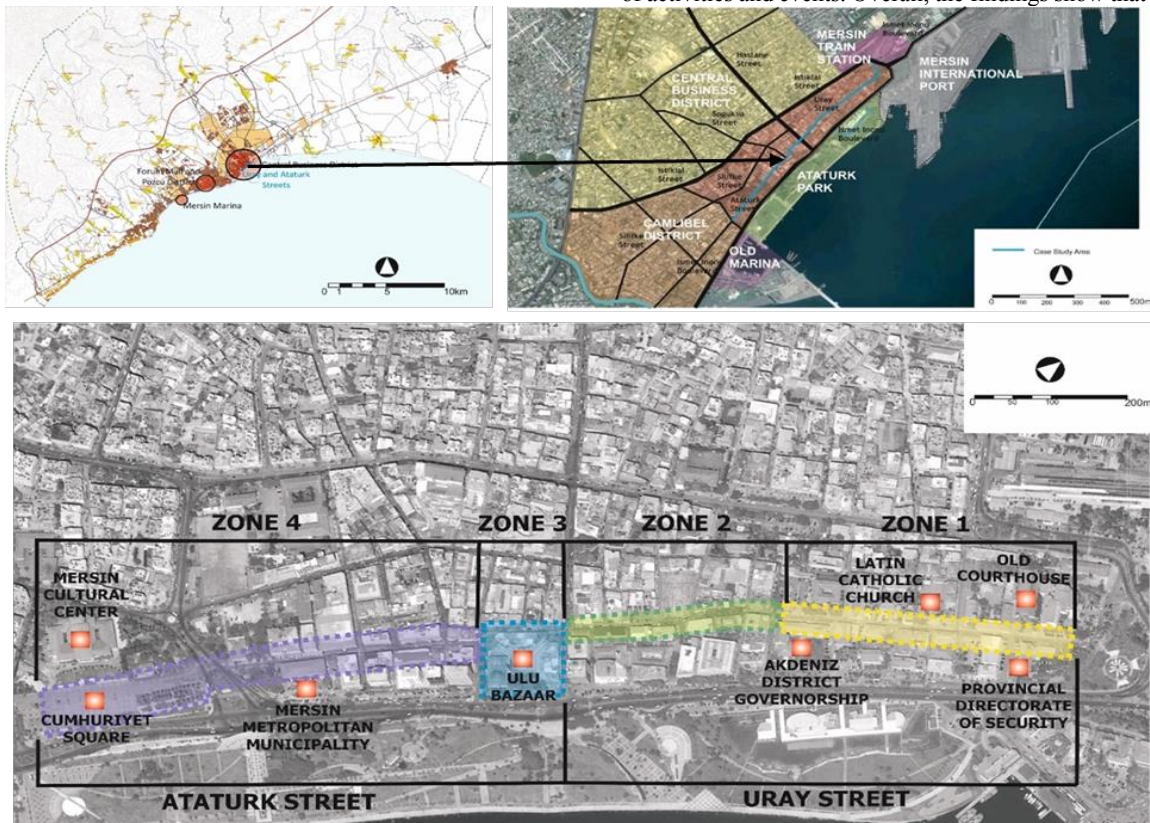


Figure 2. The location of the historic city centre and AUS in Mersin (above) and four distinct zones of AUS (below) (Authors, 2019)

AUS significantly contribute to the urban identity with their cultural and historic buildings/sites, meeting and socializing places, and the most well-known symbols and landmarks of Mersin. Following the reclamation of the coast and the construction of ten-storey buildings along İsmet İnönü Boulevard, both streets have become disintegrated from the seaside. The heavy vehicular traffic, congestion and noise pollution on those streets have been obstructing the pedestrian mobility and use, thereby impoverishing their liveability and sustainability.

Assessment of Walkability Level of AUS

Attractiveness and convenience

AUS offer rich visual experiences for walkers. Z1, Z2 and Z3 generate pedestrian movements owing to the variety and diversity of activities in urban space (e.g., government agencies, commercial, office, education and cultural uses, transportation hubs and stops). Being a pedestrianized street and containing the historic buildings, squares, and parks, Z4 is the liveliest part of this area. It is only accessible by cars during the early morning hours or very late evening times for service-related purposes. Survey

is the most walkable zone due to better cleaning, maintenance and repair of the sidewalks and its appealing and safe look for walkers, followed by Z3, whereas Z1 and Z2 are the least walkable sites (Table 9).

Actual and Perceived Safety

As a pedestrianized street with a high-quality street lighting and a rich variety of activities adding more eyes on the street, Z4 is the safest zone for walkers among four zones. It is followed by Z3, Z2 and Z1, respectively. The majority of survey respondents (90% for Z1; 68% for Z2) complained about narrow sidewalks, and obstructions (pits, bumps or other irregularities) along the sidewalks in Z1 and Z2. Heavy vehicular traffic in these zones, cars parking illegally on sidewalks and next to on-street car-parking lots, pedestrians crossing the street wherever they want threaten the actual safety of pedestrians. Most of the survey participants agreed that the vehicular traffic is the prominent safety problem for pedestrians to move within Z1 and Z2. There needs a holistic traffic calming strategy and a design guideline to address the needs of both pedestrians and vehicular drivers for the city centre. Such



Figure 3. The important landmarks and gathering places on AUS (Authors, 2012)

a design and management strategy should consider the location and design rules of traffic lights and crossings, ramps for improving the accessibility of disadvantaged groups, speed bumps, on-street car-parking lots, delineated car-parks nearby AUS, and street lighting, but also the management, control and use codes for both pedestrians and vehicular drivers.

Regarding the perceived safety, survey respondents generally find Z3 and Z4 very safe. However, they raise their concerns about the safety in Z1 and Z2. Narrow sidewalks, fast-driven cars, unsafe street crossings, illegal car-parking, inadequate street lighting, night clubs, bars, restaurants and entertainment places working late at night, empty premises and deserted parts (e.g. Z1) at night are the prominent factors reducing the feeling of safety in the city centre and AUS. Likewise, they showed the vehicular traffic as the main source of noise pollution (Tables 5, 6). AUS are visited daily by 7,186 pedestrians on average (Table 3). According to Gehl (2010), activities, such as frequenting street cafés and outside dining, make public space convivial and animated. Similar to many Mediterranean cities, in spite of the hot and humid climate, there exists a lively street life in the historic city centre of Mersin. With a rich variety of urban activities, active street frontage, and continuous building frontage forming a street wall, the public life in AUS are kept dynamic and lively all day long. However, they become deserted, especially after 22.00. In AUS, there are no residential uses, or other facilities, such as hotels, to ensure the presence of a night population that could provide ‘eyes on the street’. According to the majority of survey respondents, both streets would potentially be perceived as much safer, if there existed some living population. All in all, the research findings reveal that Z4 is the safest zone in terms of actual and perceptual safety, followed by Z3, whereas Z1 and Z2 are the least secure zones in all senses.

Integration of pedestrian network with other transportation modes

The pedestrian network in the historic city centre is highly connected with different transportation modes. Within the study area, there are six bus stops: one is located in front of the Central Station, three bus stops on Ismet Inonu Boulevard, one on the junction of Ataturk and Sakarya Streets, and the last one on Silifke Street (Figure 8). Between 6:00 and 22:00, the city centre is highly accessible from different parts of Mersin by public transit modes. A bus or a minibus arrives to the city centre every 6 minutes from the east of Mersin, and every 1.5 minutes from the north and the west of the city (1). Almost every day, around 21,420 people travel to the city centre by public transit; being considered as adequate by the Mersin Metropolitan Municipality (MMM) (MBB, 2010). Direct observations and spatial analyses revealed that bus and minibus stops are all accessible by walking. However, special attention to the design of the sidewalks, crosswalks, car-parking areas, and public transit stops is needed to address the accessibility needs of disadvantaged groups. In summer, people tend to access to the city centre by car due to hot weather (1). There are four car-parking sites in Z1, and one in Z4, all of which are accessible to AUS by walking (Figure 8). Only the use of these car-parking sites needs to be encouraged.

Urban Transportation Strategy 2025 which has been in power since 2010 envisages an integrated and holistic urban transportation system for Mersin (MBB, 2010). In recent years, MMM purchased 60 new buses to improve the mobility of the disadvantage groups within the city centre. Nevertheless, the major policies that encourage the use of public transit to access to the city centre, such as the construction of multi-modal transfer centres, the light railway lines and their stops, the new car-parks in the city

QUESTIONS	Z1	Z2	Z3	Z4
A. ATTRACTIVENESS AND CONVENIENCE				
A1. Walking paths are clean and well-maintained.	2	2	3	1
A2. The variety and diversity of activities and uses is attractive and interesting for all.	4	2	1	3
A3. This part of the street is good-looking and interesting.	1	3	2	4
	7	7	6	8
B. SAFETY				
<i>B.1. Actual safety</i>				
B1a. Which parts of AUS are wide enough for vehicular traffic?	1	2	0	0
B1b. Which part/s of AUS can you walk easier and more comfortable?	1	2	3	4
B1b. Which parts of AUS obstruct comfortable pedestrian mobility?	2	3	3	4
B1b. Cars should drive slower on AUS?	1	2	3	4
B1b. As a pedestrian, I have difficulty to cross Z1 and Z2.	2	1	0	0
B1b. There is no sufficient pedestrian crossing on Z1 and Z2.	2	1	0	0
B1b. The street crossings along Z1 and Z2 are placed properly.	2	1	0	0
B1b. The street crossings along Z1 and Z2 are easily accessible for pedestrians.	2	1	0	0
B1b. The street crossings along Z1 and Z2 are safe for disadvantaged groups (elderly people, disabled groups, children and parents with young children).	2	1	0	0
B1b. Traffic lights on Z1 and Z2 are designed and placed according to the needs of disadvantaged groups.	1	2	0	0
B1b. Sidewalks and pedestrian paths are safe for disadvantaged groups.	1	2	2	2
B1b. Vehicles parking along AUS obstruct pedestrian mobility.	1	3	2	4
	18	21	13	18
<i>B.2. Perceptual safety</i>				
B2b. AUS will be much safer, if there exists more residential use.	3	2	4	3
B2c. Stores/shops open till late hours at night make these streets much safer.	2	1	3	4
B2d. Both AUS are safe at night.	3	1	3	2
B2d. Which part of AUS is noisy?	1	2	3	4
B2d. Which part of AUS' noise is more resulted from the vehicular traffic?	2	3	1	4
	11	9	14	17
D. QUALITY OF STREET PATTERN				
D1. AUS are easily accessible from other destinations by walking.	3	2	4	1
	3	2	4	1
G. QUALITY OF SIDEWALKS AND PEDESTRIAN PATHS				
G1. Sidewalks and pedestrian paths of AUS are easily walkable and comfortable.	2	1	4	3
G1. There is no pits, bumps or other irregularities for pedestrians along sidewalks and pedestrian paths.	1	2	3	4
G1. Canopies of shopfronts protect pedestrians from hot and wet weather conditions.	1	2	4	3
G1. Raised or textured pavement at crosswalks, sidewalks and pedestrian paths are designed for easy and comfortable mobility of disadvantaged groups.	1	3	3	2
G1. Street furniture (bins, benches, light posts, bollards, etc.) on the street hinder the mobility of pedestrians.	1	2	3	4
G2. The sidewalks/pedestrian paths are wide enough for comfortable and easy movement of pedestrians.	1	2	3	4
G3. The pavement slabs on sidewalks and pedestrian paths are well-laid out and do not hinder pedestrian movement.	2	2	3	1
G3. Level variations along the sidewalks pavement (ramps, etc.) are adequately safe for pedestrians.	1	2	4	3
G3. Pavement slabs along the sidewalks/pedestrian paths are not deformed or broken.	2	2	1	3
G4. Street furniture (bins, benches, bollards, etc.) provided along the street is sufficient.	2	3	1	4
G4. There are enough rest places along these streets.	1	2	3	4
G5. Street and traffic signs on the streets are sufficient.	3	1	3	2
G6. They are well-lit streets at night.	2	1	2	2
G7. The trees on the streets hinder the comfortable and easy movement of pedestrians.	3	3	2	1
G7. Flower pots and other landscape elements hinder the comfortable and easy movement of pedestrians.	4	3	2	1
	27	31	41	41
H. ACCESSIBILITY				
H2. Cars parking on-street parking lots along the streets hinder the comfortable and easy movement of pedestrians.	1	3	4	3
H3. Vehicular traffic on AUS is a problem for pedestrians to access to different parts of the street.	1	3	2	4
H3. Vehicular traffic on the parallel streets is a problem for pedestrians to access to different parts of the street.	2	3	1	4
	4	9	7	11
TOTAL	70	79	85	96

Table 5: Scores of survey questions on the walkability quality of four distinct zones of AUS (Z1, Z2, Z3 and Z4) (1 = unfavourable zone; 4 = the most favourable zone; 0 = not applicable).

centre and the pedestrian walkway and bicycle route networks, have yet to be completed.

Quality of Street Pattern

The walkability level of AUS is assessed according to the physical configuration of street network. As Southworth and Owens (1993) suggest that grid and modified grid street patterns are highly walkable, we visualised the street network of AUS through its figure-ground map (Figure 4). The figure-ground map of AUS indicates that the street pattern of the historic centre presents the characteristics of a 'modified-grid plan' (Figure 4). Having alternative route options, this type of street pattern provides pedestrians

with a coherent and legible street network, ultimately ensuring a walkable and liveable environment. The streets around AUS reach directly to AUS by providing a high level of accessibility between destinations and easy approachability to public services. They also provide pedestrians with the shortest trip distances, numerous intersections and alternative travel trip routes between destinations.

The length of building block on AUS ranges between 18 meters and 100 meters for Z3 and Z4 and between 28 meters and 165 meters for Z1 and Z2. The average building block lengths of Z1, Z2, Z3 and Z4 are 80, 47, 47, and 40 meters, respectively (Table 7). Ideally, with longer average

length of building block, Z1 provides a continuous and longer walking path, by creating a good level of enclosure, compared to Z2, Z3 and Z4 (Tables 7 and 8). However, in the case of AUS, Z2, Z3 and Z4 are highly walkable zones despite shorter average lengths of building block, compared to that of Z1. Because Z3 and Z4 are pedestrianised zones, and pedestrians have a high possibility to walk without a vehicular traffic intrusion.

results and above-mentioned explanations show that, regarding street pattern quality, Z3 and Z4 are highly walkable, followed by Z2. The least walkable zone is Z1.

Connectivity of network

With the modified-grid street pattern, AUS provide alternative, direct and short travel trip routes for

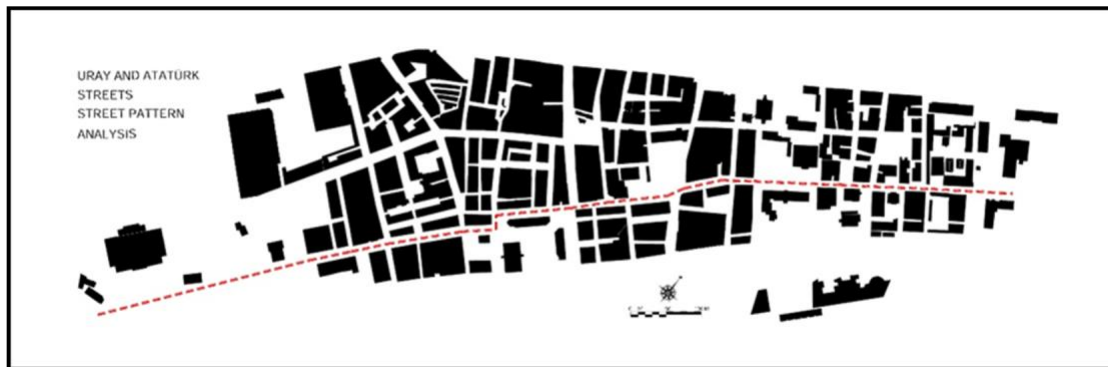


Figure 4: Figure-ground map of AUS and its surrounding in Mersin (Authors, 2012)

Regarding the number of intersections per hectare, ideally the lower the number of intersections per hectare is, the higher the level of walkability is. Despite the high number of intersection per hectare, Z3 and Z4 (5.2) are more walkable than Z1 and Z2 (3.25), because Z3 and Z4 are pedestrianised zones.

Regarding the building height, the average numbers of storey in Z1 and Z2 are 3 and 2.4, respectively (Table 8). Considering that each storey is 3.5 meter high, the average height of each zone is Z1 (10.5 meters), Z2 (8.4 meters), Z3 (16.1 meters) and Z4 (15.4 meters). In Z1, the buildings of government agencies are higher than four storeys, whereas Z2 contains mostly single-, two- or three-storey buildings. With the buildings ranging from two to seven-storeys, Z4 and Z3 are much denser than Z1 and Z2. Thus, regarding the building height and building density, Z4 and Z3 are much denser than Z1 and Z2. The average street widths for Z1 and Z2 are 10 meters and 10.5 meters respectively. For Z4 and Z3, they are 15 meters. In terms of building height to building width ratio, Z4 is 1.02; Z3 is 1.07, Z2 is 0.8, and Z1 is 1.05. Regarding a sense of enclosure, these zones provide a comfortable feeling of enclosure, whereas Z2 offers the lowest level of a comfortable feeling of enclosure. We can come to a similar conclusion in terms of the human-scale perception. In sum, direct observations, morphological analyses, survey

pedestrians, disadvantaged groups and bike users. The Connectivity index (CI) score of AUS and that of AUS and its surrounding small streets are 1.38 and 1.49, respectively. Being very close to the CI score of walkable spaces (i.e., 1.4), as suggested by Litman (2016), these figures indicate a high level of connectivity. A high level of connectivity for the pedestrian network is ensured by the pedestrianized walkway in Z3 and Z4, and this walkway is connected to the sidewalks in Z1 and Z2. Direct observations and the spatial analysis reveal that the most walkable area is Z3 and Z4, whereas Z1 and Z2 contain obstacles which impede the continuous movement of pedestrians, such as narrow sidewalks. Thus, regarding connectivity of network, Z3 and Z4 are highly walkable, while Z1 and Z2 are moderate level walkable zones.

Connection to open space systems

The distance from the west end (Z4) to the east end (Z1), which is a 1.5 kilometre long, in general is not seen as a walkable distance, if we consider 800 meters for a walkable distance. But, still, apart from very hot days, it is a rather walkable distance for a healthy individual. Along AUS, the distance from the public transit stops to the landmarks, symbolic buildings and sites, such as the Central Station, Inonu Park, Yoğurt Bazaar, Ulu Market, Cumhuriyet Square, is within an 800-meter walking

	YES (%)	NO (%)	NO IDEA (%)
B. SAFETY			
B2d. Cumhuriyet Square is safe at night.	49	40	11
B2d. Ulu Mosque and Ulu Mall Square are safe at night.	26	52	28
G. QUALITY OF SIDEWALKS AND PEDESTRIAN PATHS			
G6. Cumhuriyet Square is well-lit at night.	77	14	9
G6. Ulu Mosque and Ulu Market area are well-lit at night.	40	36	14

Table 6: Survey results on the walkability quality of Cumhuriyet Square and Ulu Mosque and Ulu Market area (around old Customs Square)

distance. The Culture and Convention Centre, and Ataturk Park are important meeting and activity places generating significant walking movement between AUS and the seaside. The four zones are connected to Ataturk Park and the seaside via six main streets, and some narrow lanes (Figure 5). Using these connections, pedestrians conveniently can access to Ataturk Park within a walking distance ranging between 200 meters and 350 meters, and to the seaside within a walking distance ranging between 400 meters and 500 meters. According to the direct observations, morphological analyses and questionnaires, all zones exhibit the highest quality in terms of the connection to the open space systems. In particular, the systematic observations and the spatial analyses on these streets show that the sidewalks on these streets are rarely disconnected and intermittent. On the streets linked to the sea, street vendors and street cafés, in particular, are significant features keeping these places alive and vivid. Nevertheless, a particular care and maintenance is needed

for the sidewalks and pedestrian paths, specifically for the sidewalk ramps and the quality of sidewalk pavement on AUS and on the streets connected to Ataturk Park and the seaside, to create a smooth and clear surface for disadvantaged groups.

Quality of Sidewalks and Pedestrian Paths

As a 15-meter wide pedestrianized street, Z4 provides the most comfortable walking conditions among the four zones. However, the sidewalk widths of Z1 and Z2 are not adequate for comfortable and safe pedestrian movements, being poor in terms of street furniture, street and traffic sign posts, street lighting, public amenities and service areas. In AUS, there are neither benches, nor public toilets and breastfeeding facilities, apart from those in Ulu Mosque. Z1 and Z2 are particularly poor in terms of clear walking zone on sidewalks (Figure 5). Displays of shops, tables and chairs of restaurants and cafés should be reduced in the walking zone to create better pedestrian

Building block length										
Number of Building Block	Zones		Z1		Z2		Z3		Z4	
	North	South	North	South	North	South	North	South	North	South
1	165	152	32	72	27	100	39	33		
2	63	40	67	63	18		54	60		
3	28	34	30	30	44		35	37		
4	124	57	67	35			46	26		
5		54	38	31			19	58		
6							40	37		
Total building block length (meter)	380	337	234	231	89	100	233	251		
Average building block length for each side of the street* (meter)	95	67	47	46	30	100	39	42		
Average**	~80		~47		~47		~40			

* Average building block length = Total building block length / building block numbers (eg.: 380/4=95 for Z1 northern side)

** Average building block length for each zone (northern and southern sides together) = [Average building block length (north) + Average building block length (south)]/2

Table 7: Building block lengths in AUS and average block building lengths in each zone

Building heights (storey)				
Number of storey	Zones			
	Z1	Z2	Z3	Z4
1 storey	2	5	-	-
2 storeys	6	4	2	4
3 storeys	6	5	-	-
4 storeys	2	2	2	3
5 storeys	1	1	1	4
6 storeys	2	-	1	4
7 storeys	-	-	2	1
Total Building Number	19	17	8	16
Average number of storey*	3	2.4	4.6	4.4

* Average number of storey = [(1 x number of building) + (2 x number of building) + (3 x number of building) + ... (n x number of building)] / Total number of building

Table 8: Building heights in AUS and average building heights in each zone

movement particularly in Z2. Regarding the pavement quality, ramps, street lighting, location of landscape elements, survey respondents are mostly happy about Z3 and Z4, but unsatisfied with Z1 and Z2. The pavement quality of Z3 and Z4 is adequate, whereas repair works for some parts of street floor along Z1 and Z2 are necessary (Figure 6).

According to Gehl (2010), planting trees along sidewalks close to each other enable streets to be visually perceived much narrower; and this can be used to slow down vehicular traffic, to increase pedestrians' safety, and to contribute to the aesthetic quality of the public space. According to survey respondents (56% for Z3, 72% for

Z4), trees do not hinder pedestrian movement, while this ratio is 39% for Z1 and Z2. To ensure continuous pedestrian movement, trees should be placed in the curb zone and the distance between two trees should range from 4.5 meters to 7.5 meters (Jacobs, 1995). In AUS, trees are generally placed 3.5 meters away from buildings (Figure 5). Although the majority of survey respondents claim that trees in Z1 and Z2 restrict pedestrian movement, they should be kept on these streets. They provide not only shade for walkers and cool down the street, but also significantly make the public space aesthetically pleasing (Figure 5). Yet, the base, covering and grates of trees should be designed stable enough for the safe and easy movements of pedestrians and disadvantaged groups. All

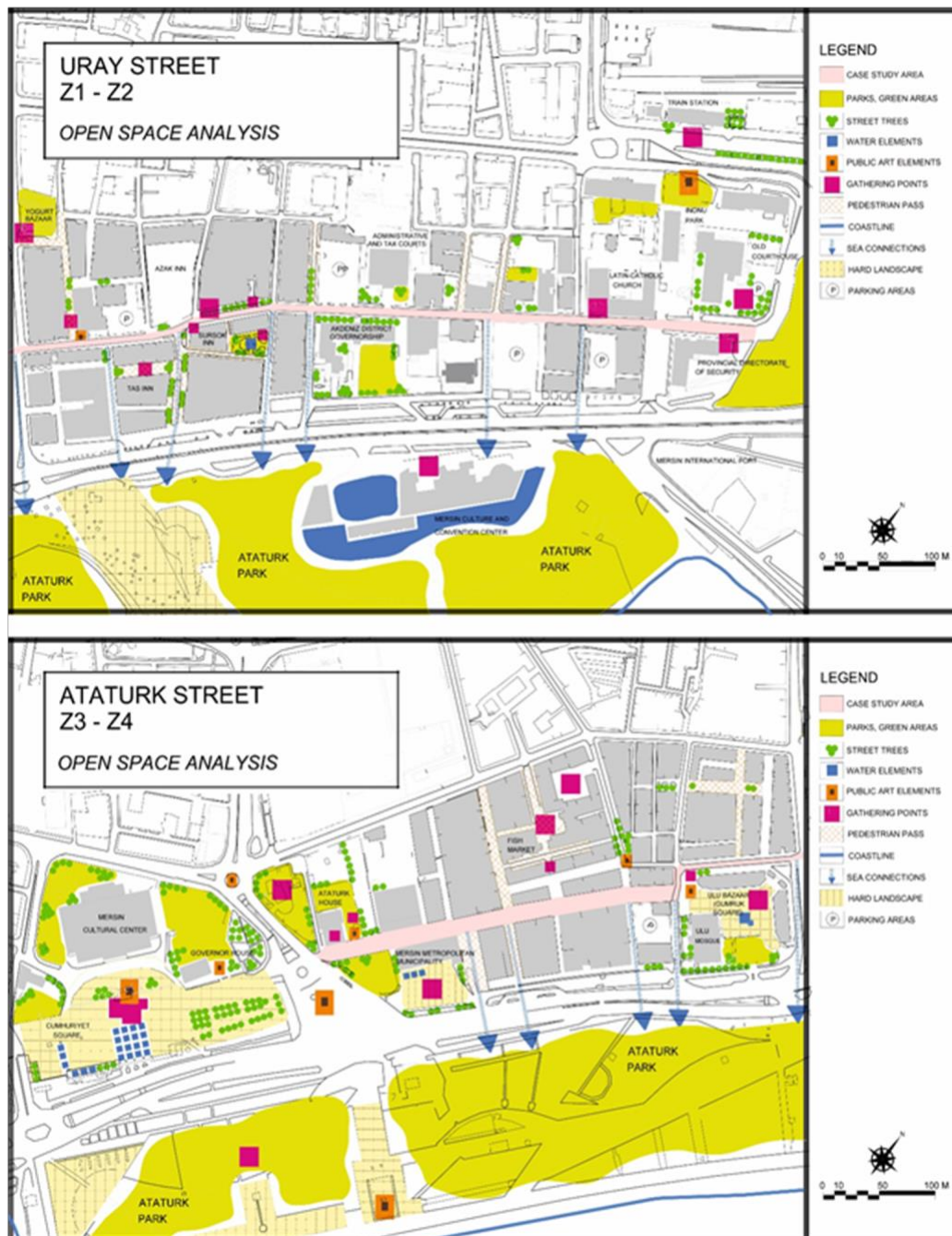


Figure 5: Spatial analysis on the connection to open space systems in AUS (Authors, 2015)

in all, Z4 is the most walkable part of the study area regarding its pavement quality, street sign boards and street lights, while Z3 is a moderate walkable zone. Z1 and Z2 are the least walkable parts in terms of the quality of sidewalks and pedestrian paths.

Accessibility

In AUS, public service areas and the major public spaces are accessible for pedestrians. Pedestrians have an easy access to the shops along Z3 and Z4, while they have difficulty in accessing to the sidewalks and stores in Z1 and Z2. In terms of quality of sidewalks and pedestrian paths, Z4 and Z3 are highly walkable zone, Z3 is a moderate walkable zone, and Z1 and Z2 are the low walkable zones.



Figure 6: The spatial analysis on the quality of sidewalks and pedestrian paths of AUS (Authors, 2012)



Figure 7: Problems related to the quality of pavement on AUS (Authors, 2012 right, left), 2015 (middle))

Regarding pedestrians' accessibility to public transit amenities within walking distance, orientation and unimpeded movement to public spaces and amenities, direct observations and spatial analyses reveal that the most walkable zone is Z3, followed by Z4 (Figure 7). Direct observations show that vehicles, which access to Z4 and park on the walkway after 18.00, obstruct the safe and continuous mobility of pedestrians. Cumhuriyet Square is

used as a parking space for special events and activities that take place in the Cultural Centre. Direct observations revealed that pedestrian movements are significantly obstructed when the square is used as a car-parking site. Irregular and illegal on-street parking generally cause traffic congestions. Measures should be taken towards encouraging the use of public transit modes to access to the events and activities in the city centre to provide safer

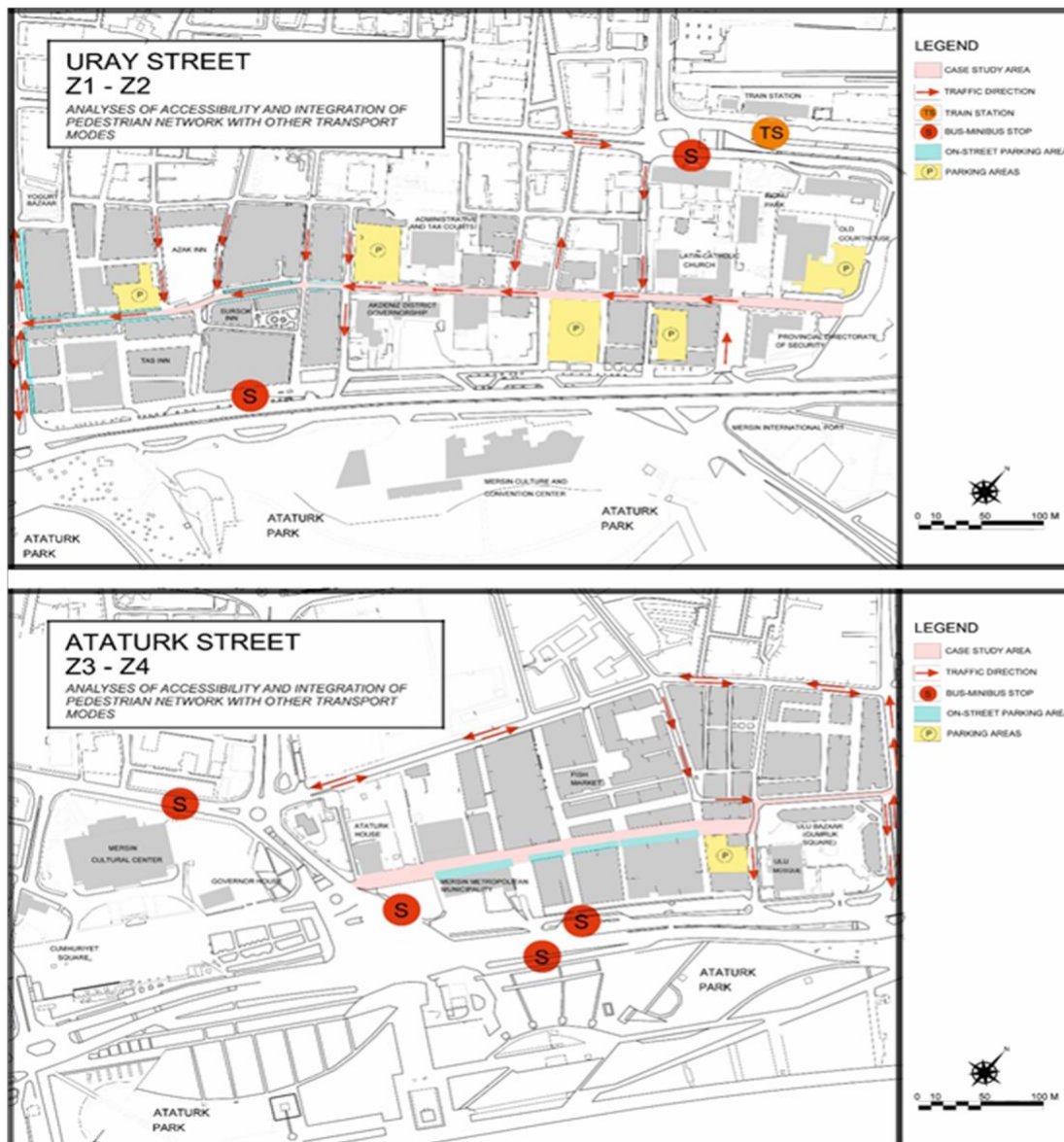


Figure 8: The analyses of accessibility and integration of pedestrian network with other transport modes on AUS (Authors, 2012)

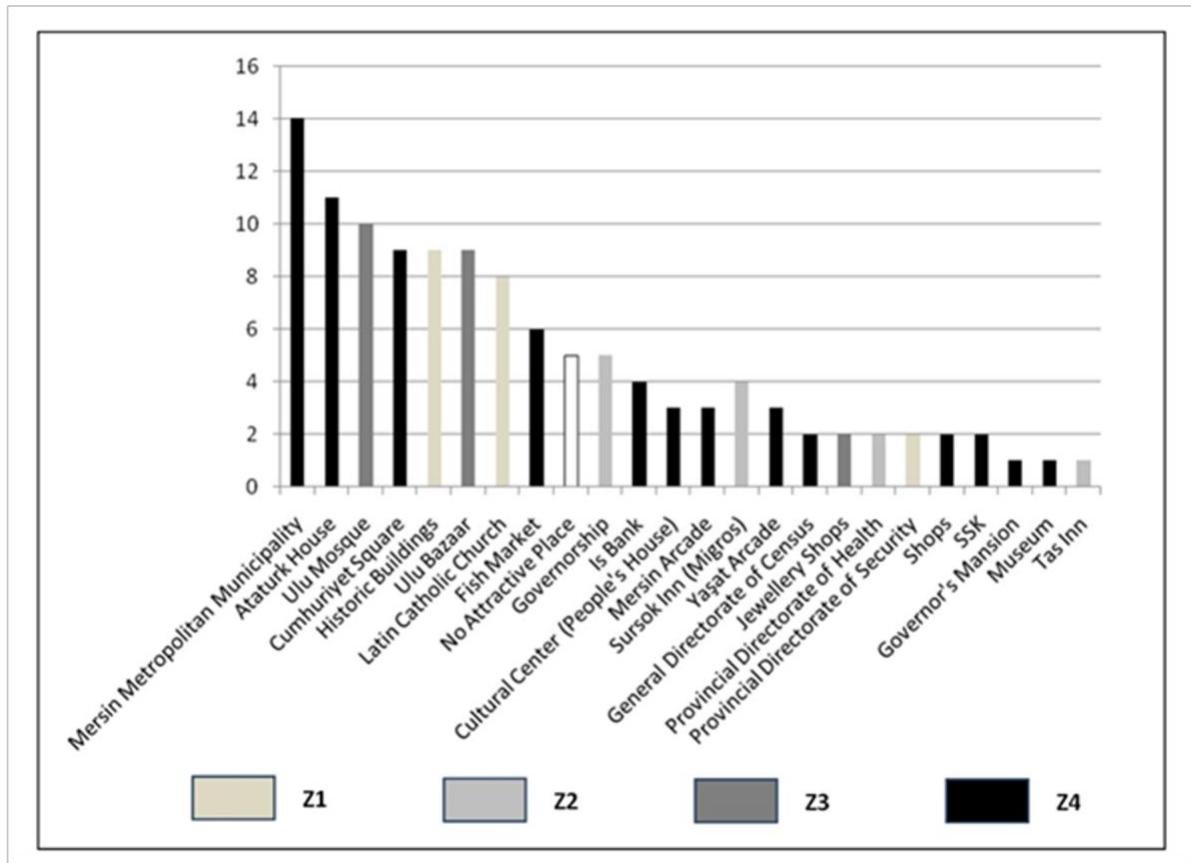


Figure 9: Memorable buildings and places in four zones based on the analysis of mental maps of the survey (Authors, 2012)

public spaces for pedestrians. In this sense, the management and control measures become important to improve the pedestrian accessibility in the city centre, thereby enhancing the walkability, liveability and sustainability of historic city centre. Much stricter and more frequent controls of public spaces are necessary to hinder irregular and illegal on-street car-parking by charging high traffic fines, redirecting them to alternative car-parking sites.

Orientation is examined under the sub-criteria of 'permeability' and 'legibility'. Landmarks and symbolic buildings in AUS are important in memorable and legible urban space (Figure 8). Mental maps of survey participants show that survey participants were able to clearly indicate the landmarks, symbolic buildings, paths and edges of AUS on the mental maps. This shows that AUS are highly legible, providing visually strong images that make the place memorable for its users. Because of most memorable landmarks which are located in Z4 and Z3, they are highly walkable zones. But, at the same time, containing short and

WALKABILITY PARAMETERS / DISTINCT ZONES	Z1	Z2	Z3	Z4
Attractiveness and convenience	-1	-1	0	+1
Safety	-1	-1	0	+1
Integration of pedestrian network with other transportation modes	+1	+1	+1	+1
Quality of street pattern	-1	0	+1	+1
Connectivity of network	0	0	+1	+1
Connection to open space systems	+1	+1	+1	+1
Quality of sidewalks and pedestrian paths	-1	-1	0	+1
Accessibility	-1	-1	0	+1
TOTAL	-3	-2	+4	+9

Qualitative categorisation of walkability capacity			
+1	HIGH LEVEL OF WALKABILITY	0	MODERATE LEVEL OF WALKABILITY
-1	LOW LEVEL OF WALKABILITY		

Table 9: Comparative evaluation of four zones of AUS regarding the walkability factors

direct route choices, modified-grid street pattern also generate permeable urban pattern for pedestrians, as can be noted through the mental maps of the survey participants. All in all, in terms of accessibility, Z4 is the most walkable part of the study area, followed by Z3; and Z1 and Z2 are the low walkable parts.

Conclusion

This article, using the micro-scale walkability model with eight qualitative and quantitative urban design measures, has explored and depicted the walkability level of four distinct zones of AUS in Mersin. Table 9 shows the walkability scores of four zones. This research revealed that Z4 is the most walkable and liveable part of AUS, followed by Z3, whereas Z1 and Z2 are the least walkable zones.

Historic buildings, public artworks, land-use functions, activity nodes and streetscape elements (building facades, trees, street furniture, etc.) significantly contribute to the walkability of AUS by making these public spaces interesting and enjoyable for pedestrians. Beside the visual and functional richness, the maintenance, repair and cleaning of streets need to be provided equally and sufficiently to each zone to improve walkability level of these streets. The investment in heritage conservation – whether through preservation, rehabilitation, restoration or adaptive re-use- will improve the walkability, thereby accelerating the regeneration and liveability of the historic city centre. Beside administrative, office, commercial and cultural uses, the development of high-quality tourism, entertainment and residential functions can be encouraged within the scope of 24-hour city (centre) strategy, which may also improve economic vitality and perceptual safety of this part of the city. In this sense, improving public space quality is critical. Likewise, there needs an urban design project and guidelines that will consider the eight design measures of walkability in comprehensive and integrated ways. Constructing pedestrian crossings on Z1 and Z2, identifying the number of parking areas and clearly showing parking lots on the designated parking lanes along Uray Street, introducing traffic lights, speed bumps and parking charges in the historic city centre are possible solutions for a balanced use of public space by car users and pedestrians. A high level of actual and perceived safety of AUS can be achieved by using the same types of street lighting, locating these street lamps among the same distances and ensuring that all work. To improve the accessibility and quality of sidewalks and pathways, there needs to take the following actions: improving quality of pavement, clearly delineating frontage zone, walking zone and furnishing zone on the sidewalks through pavement materials and simple design interventions, introducing disabled ramps, removing obstacles on the sidewalks, relocating street furniture, traffic signs, street lighting and other landscape elements in furnishing zone, improving aesthetics of streetscape. Public amenities and service areas (e.g. public toilettes and breastfeeding facilities), benches and canopies should be provided to ease the life of a variety of user groups on the public spaces and to protect them from hot and sunny weather conditions of Mersin. Some of these streetscape elements (e.g. canopies) can be also used to create a visual continuity through building facades.

Further, there needs a comprehensive, integrated and sustainable transport strategy that will connect the city-level transportation system with that of historic city, improve the use of public transit, and reduce the car usage in the historic city centre to achieve a liveable and sustainable city centre. This strategy also should envisage the diversification of public transit modes (i.e., metro, tram, bus and minibus), the development of an integrated transport system through the multi-modal transfer centres, the construction of metro or tram lines along the urban corridors with high density and mix uses in order to encourage the easy access of the public to the city centre via public transit modes. Besides, it needs to include the development of pedestrian walkway and bicycle route network in the city centre and within the city. Also, a variety of policies are required to reduce the car usage within the city centre, such as reorganising vehicular traffic circulation system according to one-way or two-way implementations, rising car-parking charges, increasing traffic controls in the city centre, and introducing traffic fines with high charges for illegal car-parking. It is necessary to improve the service and comfort quality of public transit modes for Mersin to encourage public transit usage, by increasing frequencies, installing air-conditioners in them.

The analysis of the Mersin case reveals that walkability is multi-dimensional, and that it is qualitatively and quantitatively measurable. A sensitive qualitative and quantitative assessment of walkability is necessary to identify the walkability level of urban space. Likewise, a comprehensive, integrated and multi-dimensional planning and design approach regarding the micro-scale (i.e., street level), meso-scale (neighbourhood level) and macro-scale (i.e., city level) is required to develop holistic and integrated urban design strategies and actions to achieve walkable, liveable and sustainable urban environments in Mersin, and other Turkish cities. Instead of a top-down and centralist approach, there needs a dynamic, flexible, human-centred and inclusive planning and design approach to address the complex problems and needs of today and future cities (de Roo and Silva, 2010; Lehnerer, 2009; Batty and Marshall, 2012). In this sense, the walkability model of this research can contribute to the decision-making process, as it provides a practical means for policy-makers, scholars and practitioners to assess and score the walkability level of space, and to identify the strengths and weaknesses of urban areas. An inclusive and human-centred approach becomes operational with this model through the inclusion of the user opinions in the walkability assessment. As shown in the case of AUS, the model has the potential to provide input for the upper-scale plans and guide urban design projects by providing the main walkability principles and design strategies. In this way, instead of following a rigid and hierarchical relationship between upper- and lower-scale plans, it is possible to establish a much more flexible approach which can provide mutual feedback and inputs between upper- and lower-scale plans.

Notes

1 This research does not include the public transportation services to the city and the user choice on public and private transport modes to access to the city centre of Mersin, due to the limited statistical data available in the archive of MMM. The statistical figures were attained

through the interviews with the urban transportation experts at the Department of City and Regional Planning in Mersin University in March 2015.

References

- Active Living Research (2020) [website] Retrieved 20 February 2020 from <https://activelivingresearch.org>. Robert Wood Johnson Foundation, University of California, San Diego.
- Alexander, C., Ishikawa, S. & Silverstein, M. (1977) *A Pattern Language?—Towns Buildings Construction*. New York: Oxford University Press.
- Appleyard, D. (1981) *Livable Streets*. Berkeley, CA: University of California Press.
- Batty, M. & Marshall, S. (2012) The origins of complexity theory in cities and planning. In J. Portugali, H. Meyer, E. Stolk, & E. Tan (Eds.) *Complexity Theories of Cities Have Come of Age: An Overview with Implications to Urban Planning and Design*. (pp.21-46). London, New York: Springer.
- Carmona, M., Heath, T., Oc, T. & Tiesdell, S. (2010) *Public Places—Urban Spaces*. Oxford: Architectural Press.
- de Roo, G. & Silva, E.A. (eds.) (2010) *A Planner's Encounter with Complexity*. Burlington, VT: Ashgate.
- Duany, A., Speck, J., & Lydon, M. (2010) *The Smart Growth Manual*. USA: McGraw-Hill.
- Evans, G. (2009) Accessibility, Urban Design and the Whole Journey Environment. *Built Environment*, 35(3) 365-385.
- Ewing, R., King, M., Raudenbush, S. & Clemente, O. (2005a) Turning highways into main streets: two innovations in planning methodology. *Journal of the American Planning Association*, 71: 269-282.
- Ewing, R., Handy, S., Brownson, R.C., Clemente, O. & Winston, E. (2006) Identifying and measuring urban design qualities related to walkability. *Journal of Physical Activity and Health*, 3(1): 223-240.
- Ewing, R. & Cervero, R. (2010) Travel and the built environment-A meta-analysis. *Journal of the American Planning Association*, 76(3), 265-294.
- Ewing, R. & Clemente, O. (2013) *Measuring Urban Design: Metrics for Livable Places*. Washington, Covelo, London: Island Press.
- Ewing, R. & Handy, S. (2009) Measuring the unmeasurable: Urban design qualities related to walkability. *Journal of Urban Design*, 14(1), 65-84.
- Ewing, R., Harasouliha, A., Neckerman, K.M., Purciel-Hill, M. & Green W. (2016) Streetscape features related to pedestrian activity. *Journal of Planning Education and Research*, 36(1), 5-15.
- Forsyth, A. & Southworth, M. (2008) Guest Editorial: Cities Afoot—Pedestrians, Walkability and Urban Design. *Journal of Urban Design*, 13(1), 1-3.
- Forsyth, A. (2015) What is a walkable place? The walkability debate in urban design. *Urban Design International*, 20(4), 274-292.
- Gehl, J. (2010) *Cities for People*. Washington: Island Press.
- Gehl, J. & Gemzøe, L. (1996) *Public Spaces-Public Life*. Copenhagen: The Danish Architectural Press.
- Hildebrand, F. (1999) *Designing the City: Towards a More Sustainable Urban Form*. London, New York: Spon Press.
- Jabareen, Y.R. (2006) Sustainable Urban Forms: Their Typologies, Models, and Concepts. *Journal of Planning Education and Research*, 26, 38-52.
- Jacobs, A.B. (1995) *Great Streets*. Cambridge, Massachusetts: MIT Press.
- Jacobs, J. (1961) *The Life and Death of Great American Cities*. New York: Random House.
- Krambeck, H. & Shah, J. (2006) The Global Walkability Index: Talk the Walk and Walk the Talk [Presentation] http://cleanairinitiative.org/portal/system/files/60499_paper.pdf, accessed 29 August 2014.
- Lehnerer, A. (2009) *Grand Urban Rules*. Rotterdam: 010 Publisher.
- Leyden, K.M. (2003) Social capital and the built environment: The importance of walkable neighbourhoods. *American Journal of Public Health*, 93(9), 1546-1551.
- Litman, T.A. (2016) *Evaluating Accessibility for Transportation Planning*. VTPI. <http://www.vtpi.org/access.pdf>, accessed 1 August 2016.
- Living Streets (2003) *A Response by Living Streets to the Draft Walking Plan for London*. <http://www.livingstreets.org.uk>, accessed 25 February 2015.
- Living Streets (2006) *Walkable London: A New Era for People on Foot*. <http://www.livingstreets.org.uk>, accessed 25 February 2015.
- Lotfi, S. & Koohsari, M.J. (2009) Analyzing accessibility dimension of urban quality of life: where urban designers face duality between subjective and objective reading of place. *Social Indicators Research*, 94(3), 417-435.
- Lynch, K. (1960) *The Image of the City*. Cambridge, Massachusetts: The MIT Press.
- Mersin Büyükşehir Belediyesi (MBB) (2010) *Mersin Ulaşım Ana Planı Revize Edilmesi Çalışması-Ulaşım Ana Planı Sonuç Raporu*. İstanbul: Boğaziçi Proje, Mühendislik, Planlama ve İnşaat San. Tic. Ltd. Şti.
- Montgomery, J. (1998) Making a City: Urbanity, Vitality and Urban Design. *Journal of Urban Design*, 3(1), 93-116.
- Pedestrian and Streetscape Guide* (2003), Georgia State Department of Transportation. http://www.bikewalk.org/pdfs/sopgeorgia_ped_street_scape_guide.pdf, accessed 14 June 2011.
- Sohn, D.W., Vernez-Moudon, A. & Lee, J. (2012) The economic value of walkable neighborhoods. *Urban Design International*, 17(2), 115-128.

- Southworth, M. (2005) Designing the Walkable City. *Journal of Urban Planning and Development*, 131(4):246-257.
- Southworth, M. & Owens, P.M. (1993) The Evolving Metropolis: Studies of Community, Neighborhood, and Street Form at the Urban Edge. *Journal of the American Planning Association*, 59(3), 271-287.
- Transport for London (TfL) (2004) *Making London a Walkable City: The Walking Plan for London*. London: Mayor of London.
- TfL (2005) *Improving Walkability*. London: Mayor of London.
- UNCHSD (United Nations Conference on Housing and Sustainable Development) (2016) The New Urban Agenda (NUA) (Quito Declaration on Sustainable Cities and Human Settlements for All), [online] Retrieved from: <http://habitat3.org/wp-content/uploads/Habitat-III-Zero-Draft-outcome-document-May-2016.pdf>. [Accessed 11 August 2017].
- Victoria Transport Policy Institute (VTPI) (2010) Evaluating Non-motorized Transport. *TDM Encyclopedia*. Retrieved from: <http://www.vtpi.org/tdm/tdm63.htm>, accessed 30 August 2014.
- VTPI (2014) Community Livability. *TDM Encyclopedia*. Retrieved 30 August 2014 from: <http://www.vtpi.org/tdm/tdm97.htm>,
- VTPI (2015) Smart Growth (More efficient land use management). *TDM Encyclopedia* Retrieved 30 August 2014 from <http://www.vtpi.org/tdm/tdm38.htm>,
- Wheeler, S. (2001) Livable Communities: Creating Safe and Livable Neighborhoods, Towns, and Regions in California. IURD Working Paper Series. Retrieved 30 August 2011 from: <https://escholarship.org/uc/item/8xf2d6jg#page-1>.
- Zhang, M. (2013) On the cul-de-sac vs. checker-board street network: Search for sustainable urban form. *International Review for Spatial Planning and Sustainable Development*, 1(1):1-16.

Keywords

Livability, sustainability, factors of walkability, historic city centre

Spatial Characteristics of Urban Waterfronts: Evaluations on the Historical Waterfronts of Istanbul

Serengül Seçmen¹, Handan Turkoğlu²

¹ Bahçeşehir University, Turkey

² Istanbul Technical University, Turkey

Abstract

In the second half of the 20th century, urban waterfront development began in North America and spread around the world. During the development process, urban waterfronts were assigned various functions, however following their spatial transformation, various problems such as weak interaction with water, weak physical accessibility, and the loss of historical identity have occurred directly affecting open spaces. Since the 19th century, the transformation of Istanbul waterfronts has occurred in parallel to the urban development process but without being a part of holistic planning approach. In time, the loss of open spaces, the lack of qualities such as the spatial interaction with water, the weak accessibility by public transportation and the lack of diversity for recreational activities have grown into common problems. This article discusses the results of a study focused on the spatial characteristics of open spaces especially referring to historical waterfronts (Eminönü, Karaköy, Kadıköy, Üsküdar, Beşiktaş) in consideration with the qualities of ‘water-based environment’, ‘connectivity and continuity’, ‘imageability’, ‘compatibility’ and ‘looseness’.

Introduction

Since the early ages, waterfronts have been prospering as urban areas by gaining various functions, predominantly in relation to trade, transportation, recreation and communal activities provided by the water source (Mumford, 1961; Hartshorn 1992; Kostof, 1992). During the 19th century, most of the waterfront cities experienced a period of industrialization. Together with the port areas and docks, specific industrial production activities occupied waterfronts (Bruttomesso, 2001; Marshall, 2004; Meyer, 1999; Hoyle, 1992; Breen & Rigby, 1996).

In the second half of the 20th century, due to abandoned port and production activities, development was launched regarding spatial and functional characteristics of urban waterfronts, which originated in North America and spread all over the World (Hoyle, 1988; Bruttomesso, 2001; Marshall, 2004; Meyer, 1999; Hoyle, 1992; Schubert, 2012). During the development process, urban waterfronts began to function as marinas, ferry terminals, cruise ports, shopping and entertainment spaces, parks and promenades, concert venues and festival areas, and as a variety of open spaces (Kibel, 2007; Gastil, 2002; Dovey, 2005 ; Marshall, 2004; Meyer, 1999; Breen & Rigby, 1996).

Following the spatial and functional transformation, waterfronts have become multi-purpose (Gastil, 2002) urban areas with various potentials such as improving the image of the city and re-opening the water’s edge to urban life. Beside the potentials, various problems such as dense privatization, large-scale development (Meyer, 1999), lack of spatial integration with the water (Breen and Rigby, 1996), incompatibility between multiple activities (Moughtin, 2003), weak connections with the rest of the city and the loss of waterfront identity (Bruttomesso, 2001) have emerged that were affecting the open spaces on waterfronts adversely. Also, some other particular consequences, which may have affected the spatial characteristics of open spaces on waterfronts can be

summarized as follows: car dominance, large scale passive open spaces, lack of destinations and other necessary services, and individual architectural entities having no relation with its urban context (Project for Public Spaces, 2000).

Today, the urban waterfronts development which still continues, is defined as the fourth cycle of the post-industrialization period or the first cycle of a new phase which acquired a broader meaning as waterfronts take on urban characteristics (Shaw, 2001; Desfor and Laidley, 2011; Schubert, 2012). In particular, related to recreational and socio-cultural activities, waterborne transportation and other services such as waterfront parks, promenades, beaches, open-air museums, open spaces of education facilities or decks of ferry terminals have become the main urban open spaces on waterfronts.

This study aims to demonstrate the results of a study concentrated on the spatial characteristics of open spaces on urban waterfronts which developed during the post-industrialization period. In consideration with the case of Istanbul, which is located at the water’s edge, specifically the research has converged on the following questions focused on the urban areas of Istanbul (Eminönü, Karaköy, Kadıköy, Üsküdar, Beşiktaş), where three historical waterfronts meet: How have the historical waterfronts of Istanbul developed since the 19th century regarding open space use? What is the level of access to open spaces on historical waterfronts and what is the role of waterborne transportation services for access to these open spaces? What are the spatial features that stand out with respect to the integration of the water?

The notion of open space on urban waterfronts

During the post-industrialization period, open spaces were created in a planned manner with the idea of bringing urban life back to the waterfronts. In relation to this approach, physical connections, spatial integration with

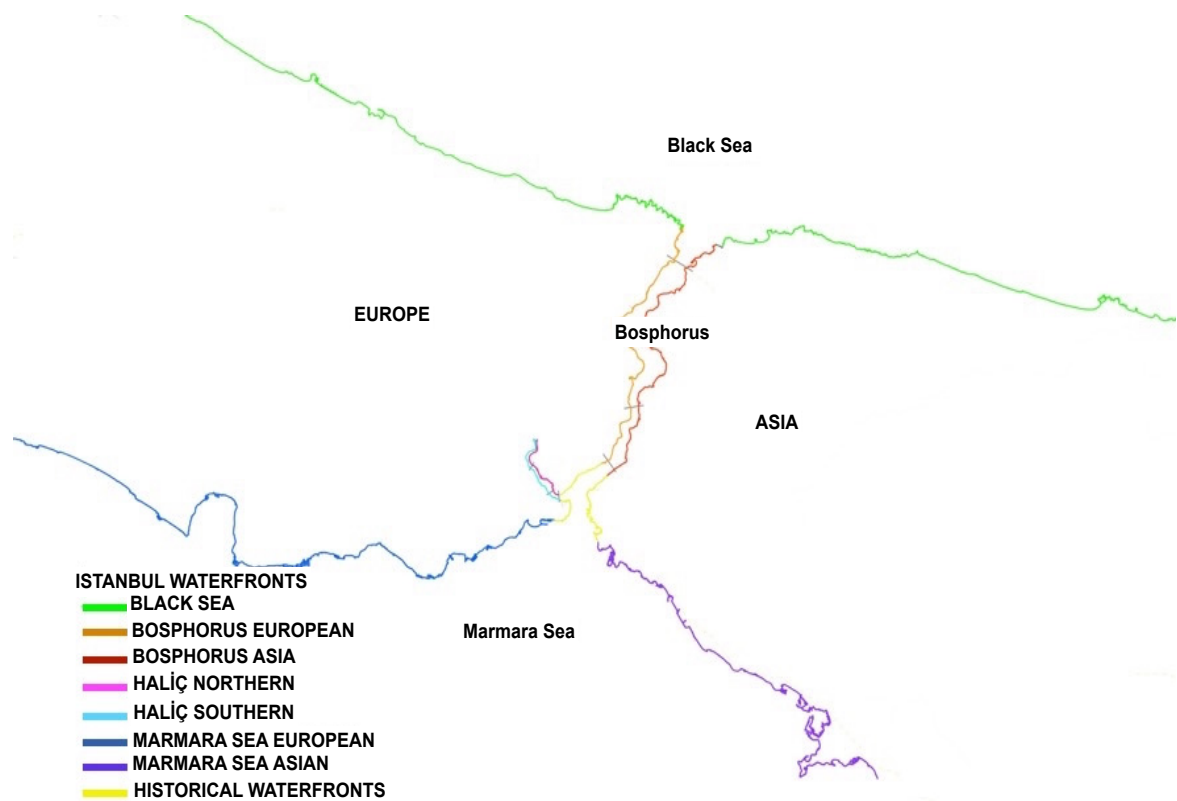


Diagram 1: İstanbul waterfronts

the water, diversity of activities, urban identity and the compatibility of various functions were taken into consideration. In general, the studies about urban open spaces on the waterfronts focused on, firstly the interaction with the water, then accessibility, variety of activities and their spatial organization, innovative design approaches, strengthening the role of open spaces on the waterfront identity and providing spaces for temporary outdoor activities.

Due to their location at the water's edge, the waterfronts were naturally expected to be integrated spatially with the water (Marshall, 2004; Breen and Rigby, 1994). Specifically, the mental and physical rehabilitation effect of the water revealed the importance of visual and physical interaction with it on open spaces (Torre, 1989). In this case, the waterfront spaces adjacent to the water, supporting water access were decisive for the water-related environment (NYPC, 2017). Furthermore, water-based recreational activities such as swimming and fishing play an important role in terms of interaction with the water since they cannot be performed without the existence of a water source. In addition, activities such as visiting a public art exhibition, attending a religious ceremony, hiking, getting fresh air, cycling, running and many other recreational activities support the relation with the water. Also, associated with those recreational and social activities, the open spaces such as parks, beaches, promenades or pavilions provided a high quality spatial relation with the water (Craig-Smith et al, 1995).

The physical connections such as pedestrian ways, streets or bridges are also categorized as open spaces that give

access to the waterfronts. These connections provided linkages between open spaces, which were important for the liveability of spaces and realization of activities (Gehl, 2011). Moughtin (2003) argued that, although large-scale open spaces were divided into small-scale ones on Canary Wharf, the lack of an access plan in relation to the city considering the streets, squares and parks did not support the open space usage. In this case, the accessibility of the waterfronts is one of the main components for providing opportunities that bring people together and enable them to socialise.

Bruttomesso (2001) showed that spatial relationality was the most important element in his studies. Additionally, the development had three main criteria for determining the distinctive features of urban waterfronts: multiple functions, various activities and the co-existence of open spaces, and other types of areas. On the other hand, Moughtin (2003) drew attention to the incompatibility that might occur between economic functions, recreational activities and waterborne transportation, which altogether established an active relation between urban life and the water.

The expectations of the users also matter in terms of physical, visual and functional access to open spaces. Stevens (2009) referred to three expectations of users, particularly in reference to temporary recreational spaces on the waterfronts: flexibility, innovation and escapism (Dovey, 2005; Franck & Stevens, 2006). From a broader perspective, flexibility is shown to be an important component of successful waterfront developments. Also Moretti (2008) mentioned that temporary activities on the waterfronts led to the discovery of new urban spaces. In

addition, Lehtovuori (2005) stated that activities played an important role in the production of new urban areas, as in the case of Helsinki where the activities were becoming so routine in the spaces that users were constantly demanding open spaces.

Case Study: Istanbul

The spatial characteristics of open spaces on Istanbul Waterfronts

Istanbul is an historical waterfront settlement and port city located on the continents of Europe and Asia, where the Bosphorus connects the Black Sea and the Marmara Sea by passing through the European and the Asian sides of Istanbul. Together with the Marmara Sea, Haliç, a natural extension of the Bosphorus, defines the Historical Peninsula waterfronts that constitute the historical center of Istanbul (Diagram 1).

The waterfront development movement that emerged in the 1970s in North America was emulated in Istanbul by the late 1980s, when the planning activities were carried out after de-centralization of industry from the waterfronts (Bilgin et al., 2010; Kuban, 1998; Müller-Wiener, 1998; Özgencil, 2008). During the period 1980-2000, together with de-industrialization, private investments emerged on the waterfronts, functioning as tourism and retail services.

Today, in addition to the private investment areas, water-dependent economic activities such as ports on the Marmara Sea waterfronts and recreational activities on the Black Sea waterfronts have proliferated, while the European side of the Bosphorus waterfronts are continuously lined with recreational areas such as parks and promenades. On the historical region of Eminönü,

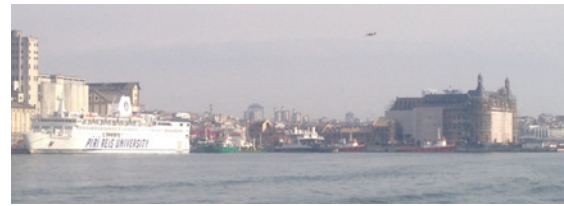


Image 1: Haydarpaşa Train Station Building and Harbor on Kadıköy Waterfronts (Photo: S.Secmen)

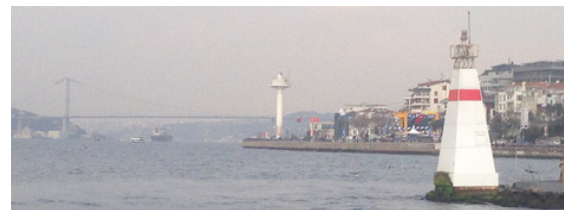


Image 2: Lighthouses and Bosphorus Bridge at the back, view to Üsküdar Waterfronts (Photo: S.Secmen)

the Karaköy, Kadıköy, Üsküdar and Beşiktaş waterfronts (Diagram 2), where the waterbodies of Marmara, Haliç and Bosphorus meet, water-dependent economical activities such as commercial ports and a cruise port, waterborne transportation, retail and other types of commercial services are run. Consequently, the historical waterfronts acquire high rates of mixed-use functions among the rest of the Istanbul waterfronts, where commercial entertainment and economic functions are in dominance. Furthermore, the historical waterfronts include the most important historical, cultural and urban

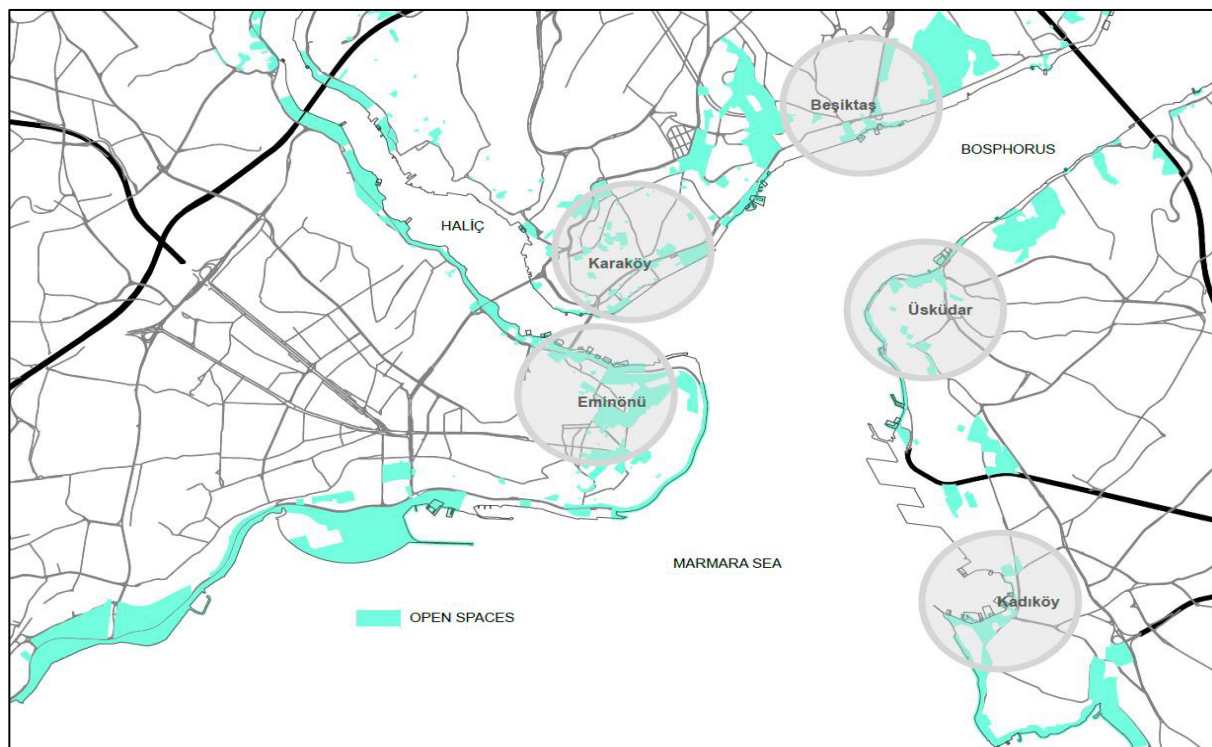


Diagram 2: Historical waterfronts location and areas

components of Istanbul such as Historical Peninsula skyline, the historical Galata waterfronts and Halic shipyards, Bosphorus villages of Beşiktaş and Üsküdar, the Maiden's Tower, Haydarpaşa Train Station and harbor, Galata Bridge, Bosphorus Bridge, lighthouses and various piers (Image 1 and Image 2). Also, this unique waterfront area is the only waterborne transportation node and has the most vibrant waterfront of Istanbul.

However, due to its dense urban context, the open spaces are limited. Eminönü, Karaköy, Kadıköy, Üsküdar and Beşiktaş areas are intertwined in a complex manner with waterborne transportation, recreational activities, socio-cultural and economic relations. In this case, the public transportation node and the piers, the recreational activities such as watching scenic views or fishing, the socio-cultural areas such as the squares, streets and open spaces around religious buildings are all integrated with the commercial services (Diagram 3).

The main spatial issues on the historical waterfronts of Istanbul

As a result of the rapid urbanization in Istanbul since the 1940s, the total of open areas on the waterfronts gradually decreased, while Istanbul expanded away from the waterfronts and spread towards the peripheries (Kuban, 1998). In addition, large-scale urban investments such as highway bridges, modern ports and motorways have had significant effects on the waterfronts (Bilgin et al., 2010; Yağcıntan et al., 2014). Although several planning decisions have directly or indirectly affected the

waterfronts, waterfront planning or management studies have not been conducted in any period within a holistic approach.

In the 19th century, the historical waterfronts were aligned mostly with piers on the water's edge and with the large commercial buildings behind the water's edge of Eminönü and the Galata Harbor and with the financial center behind the waterfront of Karaköy. Later, in the 20th century, the relationship of the city center with the water's edge became more commercial due to piers, shops, shipyards and the fish markets (Bilgin et al., 2010; Kuban, 1998; Müller-Wiener, 1998; Akın, 2011; Akın, 1998). Under those conditions, the limited space in the Istanbul Harbour prevented open spaces from being integrated into it, while traditional water spaces such as passenger piers were fragmented due to irregular growth of the harbour, which limited the conjunction with the water (Erkal, 2011).

On the other hand, the local water-dependent economy associated with urban open spaces - such as the fish market or other market areas, as well as the traditional pier squares where waterborne transportation, local economy, social and cultural life and recreation were intertwined - has lost ground. However, fishing activity has always been an important recreation for constructing the image of Galata Bridge (Müller-Wiener, 1998; Akın, 2011; Özler, 2007) (Image 3).

In time, the loss of open spaces, the lack of spatial qualities, such as the spatial and functional interaction with water, the weak accessibility by public transportation, poor

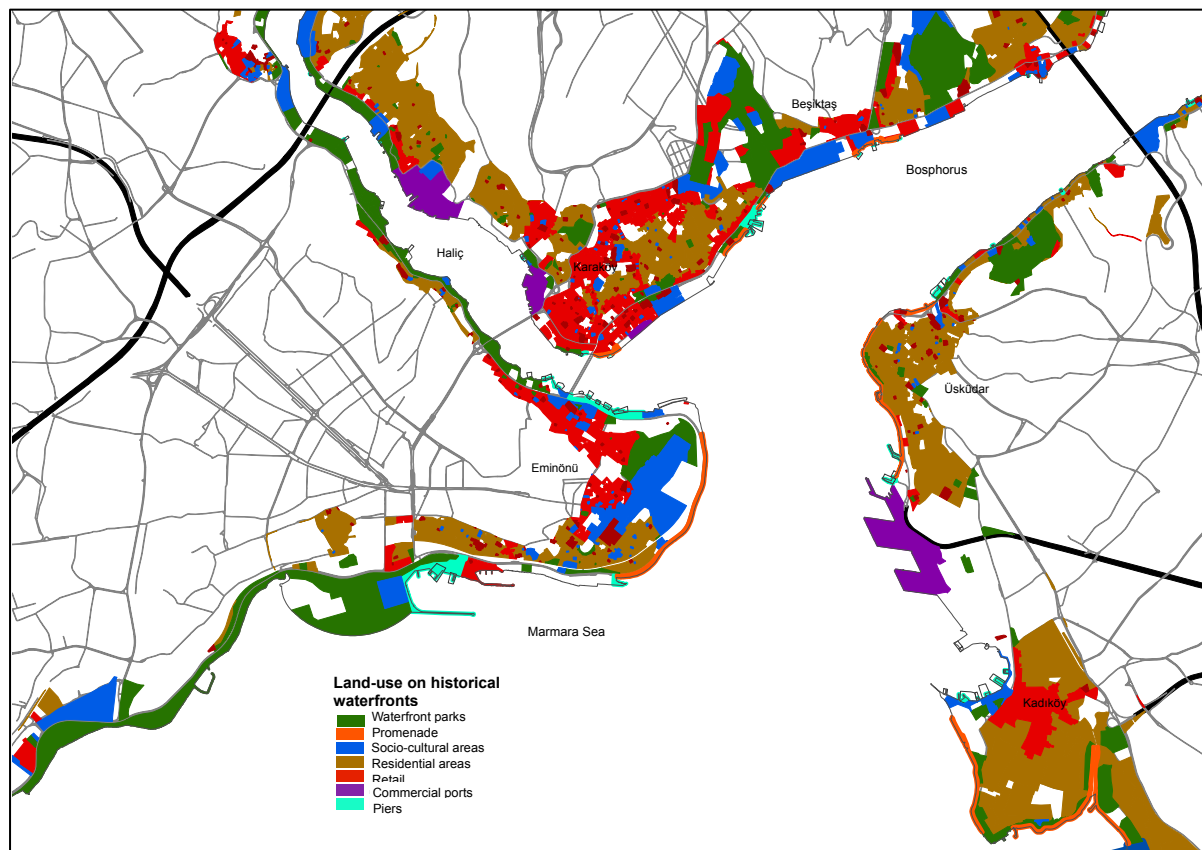


Diagram 3: Land-use analysis of historical waterfronts



Image 3: Galata Bridge (above) and waterborne transportation node on Karaköy Waterfronts (below) (Photos: S.Secmen)

pedestrian access and the lack of diversity for recreational activities became the main issues of historical waterfronts. Although accessibility is the priority problem, the lack of spatial continuity of uses and the loss of importance of waterborne transportation have also been identified as relevant issues. Especially the negative impacts of vehicular roads on physical and visual access, which are located parallel to the water's edge, have been ongoing since the 1940s (Bilgin et al., 2010; Kuban, 1998). On the other hand, it is a challenge for urban open spaces which are under pressure of private investments to expand. Even the existing large-scale area with the potential of transformation into an urban open space is being renovated as a highly privatized cruise terminal.

The main spatial and functional issues that emerged on the historical waterfronts in relation with open spaces may be summarized as follows:

- (i) The water-dependent local economies such as fishing and related activities have been replaced by global investments such as cruise terminals, which are located on the historical city waterfronts. Instead of opening the waterfront to public use, the abandoned harbour of Galata has been transformed into a private area for investments: cruise terminals and retail facilities that circumvent public usage.
- (ii) Since it is questionable for the spatial expansion of open spaces to occur due to the dense urban context, lack of diversity of open spaces and activities - specifically recreational ones - do not inspire users to spend time on the historical waterfronts. For instance, the existing recreational spaces are only limited to fragmented walkways or small rooms for sitting. Consequently, open

spaces are used for necessary urban activities such as transportation or retail during certain daytime periods.

(iii) The loss of importance of waterborne transportation as a public service from the historical waterfronts to the rest of the city has weakened accessibility. Nevertheless, the area has the strongest waterborne transportation connections within its boundaries, providing strong accessibility by water to its five centres. Moreover, the area is at the intersection of other types of public transportation and it consists of five different transfer centres that make it highly accessible from the rest of the city.

(iii) The motorways running parallel to the water's edge impede visual access to the water and physical access to the waterfront. However, being the historical centre, the area includes a wide range of cultural and architectural entities on the waterfronts. The significant form of the water's edge provides various scenic views in various directions, specifically in particular locations such as Kadıköy and Üsküdar that carry high potential for recreational activities. Also, the existence of water-dependent historical port areas such as the Haliç shipyard and Haydarpaşa Port constitute important components of urban identity to be appreciated.

Evaluation of the spatial characteristics of Istanbul waterfronts

Methodology

The aim of this paper is to discuss the results of a study focused on the spatial characteristics of Istanbul waterfronts, denoting in particular the historical ones where the three waterfronts meet: Eminönü, Karaköy, Kadıköy, Üsküdar, Beşiktaş. The evaluation of spatial characteristics of open spaces on urban waterfronts have been developed in consideration with the five parameters developed through the research: 'water-based environment', 'connectivity and continuity', 'imageability', 'compatibility' and 'looseness'.

The criteria were developed from the theoretical studies and twenty-four different research and development projects (Diagram 4) such as New York Waterfront Vision Plan, 2016; New York Waterfront Design Guide, 2016; Excellence On The Waterfronts Award Programme, 1994; Turning The Tide Research Report, URBED, 2003; Thames Blue Ribbon Network Policies, 2011; Chicago Waterfront Development Plan and Riverwalk Design Guide, 1997; Barcelona Moll de La Fusta Planning, 1998; Aker Brygge Waterfront Project, 1980; Akerhus Waterfront in Oslo; Baltimore Inner Harbor Development, 1975; New York Battery Park Planning, 1980; HafenCity Development Project, Hamburg, 2000; Urban Waterfronts Manifesto, 1999; 'Waterfront' Research Project and Fluid City Paradigm, 2007-2013; Palermo Waterfront Planning Development, 2012; Waterfront Cities and Spaces, Project for Public Spaces, 2000; The Cool Sea Waterfront Communities Project, 2007; Fluid City Theory, Dovey, 2005; Harborscape Workshop, Aalborg, 2005; Amsterdam Open Space Planning, 1995; Development of Amsterdam Canals as public event space, 1990-2010; Oslo Fjord City Programme, 2030; San Francisco Waterfront Development, 1960-2000; Copenhagen Waterfront Development and water-recreation parks, 1980-2010.

The spatial components of open spaces were classified as 'spatial qualities', 'activities', 'socialization',

‘accessibility’ and ‘commercial services’ (Diagram 4). The theoretical background of waterfront development considers mainly the interaction with water (Marshall, 2004; Breen and Rigby, 1996; Malone, 1996; Stevens, 2009), the accessibility of the waterfronts (Breen & Rigby, 1996; Bruttomesso, 2001; Moughtin, 2003; PPS, 2018; Smith & Ferrari, 2012), the diversity of activities and their spatial organization (Bruttomesso, 2001), innovative design approaches (Carta, 2012; Meyer, 1999), the significance of urban identity (Bruttomesso, 1999) and the occurrence of temporary activities (Stevens, 2009; Dovey, 2005; Meyer, 1999; Carta, 2012, Moretti, 2008). Due to the classification of spatial components, the criteria were categorized as ‘water-based environment’, ‘connectivity and continuity’, ‘imageability’, ‘compatibility’ and ‘looseness’.

The water-based environment criterion assesses mainly the level of spatial and functional integration of open spaces with water. It focuses on the identification of characteristics of open spaces in terms of interaction with the water. In particular, the presence of spaces adjacent to the water, waterborne transportation services (ferry, etc) and water-dependent recreational activities such as fishing or swimming enhance the interaction with the water and also diversify the relation between the water and activities. In this case, the spatial components of this criterion are

The continuity and connectivity criterion evaluates the continuity of physical, visual and functional access of open spaces along the waterfront, from the inner parts to the water’s edge to the rest of the urban areas. In this case, public transportation, pedestrian paths, visual corridors and unobstructed views and functional variety are the main considerations of this criteria.

The imageability criterion deals with the legibility of the image of waterfronts and components of each urban waterfront’s identity. The criteria considers the waterfront as a whole rather than identifying open spaces as isolated image components of the city. Since the imageability of the waterfronts positively influence the usage of open spaces, they are considered as supportive components for the visibility and legibility of the waterfronts in relation to the criteria. The spatial components of this criterion are the waterfront image and legibility, collective meaning of waterfront areas, communal events on the waterfronts, the built and natural identity of the waterfronts, permeability and scale.

The compatibility criterion explores the problems and the conflicts that may occur between open space activities and other functions not limited to, but specifically related with the highest potential for conflicts between waterborne transportation and water-dependent recreational activities.

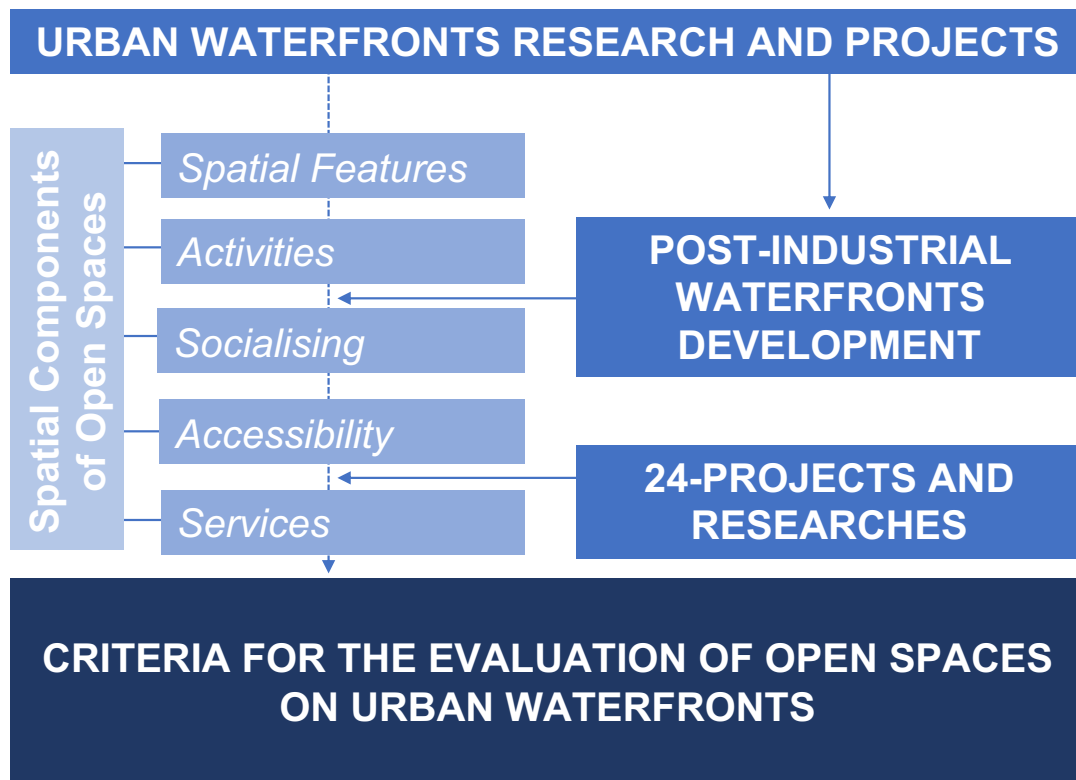


Diagram 4: The method of the identification of criteria for the evaluation of open spaces on urban waterfronts

water spaces, waterborne transportation facilities, water-dependent recreation, water-related recreation (walking, running, etc), water-dependent economic activities (fishing), services such as eating, shopping, water quality and access to water, the form of the water’s edge (bay, etc), design quality and comfort, type of spatial integration with water and the characteristics of view of water.

The spatial components of this criteria are the diversity, hierarchy and spatial relations between functions and the potential for liveability of open spaces.

The looseness criterion assesses the level at which open spaces on the waterfronts are capable of adaptation to spatial changes. It also studies the spatial properties that support the occurrence of spontaneous activities. The spatial components of this criterion are potential for

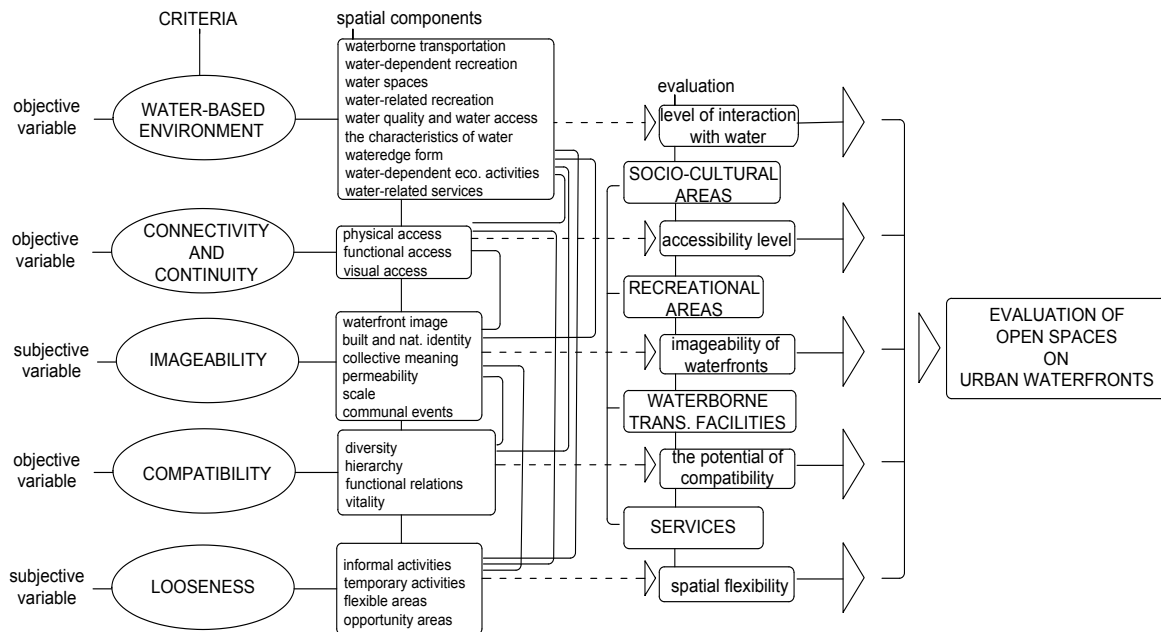


Diagram 5: Model proposal

informal activities, the spatial flexibility, the existence of temporary activities and the abandoned areas that carry the potential for the transformation into urban open space.

The spatial data of these five criteria are appraised through a scoring system regarding the priority of criteria. The ranking among the waterfronts based on the scores given is carried out according to the method determined within

the original research. The model proposal, combining the five criteria in a holistic way is designed for the evaluation of open spaces on any type of waterfronts of any city (Diagram 5). Furthermore, the method combines objective assessments through scoring and subjective assessments, through interviews with twenty scholars from architecture, landscape architecture and urban planning disciplines (architects-8, urban planners-10, landscape architects-2).

- 1 DETERMINATION OF EVALUATION CRITERIA
- 2 DEVELOPMENT OF HIERARCHICAL ORDER OF CRITERIA (Analytical Hierarchy Process)
- 3 CREATION OF SCORING SYSTEM FOR THE EVALUATION

THE STEPS FOR THE IMPLEMENTATION OF MODEL

CRITERIA:	SPATIAL EVALUATION:		
WATER-BASED ENV.	ZONING OF WATERFRONTS:	MEASURING THE SPATIAL DATA:	
CONNECTIVITY AND CONTINUITY	URBAN SCALE	OBJECTIVE VARIABLES	GIS DATABASE
IMAGEABILITY	URBAN AREA SCALE	LEVEL OF INTEGRATION WITH WATER ACCESSIBILITY COMPATIBILITY POTENTIAL	
COMPATIBILITY		SUBJECTIVE VARIABLES	EXPERT INTERVIEWS
LOOSENESS		IMAGEABILITY LEVEL LOOSENESS	

Diagram 6: The steps of method

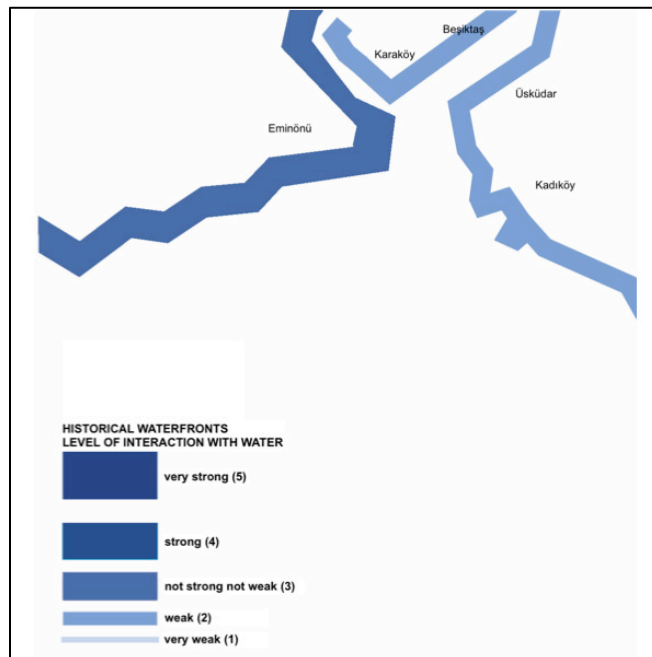


Diagram 7: Level of interaction with water on open spaces

SPATIAL COMPONENTS	Eminönü	Karaköy	Kadıköy	Üsküdar	Beşiktaş	SCORES
water spaces	4,06	1,44	2,39	2,28	1,89	2,41
waterborne transportation fac.	3,75	1,75	3,25	2,00	1,63	2,48
water-dependent recreation	2,74	1,79	1,52	1,56	1,36	1,79
water-related recreation	2,58	2,27	2,46	2,04	2,76	2,42
water-dependent eco.activities	2,14	2,00	1,75	1,21	1,14	1,65
water-related services	2,50	3,17	1,33	0,33	0,50	1,57
water quality and water access	1,00	1,00	1,00	1,00	1,00	1,00
wateredge form	4,67	4,17	3,67	3,67	3,17	3,87
the characteristics of water	5,00	5,00	5,00	5,00	5,00	5,00
level of interaction of places with water	3,16	2,51	2,48	2,12	2,05	
level of interaction of historical waterfronts with water	2,41					weak
scoring system	0: none / 1:very weak / 2:weak / 3:not strong not weak / 4:strong / 5:very strong					

Table 1: Scores of the level of interaction with water in relation with spatial components of the water-based environment criteria

The election procedure of the experts was established due to their academic background concerning the urban waterfronts' development. The experts were asked to evaluate the statements of the parameters in terms of the spatial characteristics of urban open spaces on Istanbul waterfronts by using a scoring scale (1-5) based on the Likert method. The open spaces on the waterfronts of Istanbul were evaluated through the model in order to identify the levels and performance of the criteria (Diagram 6).

Furthermore, the spatial components of five criteria vary in different scales, and the model is applied at two levels, which are the urban scale and the urban area scale. The urban scale considers the integrated relation between the urban waterfronts with different characteristics in the metropolitan area, while the urban area scale focuses on a

specific waterfront area. This article presents the evaluation of the urban area scale.

Results and Discussion

According to the findings, the historical waterfronts stand out due to the performance of spatial characteristics of open spaces on Istanbul waterfronts. Regarding the water-based environment criteria, specifically the waterborne transportation areas and the water spaces such as piers and decks are the decisive factors for the performance of water-based spatial components on the historical waterfronts. However, the water-dependent recreation areas (i.e. spaces for fishing) and also water-related recreation areas (i.e. spaces for walking along the water) are not found to be strong. In the area, Eminönü waterfronts provide the strongest interaction with water in relation with spatial components of the criteria. On the

other hand, the areas having the weakest interaction with water were identified as Üsküdar and Beşiktaş (Diagram 7 and Table 1).

The contribution of the form of the wateredge to the criteria supporting the relation with water has been evaluated as the strongest component (Table 1) due to the distinctive form of Historical Peninsula (Diagram 7), which is surrounded by water including several piers aligned along Eminönü waterfronts towards the Haliç. In this case, the waterborne transportation areas on Eminönü waterfronts have the highest value among the others due to the high density of piers and decks used by ferry passengers for local transportation.

In addition to the pier structures, the Galata Bridge, the walkways along the Eminönü wateredge and the boat parking areas reinforce the performance of water spaces component. The high density of seafood eating services and the water-dependent recreational activities such as fishing and swimming make a positive contribution to the interaction of the area with water. The strength of retail-

strong contribution to the relationship of Karaköy area with water.

Due to the bay form of Kadıköy wateredge, the surface of the water becomes the focus, which strengthens the interaction of urban open spaces with water. The piers and the open areas behind the piers, concentrated along the bay, support waterborne transportation; also the walkway, as an extension of the bay, supports water-related recreational activities such as running or watching scenic views. In addition, Haydarpaşa Port and Train Station Building reinforce the effect of being on the waterfront by drawing a dynamic waterfront appearance. On the contrary, water-dependent recreational activities such as fishing are very weak.

The historical Maiden's Tower which is located on the water and very close to the Üsküdar waterfront, strengthens the water-based environment criteria regarding the components of water spaces. The waterfronts of Beşiktaş have a limited water's edge and the lowest value among all waterfronts in terms of the various water

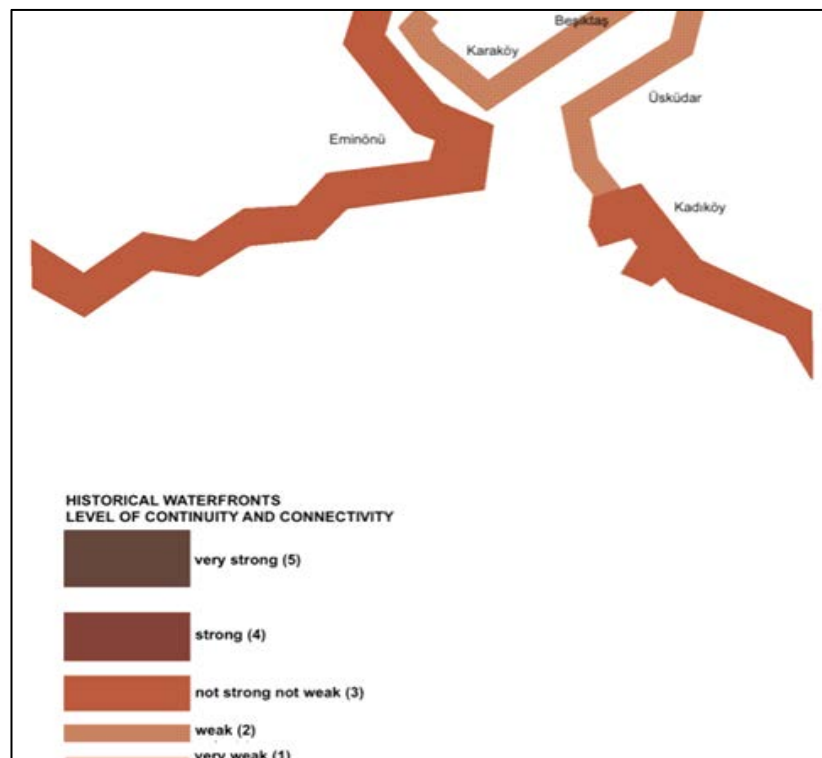


Diagram 8: Level of continuity and connectivity of open spaces

spatial components	Eminönü	Karaköy	Kadıköy	Üsküdar	Beşiktaş	SCORES
visual access	3,74	3,29	3,76	3,58	2,90	3,46
physical access	3,12	2,75	3,15	2,89	2,44	2,87
functional access	2,67	2,73	2,63	2,29	2,67	2,60
connectivity and continuity level of places	3,18	2,92	3,18	2,92	2,67	
connectivity and continuity level of historical waterfronts	2,96					WEAK
scoring system	0: none / 1:very weak / 2:weak / 3:not strong not weak / 4:strong / 5:very strong					

Table 2: Scores of the level of continuity and connectivity of open spaces in relation with spatial components

entertainment services such as food and beverage on the waterfronts of Karaköy supports the attractiveness of open spaces. In addition, the cruise port and the historical shipyard area of Haliç also creates an active waterfront view. On the other hand, recreation areas and water spaces directly related to water cannot be mentioned as making a

spaces, waterborne transportation areas and water-dependent recreational activities.

In terms of connectivity and continuity criteria, the accessibility of the historical waterfronts was found to be easier than the other waterfronts in Istanbul. Especially, on

historical waterfronts, visual access is strong since three water corridors intersect. Also, the physical access is strong due to the waterborne transportation nodes and several public transportation transfer centres. Together with the easy accessibility, the diversity of recreational, cultural and service functions greatly support functional access (Diagram 8 and Table 2). Among the historical areas, Eminönü and Kadıköy waterfronts are stronger than the other places in terms of visual and physical access, while all places have similar features regarding functional access (Diagram 8 and Table 2).

In terms of visual access, Eminönü waterfront is very strong due to its scenic waterscape views that the curvilinear form of the edges of the Historical Peninsula provide. This presents a very strong visual access with

The public rail system, high-density public connections of waterborne transportation, the presence of other types of public transportation and the Galata Bridge are the main connection axes on the waterfronts of Eminönü. They strengthen the physical access both within the area and to the other urban areas in Istanbul. The Galata Bridge is the most important connection as it sustains rail and bus transportation as well as pedestrian movement. The pedestrian connections between the water side of the area and the inner parts of the waterfront where the historical large-scale commercial buildings are found to be strong. In addition, open areas that are partially concentrated at the back of the piers provide strong permeability. However, the traffic congestion of Eminönü Square makes pedestrian movements difficult.

The visual access from the waterfronts of Kadıköy is also



Diagram 9: Level of imageability of waterfronts

spatial components	Eminönü	Karaköy	Kadıköy	Üsküdar	Beşiktaş	SCORES
Waterfront Image	4,36	3,42	3,75	3,32	3,03	3,58
Collective Meaning	5,00	5,00	4,00	4,00	4,00	4,40
Communal Events	1,50	1,50	3,00	0,00	1,50	1,50
Built and Natural Identity	5,00	5,00	4,33	3,33	4,33	4,40
Permeability	3,00	3,00	3,33	3,67	2,83	3,17
Scale	3,38	3,13	2,88	2,50	1,63	2,70
level of imageability of areas	3,71	3,51	3,55	2,80	2,89	
level of imageability of historical waterfronts	3,44					not strong not weak
scoring system	0: none / 1:very weak / 2:weak / 3:not strong not weak / 4:strong / 5:very strong					

Table 3: Scores of the level of imageability of waterfronts in relation with spatial components

different perspectives to the other waterfronts within the area. In addition, the historical Galata Bridge which connects the waterfronts of Eminönü and Karaköy makes a significant contribution to the visual access. It is an axis that provides views in all directions. However, the high-density vehicular road along the waterfront constitutes a barrier for accessibility.

very strong in relation to the closed bay form, where open areas and the architectural values are strongly oriented to the water. Kadıköy Square has pedestrianized wide open areas, which are close to the water-side of the waterfront. In addition, the pedestrian connections are stronger than the Eminönü waterfront as the square is located far away from the vehicular traffic. The continuity of the connections between the open spaces of the waterfront such as pedestrian paths and bicycle lanes are also

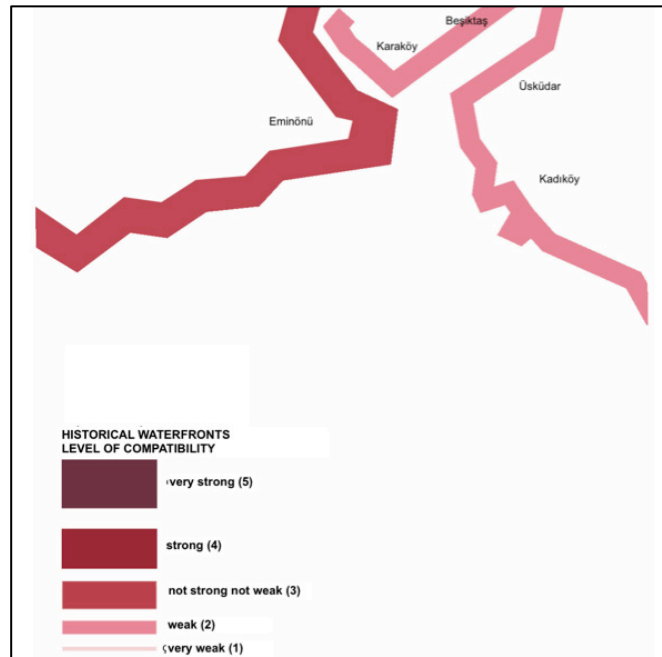


Diagram 10: Level of compatibility of open spaces

spatial components	eminönü	karaköy	kadıköy	üsküdar	beşiktaş	SCORES
relations between functions	3,25	2,63	2,78	3,01	2,92	2,92
diversity and hierarchy	2,85	2,72	2,43	2,26	2,02	2,46
vitality	3,50	3,00	3,50	2,50	2,75	3,05
hybrid areas	3,00	3,00	2,50	2,50	2,50	2,70
level of compatibility of areas	3,15	2,84	2,80	2,57	2,55	
level of compatibility of historical waterfronts	2,80					WEAK
scoring system	0: none / 1:very weak / 2:weak / 3:not strong not weak / 4:strong / 5:very strong					

Table 4: Scores of the level of compatibility in relation with spatial components

strong. The low-density of the buildings on the open areas where Kadıköy piers are located, provides strong permeability and the ease of movement.

The findings obtained for imageability criteria were also found to be very strong for the historical waterfronts. Specifically, Eminönü, Karaköy and Kadıköy regions have higher values than Üsküdar and Beşiktaş. This finding is not surprising since the waterfronts of Eminönü, Karaköy and Kadıköy include historical elements such as the Haydarpaşa Train Station, the Historical Peninsula skyline or the Galata Bridge (Diagram 9 and Table 3). In this case, the historical elements, which are defined as the landmarks (Lynch, 1960) of the historical waterfronts, make a significant contribution to the imageability. Further, the water-related landmarks such as the lighthouses and the Haydarpaşa port structures and water-dependent nodes such as piers are found to strengthen the imageability of the whole area. On the other hand, among the imageability components, the urban identity (Lynch, 1960) is found to be stronger than the waterfront image of the area in terms of its unique visual impact through the historical environment, the functional importance by having mixed land use and the spatial relation with the city regarding its central location. The historical waterfronts were found to have a lower value in comparison with the other waterfronts in terms of compatibility (Moughtin,

2003) due to functional diversity and density. Although the vitality on the historical waterfronts is strong due to its central location and the existence of important nodes (pier area, ferry terminal, etc.), it is evaluated that there is a risk of incompatibility due to functional diversity specifically between recreational (i.e.fishing) and economic activities (i.e.ports). According to the evaluations, Eminönü has higher compatibility potential than the other waterfronts in the area. The similar rates of concentration of recreational and economic activities indicate the potential for incompatibility and also a hierarchy between functions were not found to exist. Nevertheless, the Haliç waterfront parks and the Sarayburnu waterfront walkway, as dominant open spaces, do constitute cohesion between different types of functions which have the potential to strengthen the relations between the activities (Diagram 10 and Table 4).

In terms of looseness, only Karaköy waterfronts have higher values. Significantly, the low rates of open spaces and the historical pattern do not easily allow for spatial changes, while the conversion of large-scale abandoned areas into private investments, - which were supposed to have the potential to be transformed into open spaces – effectively eradicated the features of flexibility and adaptability from prospective changes (i.e. the abandoned

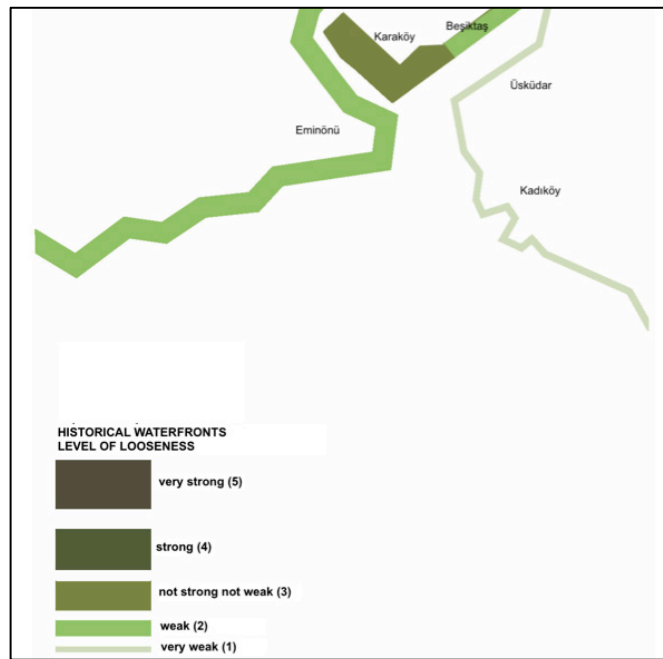


Diagram 11: Level of looseness of open spaces

spatial componets	Eminönü	Karaköy	Kadıköy	Üsküdar	Beşiktaş	SCORES
Flexible areas	1,90	1,96	0,88	0,79	1,72	1,45
Informal activity	3,60	3,60	1,20	1,20	3,60	2,64
Temporary activities	0,00	5,00	5,00	0,00	5,00	3,00
Opportunity areas	5,00	5,00	0,00	0,00	0,00	2,00
level of looseness of areas	2,63	3,89	1,77	0,50	2,58	
level of looseness of historical waterfronts	2,20					WEAK
scoring system	0: none / 1:very weak / 2:weak / 3:not strong not weak / 4:strong / 5:very strong					

Table 5: Scores of the level of looseness in relation with spatial components

Haliç Shipyard is an important opportunity area for becoming urban open space). In contrast, the Galata Bridge, occupied intensely with recreational fishing activity, was found to have a higher potential for any type of informal activity. In addition to Eminönü and the Galata Bridge on the waterfronts of Karaköy, fishing is one of the dominant informal/spontaneous activities. Furthermore, besides fishing on the rocks of the water's edge of Eminönü-Sarayburnu walkway, swimming activity is also noted during summer. Apart from all these activities, Karaköy has various small-scale open spaces in its dense urban context, which may provide opportunities for informal activities in consideration with the criteria. In the region, due to the historical pattern, the contribution of open spaces to physical changes is very low. However the potential of informal activity is slightly higher (Diagram 11 and Table 5).

Conclusion

Since the beginning of urban waterfront development, spatial relations have been considerably varied by the waterfronts. Besides the repurposing of historical port areas and revitalisation of fish markets, cruise ports, business and residential areas, accommodation services, commercial entertainment spaces such as cafes, restaurants, marinas, festival marketplaces were established on the waterfronts. As a result, recreational spaces, - such as water sport facilities, waterfront parks, walkways, cycling paths, promenades, concert and festival

venues - have become essential to the waterfronts. In addition, the integration of public services, such as waterborne transportation, has supported the accessibility to the waterfronts (Bruttomesso, 1999; Marshall, 2004; Schubert, 2012).

In the case of historical waterfronts in Istanbul, specifically on the historical peninsula of the 19th century, the interaction of the water-dependent economy on the waterfronts did not go beyond commercial activities and did not allow the diversification of urban open spaces within the dense urban pattern. Also, the waterfront development was not planned and these areas were not given diversity of spaces and functions as in other urban waterfront development movements around the world. According to the results of this research, today the urban open space uses on the historical waterfronts are not strong in terms of spatial characteristics.

In terms of water-based environment, the mobility of ferries and the combination of three different water bodies on the historical waterfronts make the region attractive in terms of scenic views. It is suggested that the water-based node of the city, which includes visual water corridors and panoramic views in all directions, should be integrated with water-related recreational activities and new vista points by exploiting the advantage of the dynamic form of the waterfronts. Also, the interaction of the area with the water should not be limited only to waterborne

transportation areas. Indeed, it is an important issue for the spatial characteristics of the waterborne transportation areas to gain attractive design features that emphasize interaction with the water. The continuity of fishing, which has been a symbolic activity of the Galata Bridge for centuries, is important not only for the image of historical waterfronts but also for the image of Istanbul. On Kadıköy waterfront, Haydarpaşa Train Station has been a socio-cultural area in which waterborne transportation, observation decks and water-dependent economy (port area) are related to each other. In this case, the spatial characteristics of Kadıköy waterfront should be conserved in terms of the original waterfront-scape presented by the water's edge and the surrounding water on which piers are aligned. In addition, on the waterfront of Besiktas, opportunities should be provided for access to water with open spaces within the context of large-scale buildings. Therefore, the waiting spaces for passengers to embark and disembark should be planned not only as basic platforms but as water spaces with qualified design features oriented in order to strengthen its relation with the water.

In terms of continuity and connectivity the visual relation with the water landscape on the historical waterfronts offers unexpected opportunities, especially due to the dynamic form of the edge. In contrast, however, a vehicular road and various structural barriers weaken visual and physical access. The waterfront walkways located along the water are valuable connection paths in close relation to the water. They are also water spaces with recreational opportunities that should be given priority on the waterfronts. However, the interrupted walkways on the historical waterfronts should be improved for the continuity of access along the waterfronts. Also, the visual relation of pedestrian walkways with water views should also be strengthened. The essential issue is to strengthen visual, physical and functional access at the same level in order to improve the accessibility of open spaces. In this case, open spaces on the waterfronts should be so arranged that the negative impacts of visual and physical barriers would weaken while the functional access would improve.

In terms of strengthening the imageability, the preservation of the built heritage on historical waterfronts should be considered as the main strategy. For instance, the Haydarpaşa Railway Station, the image of Haliç Shipyard and its structures should be preserved as unique water-dependent landmarks. These image components are essential to preventing the loss of collective memories of the waterfronts. In consideration of the essential role of urban open spaces to the waterfront's image, communal activities, waterborne transportation services, waterfront parks, recreational activities and waterfront squares should be increased.

In terms of avoiding incompatibility, to avoid the dominant effect of the Cruise Port on the waterfronts of Karaköy, the functional and spatial characteristics of Karaköy ferry piers, the open spaces at the back of these piers and fishing activity along the water's edge should be strengthened, so that the potential for various activities would be conspicuous. On Kadıköy waterfronts around the pier areas, the vitality potential should be maintained, where urban open space usage is strong. On Eminönü water's edge, the walkway platform, where the extension of open spaces to the square will be beneficial for more space for recreational activities to take place in a comfortable way, may be considered. As practiced in contemporary

waterfront cities such as Barcelona or Oslo, spatial solutions with a co-presence of activities may be produced in locations where the waterborne transportation and the beach are together. This is preferable to disconnecting them as opposing activities.

In terms of looseness, urban gaps should be created on the waterside of the densely built waterfronts and existing non-functional empty spaces should be cleared of barriers so that the potential can be revealed for spontaneous activities. For instance, on the large-scale built areas on the waterfronts of Besiktas where there are palaces adjacent to the water, the nodal openings to the water and walkway connections may be established. Also, the opportunity areas, such as the ones that have lost their function, should be transformed into open spaces. For instance, the Haliç shipyards is the last opportunity area of the historical waterfronts that should be opened up to public use.

The findings and proposals mentioned above are expected to be used as the basis for the planning and implementation of studies for Istanbul waterfronts and specifically for the historical waterfronts. It is essential for local governments to establish research groups for the waterfronts to develop strategies and policies and integrated management systems based on scientific studies.

References

- Akın, G. (2011). 20. Yüzyıl Başında İstanbul: Toplumsal ve Mekansal Farklılaşma. In İ. Y. Akpınar (Ed.), *Osmanlı Başkentinden Küreselleşen İstanbul'a: Mimarlık ve Kent 1910-2010*. İstanbul: Osmanlı Bankası Arşiv ve Araştırma Merkezi.
- Akın, N. (1998). *19. Yüzyılın İkinci Yarısında Galata ve Pera*. İstanbul: Literatür Yayıncılık.
- Bilgin, İ., Akın, G., Boysan, B., Güvenç, M., Korkmaz, T., Yücesoy, E. Ü., & Bozdoğan, S. (2010). *İstanbul 1910-2010, Kent, Yapılı Çevre ve Mimarlık Sergisi Kataloğu*. İstanbul: İstanbul Bilgi Üniversitesi Yayınları.
- Breen, A., & Rigby, D. (1994). *Waterfronts*. United States of America: McGraw-Hill.
- Breen, A., & Rigby, D. (1996). *The New Waterfront*. Singapore: Mc Graw Hill.
- Bruttomesso, R. (2001). Complexity on the urban waterfront. In R. Marshall (Ed.), *Waterfronts in Post-Industrial Cities*. New York: Taylor & Francis.
- Bruttomesso, R. (1999). Aquapolis: the maturity of the waterfront, *International Centre Cities on Water IV* (3-4), September-December.
- NYPC (2017). *Special Regulations Applying in the Waterfront Area*. New York Planning Commission. Retrieved from nyc.gov/planning
- Craig-Smith, S. J., & Fagence, M. (1995). *Recreation and tourism as a catalyst for urban waterfront redevelopment: an international survey*. United States of America: Greenwood Publishing Group.
- Desfor, G. & Laidley, J. (2011). *Fixity and flow of urban waterfront change*. In Gene Desfor, Jennefer Laidley, Quentin Stevens, Dirk Schubert (Eds) *Transforming urban waterfronts, Transforming Urban Waterfronts: Fixity and Flow*, Routledge, London.

- Dovey, K. (2005). *Fluid City: Transforming Melbourne's Urban Waterfront*. New York, London: Routledge.
- Erkal, N. (2011). Bugün Liman Kara Olmuştur: İmparatorluk-Cumhuriyet Eşiğinde İstanbul Rıhtımlarının Dönüşümü. İ. Y. Akpınar (Ed.), *Osmanlı Başkentinden Küreselleşen İstanbul'a: Mimarlık ve Kent 1910-2010*. İstanbul: Osmanlı Bankası Arşiv ve Araştırma Merkezi.
- Franck, K., & Stevens, Q. (2006). Tying Down Loose Space. In K. Franck & Q. Stevens (Eds.), *Loose Space*: Taylor and Francis.
- Gastil, R. (2002). *Beyond the Edge: New York's new waterfront*. New York: Princeton Architectural Press.
- Gehl, J. (2011). *Life between Buildings: Using Space - Washington, Covelo, London*. Washington, D.C.: Island Press.
- Hartshorn, T. A. (1992). *Interpreting the City*. Canada: John Wiley and Sons.
- Hoyle, B.S., D.A. Pinder, & M.S. Husain (Ed). (1988). *Revitalising the Waterfront: International Dimensions of Dockland Redevelopment, London and New York*. Belhaven Press.
- Hoyle, B.S. & Pinder, D. (1992). European port cities in transition, Belhaven Press.
- Kibel, P. S. (2007). Bankside Urban: An Introduction. In P. S. Kibel (Ed.), *Rivertown: Rethinking Urban Rivers*: Massachusetts Institute of Technology.
- Kostof, S. (1999), *City Shaped: Urban Patterns and Meanings through History*, Thames & Hudson, Bulfinch.
- Kuban, D. (1998). *Kent ve Mimarlık Üzerine İstanbul Yazıları*. İstanbul: YEM Yayınları.
- Lehtovuori, P. (2005). *Experience and Conflict* (Doktora Tezi), Helsinki University of Technology, Center for Urban and Regional Studies, Espoo, Finland.
- Lynch, K. (1960). *The Image of the City*. Massachusetts: MIT Press.
- Marshall, R. (2004). Contemporary urban space-making at the water's edge. In R. Marshall (Ed.), *Waterfronts in Post-Industrial Cities*: Taylor&Francis.
- Mayer, H. (1988). The Physical Harbor: New Demands on a Scarce Resource. In M. Hershman, (ed.) *Urban Ports and Harbor Management* (Taylor and Francis, New York).
- Meyer, H. (1999). *City and Port*. Utrecht: International Books.
- Moughtin, C. (2003). *Urban Design: Street and Square*. Oxford: Architectural Press.
- Moretti, M. (2008). Cities on Water and Waterfront Regeneration: The Role of Culture and Events. Rivers of Change (5-7 September). Volume 10. Wien, Austria.
- Mumford, L. (1961). *The City In History*. London: Secker and Warburg.
- Müller-Wiener, W. (1998). *Bizans'tan Osmanlı'ya İstanbul Limanı* (E. Özbek, Trans.). İstanbul: Tarih Vakfı Yurt Yayınları.
- Özgencil, S. (2008). *Kentin Anlam Haritaları: Gravürlerde İstanbul*. İstanbul: İstanbul Ticaret Odası.
- Özler, Ş. (2007). *Cumhuriyet Dönemi İstanbul Planlama Raporları 1934-1995*. İstanbul: TMMOB Mimarlar Odası İstanbul Büyükkent Şubesi.
- Project for Public Space (2019). Retrieved from www.pps.org-access 01.05.2019.
- Schubert, D. (2012a). Barselona-Hamburg: Yerel Özellikler ve Global Talepler arasında Yapısal Dönüşüm İçindeki Liman Kentleri. In İ. Bilgin (Ed.), *Liman Kentleri-3*. İstanbul: İstanbul Bilgi Üniversitesi.
- Schubert, D. (2012b). Barselona-Hamburg: Yerel Özellikler ve Global Talepler Arasında Yapısal Dönüşüm İçindeki Liman Kentleri. In İ. Bilgin (Ed.), *Liman Kentleri*. İstanbul: İstanbul Bilgi Üniversitesi.
- Schubert, D. (2012c). Waterfront Revitalizations, From a Local to a Regional Perspective in London, Barcelona, Rotterdam and Hamburg. G. D. Jennefer Laidley, Quentin Stevens, Dirk Schubert (Ed.), *Transforming urban waterfronts, Transforming Urban Waterfronts: Fixity and Flow*. New York: Routledge.
- Shaw, B. (2001) History at the water's edge, in R. Marshall (ed) *Waterfronts in Post- Industrial Cities*, London: Spon Press.
- Stevens, Q. (2009). Artificial waterfronts. *Urban Design International* 14(1), 3-21.
- Torre, A. (1989). *Waterfront Development*. New York: Van Nostrand Reinhold.
- Yalçıntan, M. C., Çalışkan, Ç. O., Çılgın, K., & Dündar, U. (2014). İstanbul dönüşüm Coğrafyası. C. Özbay & A. B. Candan (Eds.), *Yeni İstanbul Çalışmaları*. İstanbul: Metis Yayınları

Keywords

Urban waterfronts, historical waterfronts, transformation, connectivity and continuity, imageability, compatibility, looseness, Istanbul, holistic planning, spatial design.

Commodification of Urban Space and the Image of ‘New’ Istanbul: Decoding the prevailing discourse

Demet Mutman¹, Derya Yorgancıoğlu¹

Özyeğin University, Faculty of Architecture and Design, Turkey

Abstract

This study aims to identify the urban transformation strategy implemented in Istanbul for the last 15 years as a tool to promote the ‘new’ city discourse. This marketing strategy leads to a thoroughly manipulated or re-written urban texture, constructed through concepts of identity, context and historicism. By decoding its actors, their roles, and branding images of five selected urban projects which relied on a top-down approach, the research exposes the implicit and explicit targets behind the political discourse of ‘new’ Istanbul. Through a qualitative content analysis of branding images and promotional media, the research focuses on the unseen agenda of the governing authority concerning the urban image and the state economy, which, on the contrary, undermines legitimate laws covering disaster mitigation. The conceptual framework of the study draws on Tafuri’s (1969) seminal article "Toward a Critique of Architectural Ideology" to deepen our examination of the leading forces of urban ideology that are reshaping the city. The article aims to spark a debate over the ‘new’ Istanbul discourse and its planning practices through its re-reading of urban projects, the field of architecture and planning, development strategies, and their relevant actors.

Introduction

A perusal of the legislation related to Istanbul's built environment following the 1999 Marmara earthquake, and especially over the last fifteen years, seems to suggest that disaster mitigation is at the heart of the ongoing urban renewal process. Major urban policies announced during this period are: Law No. 5366, ‘Preservation by Renovation and Utilization by Revitalization of Deteriorated Immovable Historical and Cultural Properties’ (2005), Law No.5393 delegating the authority of designating urban transformation areas to local municipalities (2005), and Law No.6306 titled ‘Law on the Transformation of Disaster-Risk Areas’ (2012), enabling the central government to declare almost any building as ‘at risk’ (Çavusoglu and Strutz, 2014, pp. 146-47). An additional policy move was made through the enactment of Law No. 6292 (2011), focusing on the green (formerly forested) areas of the city, opening these up to urbanization and the real estate market (Çavusoglu and Strutz, 2014, pp. 141). Yet taking the intentions set forth in the legislation

marketed through a complex discourse, and disaster mitigation is not always at its center.

The country’s ‘Agenda 2023’ prescribes a construction and economy-oriented socio-spatial re-structuring process for the main cities. The governing authority's desire to create a ‘New Istanbul’ is befitting of this process as it enables the realization of new urban policies, and a focus on marketing strategy. The city of ‘new’ Istanbul described in the political discourse, frames a globally-orientated representation with the connotation of creating a ‘new Turkey’. This connotation, defining an about-turn vis-à-vis the Republic’s founding principles, has led to a thoroughly manipulated or re-written urban texture, constructed through concepts of identity, context and historicism. Phrases promoting the country and branding the city of Istanbul as its leading economic actor (through mega projects with references to Anatolian Seljuks and Ottoman periods) exposes a marketing strategy designed to attract direct foreign investment (DFI). Hence, the production of architecture and urban planning represents a

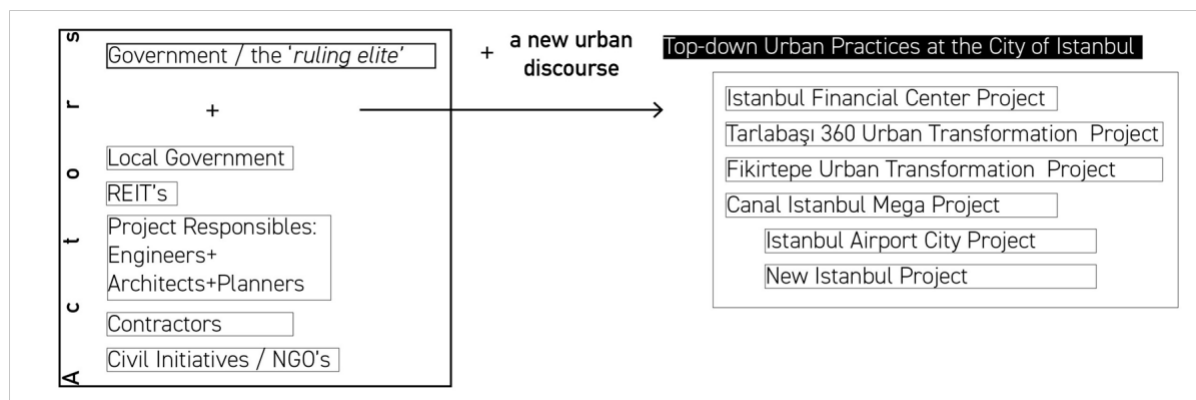


Figure 1: General framework of the study.

at face value would be misleading. Istanbul's frenzied urban renewal process is legitimized, promoted, and

stage of political discourse for the governing authority. The actors within this process, and acting in such an environment, are led through the government's political

missions and play a supporting role in a game composed of contractors, architects, civil initiatives, real estate trust funds (REITs), local governmental bodies and the media.

This study aims to identify the features of the urban transformation strategy implemented in Istanbul for the last 15 years to demonstrate how it is used as a tool to promote the ‘new’ Istanbul political discourse. To do so, we identify its actors, decode their roles, and analyse branding images used through selected top-down urban implementations and/or projects (Figure 1). By examining the leading forces of urban ideology that reshape the city, the conceptual framework of the study draws on Tafuri’s (1969) article "Toward a Critique of Architectural Ideology" to criticize the tools used to legitimize the positions of the actors and their actions in establishing the ‘new’ Istanbul discourse.

The first part of the research clarifies the current conditions under which a city becomes a commodity that is sold, diversified, varied, grown and transformed. It proposes that, informed by top-down urban policies, the new modes of architecture and planning practices are changing, and the urban transformation projects are becoming the

representations of new urban policies that focus on the commodification of the city’s tangible and intangible heritage(s). The article then examines the emergence of the “new” İstanbul discourse since 2005 and underlines the specific role played by large-scale and capital-oriented urbanization practices in the transformation of the city’s current state.

By selecting five top-down urban implementations from the last 15 years, we expose the positions and roles of the actors within the overall urban agenda of the city of Istanbul. The selection of case studies is based on several criteria. Firstly, each of these project implementations were supported directly by the government through the designation of the project area by a governmental body such as the Ministry of Environment and Urbanism or the Presidential office or by the announcement of an urban law which evolved through a nationwide discussion on a specific neighborhood or area located in the city. Additionally, all of the selected projects are located at the growth axis of the urban land towards east-west and north-south directions, with the potential to create a newly-built and fragmented city within Istanbul. In this manner (1) Tarlabaşı 360 Urban Transformation Project, (2) Fikirtepe



Figure 2: Urban development process of the city until 2020.

Urban Transformation Project, (3) Istanbul Financial Center project, and finally two components of the Canal Istanbul mega project: the (4) New Istanbul settlement and (5) the New Istanbul Airport city were selected as case studies to deconstruct and analyze their focuses, implementation methodologies and their actors.

As a next step, the commodification of urban fabric among project representations and branding statements were collected from the media through a snowball sampling method, and presented within categories through a qualitative sampling analysis. In this manner, we implement a critical decoding strategy that aims to highlight the implicit and explicit targets behind the new İstanbul discourse. Finally, the research concludes with a critical deconstruction of the urban implementations for İstanbul led by the government using a top-down approach. The discussion on the new city discourse focuses on the concept of 'plan' as defined by Tafuri's statement (1969, 1998, p:15) and reveals the prevailing hidden agendas in addition to their legitimizing statements which have been developed over the last 15 years and through major urbanization practices. In closing, we reconsider the 'new' İstanbul discourse; exposing it as supportive the governing authority's mindset or 'power image', which promotes the commodification of the city for the urban economy.

Commodification of Urban Space and the 'New' İstanbul Discourse

Harvey (1990) describes how the definition of the term "urban" is related to the capitalist mode of production and the framework of capitalism, evoking the themes of accumulation and class struggle. From this perspective, the built environment clearly becomes a profitable commodity for investors. Characterized by prioritizing business interests over the urbanscape, re-development projects started to develop throughout the formerly dilapidated or underused regions of cities. In this way, cities became the driving forces of the urban economy. Koolhaas (1995, p. 28) describes this situation as the "triumph" of urbanization over urbanism; that is, the transformative effect of urban design practices on the urbanization process was diminished, and other actors began to dominate urban transformation processes. On a larger scale, urban policies on which the practices of these actors were based began to serve this process as well, prompting Koolhaas (1995, p. 28) to ask: "How to explain the paradox that urbanism, as a profession, has disappeared at the moment when urbanization everywhere-after decades of constant acceleration- is on its way to establishing a definitive, global "triumph" of the urban condition?"

This question maintains its validity in relation to today's urban context. Politicians, architects, planners, representatives of media, civil initiatives, and REITs ultimately involve urbanites, and produce a common, acknowledged language for urban practices. Through this language the city is readily understood as a commodity and can thus be diversified, grown and transformed through market-oriented strategies. Moreover, the urban fabric is presented as an investment. As discussed by Mutman (2009, p. 29), through the promotional images of the 'new', cities start to gain meanings. Mutman (2009, p. 29) defines such a transformation process as a 'strategic urban

move' representing the overall mission of the ruling classes' policies.

The city of İstanbul has experienced such urban transformation and expansion, primarily in the last 15 years (Figure 2). In fact, the majority of these large-scale urban implementations were presented as the new symbols of the city. On the other hand, İstanbul has also represented the neo-liberal face of the Turkish Republic since the mid-1980s, concomitantly hosting critical implementations of non-participatory planning approaches. For a more vibrant life, the city's dilapidated urban areas have been being redesigned under an economically driven mandate and new visages / façades are popping up as new old-town centers, renovated urban cores and traditional textures (Mutman & Turgut, 2018).

The reality of a "new" İstanbul (Candan & Kolluoğlu, 2008) has been the "region-city" reconstructed through an ideological, physical, social, and cultural restructuring process. The current political discourses entail a restructuring of the city with a 'global-city' approach. This understanding indicates a political perception of major cities as the "growing engine of Turkey's economy" (Candan & Kolluoğlu, 2008), using urban practices to base their structures on Agenda 2023 targets.

The 1990s constitute an important turning point for the 'new' İstanbul discourse. According to Keyder and Öncü (1994), İstanbul played a critical role regarding the rising "participation" within the "trans-regional network" and mechanisms of "control", in accordance with the preferences of state policies which obtain the dominance of capital through the principle of transformation. This role is structured through the privilege of cities that is based on the economic rationale of the capitalist market. As Keyder and Öncü note (1994, p.386), İstanbul joined the 'capitalist ocean', which led to the legitimization of its urban practices. Such implementations, mega project proposals, large scale urban investments gained even more momentum with the 2000s.

Two major laws, legislated in 2006, accelerated the rapid transformation of many historic neighborhoods in a variety of cities, including the Historic Peninsula of İstanbul. These laws were Law No. 5393, which delegated the authority of designating urban transformation areas to local municipalities, and Law No. 5366 titled "The Law on Renovating, Conserving and Actively Using Dilapidated Historical and Cultural Immovable Assets". The proclamations of these laws supported the rent-oriented urbanization practice of the city in line with the capitalist expectations and needs of the central authority. What is more, the promulgation of these laws reveals a top-down urbanization approach in which socio-cultural, historical, physical and ecological contexts were ignored (Mutman & Turgut, 2018). This new trend resulted in gentrification, especially within the historic neighborhoods of the city (Mutman & Turgut, 2018), or through new satellite cities/settlements on the outskirts of the city that created new and smaller-scaled centers, decentralizing parts of the city core to peripheral neighborhoods. The situation was cleverly described by Uluengin (2008, p.18) (with reference to the famous architectural motto) that 'form follows funding'. In the 2000s, the city of İstanbul promoted the historical center for tourism, extended the limits of the city with mixed-use structures, and allowed

new business developments to spread along with residential areas.

Re-Reading the Cases: Strategies, Actors and Their Promoted Missions

Along with the ‘new’ city discourse, the focus of this research is on government-supported projects, showcasing a top-down planning approach featuring architectural and planning components over the last 15 years of urban policies (Figure 3). In addition to these approaches, the importance of all these selected projects is highlighted by their proximity to the growth axis of the city. For these reasons, Tarlabası 360 Urban Transformation Project, Istanbul Financial Center Project, Fikirtepe Urban Transformation Project and the final two components of the Canal Istanbul mega project: the New Istanbul settlement and the New Istanbul Airport city projects were selected as case studies. Through a critical reading of the goals, implementation methods, actors and branding media related to these cases, we concentrate on the prevailing discourse around these implementations, touting them as growth boosting injections for the city of Istanbul.

strategy being top-down in approach, the project was highly criticized due to its faded position in participatory planning as well as its cosmetic “façadist” approach to design.

In 2008, the government announced the Istanbul Financial Center Project, whereby the head office of the Central Bank of Turkey was moved from Ankara to Istanbul. The move in this context not only exposes another large-scale urban implementation, but reveals a major repositioning of the country’s economic centre of power. Through this move, the government explicitly acknowledged and fortified Istanbul’s position as the centre of capital, enhancing the city’s financial capacity.

In 2010, the Fikirtepe Urban Transformation Project was announced with the aim of upgrading living standards by constructing an entirely ‘new’ and ‘earthquake resistant’ city. With a budget of 18 billion USD (IBB, n.d.), the project was one of the largest transformations instigated directly by the government. Covering 1,310,000 sq. metres of urban land in the heart of the city, including housing units and commercial buildings, the project was promoted



Figure 3. Geographical distribution of the case studies through a timeline

Although proposed after the announcement of the two laws numbered 5366 and 5393, Tarlabası 360 Urban Transformation Project preceded the city’s new strategy in dealing with the dilapidated urban context. Covering 20,000 sq. metres of the city’s historic Beyoğlu neighborhood, the project’s approximate investment cost was announced by the local municipality’s mayor as being 500 million USD. The neighborhood was promoted as being transformed into a renewed, secure and ‘profitable’ environment, located at the heart of the city’s historic central zone. According to the mayor of Beyoğlu at a speech in 2010, it was to become the “Champs-Élysées of Istanbul” (NTV, n.d.). Besides its urban transformation

as an investment for new businesses and as a city within the city. Even though the project was branded as ‘iconic’ by the former mayor of Istanbul it was also claimed that it would fulfill the need for housing in the city. However, the actual marketing strategy conflicted with this main message by presenting the area as an attractive spot for direct foreign investment.

The announcement of the Law no. 6292 in 2011, accelerated the urbanization towards former green areas of the city. In the same year, the ruling party announced the Canal Istanbul project, a 45 km long channel to be built as an alternative passage from the Marmara to the Black Sea.

The project, described as a "mega project" by the government, would be designed and constructed, taking into consideration the apparent earthquake risk. Environs of the canal would host residential units, housing and business blocks, hotels, fair and expo centres, as well as a new airport with capacity for 60 million passengers (Milliyet, n.d.). The Canal Istanbul mega project is comprised of Istanbul Airport, opened in 2018, and the New Istanbul Project area which is expected to serve as a satellite city within its environs. It includes a third bridge over the Bosphorus which was inaugurated in 2016.

Despite all opposition towards the implementation of the canal project due to its environmental effects and risks concerning natural disasters, the mega project is being promoted directly by the government. The project is presented as a means to preserve the historic quality of the Bosphorus by minimizing the risk posed by maritime traffic (Kanalistanbul, n.d.). A sub-project of the Canal Istanbul was announced as 'New' Istanbul, a new city project for roughly 500,000 people, featuring a design language focused on 'Anatolian Seljuk patterns'. The master plan for Istanbul Airport and its environs was drafted by Perkins and Will as a major mixed-use urban development in 2015. The airport, as well as the surrounding settlement, was subsequently promoted as the largest infrastructure in the history of the republic, and envisioned as a 'unique center of economic, cultural and social life' (Archdaily, n.d.). With its first phase completed in 2018, the airport is operational, but it is expected to reach full capacity by 2025. Covering 76,500 million sq. metres in area, the airport project caused widespread public outcry due to the clearing of large swathes of forested areas; especially since the impact on forested areas was approximately five-fold when compared to the initial environmental impact assessment report (Kuzeyormanlari, n.d.).

In the following part of this article, the case studies representing the implementation of top-down urban policies serving the new city discourse will be analyzed in detail. The analyses will address the multifaceted aspect of the process, including the guiding laws and policies, the actors, and their methodological approaches.

In the Historic Peninsula and in Beyoğlu, based on the Law No. 5366, urban renewal areas have been announced and approved by the local government and the projects have been prepared for the region by nine candidate design offices. In Tarlabası, the first evacuation started in 2010, right after the transformation project announcement for the Fener, Balat and Ayyansaray. The urban regeneration initiatives covering an area of 279,346 sq. metres focused on the functions of housing, commerce and developing a social centre. Such top-down project methodologies resulted in a *tabula rasa* approach to the physical and socio-cultural structure of the cityscape for both Tarlabası and Fener-Balat Ayyansaray neighborhoods, in the Historic peninsula (Figure 4). The historic center of Istanbul reflected an oppressive planning attitude to cleanse and reorganize the region. In both regions mentioned above, a diverse and evolving communal structure, as well as more recent in- and out-migration have created dispersed societal groups living in sub-standard spatial environments, which often result in inhabitants being defined 'other'. Accordingly, the low income and disadvantaged groups of the city are displaced

through such top-down planning proposals and implementations, giving way to a polished new cityscape. This all-encompassing planning approach that enacts a form of societal discrimination, clearly showcases attempts to align the projection of an urban image with the reality of a new city of Istanbul, defined as 'high class' and reserved for certain social groups (Figure 5). The initiatives to relocate its local citizens and to re-shape the urban context for serving the mid-high and high-class residential, business, and tourism needs, not only caused an urban and social shift in the local pattern, but also paved the way for imbalanced socio-economic structures through daily versus seasonal practices. These types of imbalanced methodologies are referred to by Koolhaas (1995, p.28) as "pervasive urbanization" which modifies beyond recognition the urban condition itself; a process where the city is lost and its concept is distorted and stretched beyond recognition. This, in its "primordial condition -in terms of images, rules, fabrication-irrevocably leads via nostalgia to irrelevance." This condition, as Koolhaas notes, "may have been the point of no return, [the] fatal moment of disconnection, disqualification".



Figure 4: Location of the Tarlabası 360 project.



Figure 5: Tarlabası 360 Project on site.

With the zoning plan prepared and approved by IMM in 2008, the establishment of a new international financial center of 1,700,000 sq. metres in Ataşehir-Ümraniye was started on the Anatolian side. Announced as one of the visionary / mega projects for İstanbul, an international financial hub is expected to serve as an alternative collective center of money flow for the Middle East, Eastern Europe and Central Asia at Ataşehir-Ümraniye (Figure 6). The project was promoted with the slogan: 'one of the steps that will be taken to make Istanbul a regional and ultimately a global financial center, with the goal of placing Istanbul among the 10 most important financial centers in the world by 2023' (General Directorate of Spatial Planning [MPGM], 2019). The involvement of the Central Bank of the Republic of Turkey in the project

definitely constitutes a strategic move to attract other financial actors into the game. In this manner, one could say that the project aims to create a platform of 'power' led by the government, whilst presenting the project as well as the city itself as commodified objects.



Figure 6: Location of the International Financial Center project.

transformation project was also incorporated into the development plan for the 1/1000 scaled Kadıköy district. As underlined by Keleş (2004), “the demolition of existing buildings and change of land use in there” is one of the dimensions of urban development processes, and Fikirtepe is a striking example of such a strategy. Located on the Asian side of the city, Fikirtepe is logistically situated at a profitable location with its accessibility potential to the main connection thoroughfares of the city (Figure 8). Even though such an opportunistic attitude allowed the project to gain traction early on, this quickly turned to protests – beginning with house-tenants and lower-income inhabitants – protesting for several reasons: The untrustworthy construction firms, unfinished master planning processes, and open-ended and unreliable construction contracts between the house owners and the construction companies were the driving forces of the protests.

Today, the neighborhood is filled with half-completed residential blocks; physical manifestations of the collaboration between local architectural offices and construction firms with international connections, which



Figure 7: The New International Financial Center project' implementation process in Ataşehir.

In the new international financial center at Ataşehir-Ümraniye, the overall design attitude includes an amalgamation of 'Anatolian Seljuk and Ottoman Architecture' striving to present a synthesis of the past and the future while referencing the folk Turkish 'semâi' (whirling dervish) culture through the physical structures like turning torsos featured by the high rise buildings (Vakıfbank Gyo, n.d.). Such formal cross-referencing of design attitudes showcases a strong cultural referencing to a confused/mixed local background, while the 'international' project proposal at a larger scale exposes the city as a meta structure, signifying a demand to partake in the global arena (Yeni Şafak, n.d.). The claim is to become an important regional financial center in the following 10 years, and one of the five leading international financial centers in the world, along with London, New York, Shanghai and Tokyo, in the following 30 years (Figure 7).

Following its initial announcement in 2010, an area of 1,310,000 sq. metres in and around Fikirtepe was allocated in 2013 as a transformation project area. The



Figure 8: Location of the Fikirtepe project in Istanbul

are being promoted heavily to new dwellers, many of whom are wealthy Middle-Eastern individuals. Such a flow of urbanization compelled the local inhabitants to

move into neighboring districts where they feel more secure and connected to daily life practices, the physical texture and even to the socio-cultural pattern. In this ‘New’ Fikirtepe which was created independently of and gentrified from the city, urban transformation processes developed through public and private partnership, with the capital-oriented targets affecting in the long term not only tenants but also property owners. Large-scale displacements in the region increase the speed of fragmented urban development. Furthermore, this causes important infrastructure problems that develop unevenly, and which prevent the city from coping with the growth. Thus, Istanbul, a metropolitan city open to the world market, supports the formation of diverging regions and urban dwellers in Fikirtepe by rapidly increasing new housing and building production forms in an effort to incorporate them into the global arena (Figure 9). Foreign investments, especially projects with partners from Arabic countries, reveal that the new Istanbul urbanization has re-created the city through the actors who are supported by the system (Artuç, 2016).



Figure 9: Fikirtepe Project site, exposed on the movie ‘Saf’ (2018), directed by A. Vatansver.

In 2011, two ‘new city’ projects in Istanbul were announced; one on the European and the other on the Anatolian side as per the Kartal-Pendik Masterplan designed by Z. Hadid. In 2014, the master plan of the new city project covering 8 districts was completed. On the European side, the first step has been taken for the districts of Arnavutköy, Avcılar, Bağcılar, Bakırköy, Başakşehir, Esenler, Eyüp, Küçükçekmece covering 244,750,000 sq. metres in total. In addition, the ‘New Istanbul’ settlement, given the name in accordance with the current political discourse, and a new administrative center and residential area focused on trade, residence, culture, recreation, and education have been initiated (Figure 10). The project was hailed as the new attraction hub of the city by many local

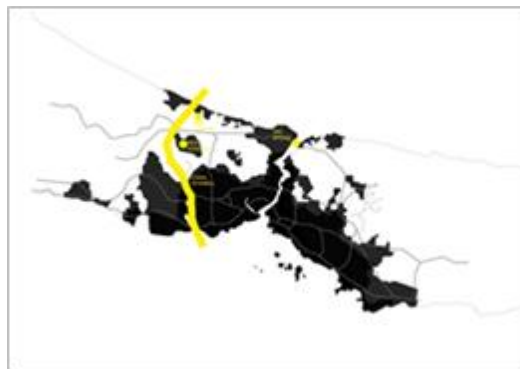


Figure 10: Locations of the mega projects, 3rd Airport, 3rd Bridge, Canal Istanbul and its environs as called ‘New Istanbul’ project.

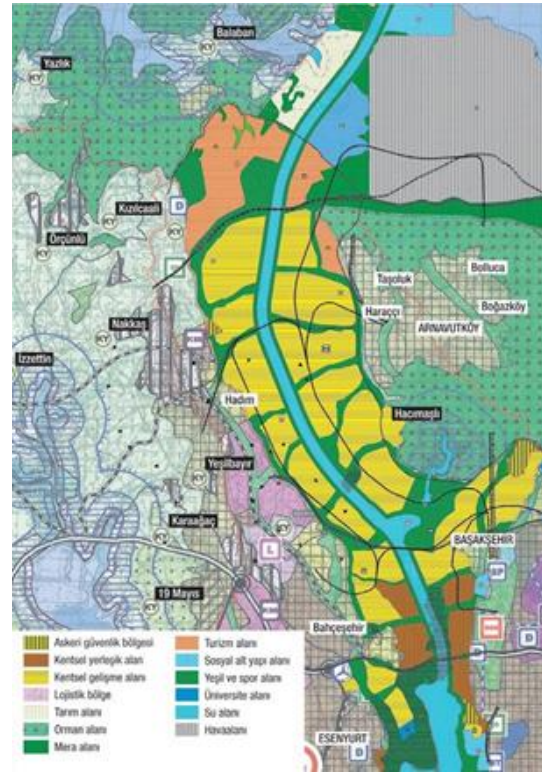


Figure 11: Canal Istanbul’s masterplan implemented by the Ministry of Environment and Urban Planning.

politicians and the government. It was considered as a proposal to succeed the ‘mega projects’ cluster-project-package, which had been announced by the Ministry of Environment and Urban Planning, and which comprised of the Canal Istanbul, the 3rd Airport and 3rd Bridge over the Bosphorus.

The Canal Istanbul project was part of the same election propaganda as the mega project in 2011. It stretches over 42 km and constitutes an axis passing through Küçükçekmece, Avcılar, Arnavutköy and Başakşehir (Figure 11). It was reported by the TEMA Foundation as one of the three projects (along with 3rd Airport and 3rd Bridge) that will negatively affect the future of Istanbul. The technical reports prepared by academics and NGOs highlight that the project cluster will result in destructive influence over the environmental texture of Istanbul, causing major loss of natural green and water resources, and will affect the agricultural production and wider ecosystem (Diken, n.d.). The project however has become the center of attention for local and foreign investors,



Figure 12: Canal Istanbul and its projected environs.

promoting various housing construction projects that are expected to host approximately 2.4 million people in 800,000 housing units (Emlak Kulisi, n.d.) at a central location in Istanbul (Figure 12).

The construction projects located in the region concurrent with the 'cultural and aesthetic values' of the Turkish Culture (Yeni Akit, n.d.) are to highlight the promoted 'new' Istanbul urban city image, ideology and culture. The project, with its estimated 60 billion Turkish Lira investment, is also likely to result in three additional infill islands located near the shores of the Marmara Sea. It will also destroy Küçükçekmece Lake by merging it with the sea, and the Sazlıdere water dam through which the canal itself will flow. The canal is expected to have a life span of 100 years and will relieve the Bosphorus of sea traffic (Diken, n.d.). Through this discourse, the projects are expected to attract greater interest and gain higher profits in return (Figure 13). Supported by the two other cluster mega proposals of the city's new face to the global world, these mega structures and resultant transformations of the cityscape were based on the government's discourse describing them as the largest project ever in history of the Turkish Republic.



Figure 13: An advertisement for a mixed-use project at New Istanbul site promoting the project as an investment.

The 3rd Airport project was announced in 2013. Despite technical and EIA reports underlining the expected damage to natural habitats, and important watersheds until the completion of the project, it was started in April 2019 (Figure 14). The 3rd Bridge project, which covered 76,500 sq. metres in area and has a total length of 2,164 m, was designed with the Build-Operate-Transfer (BOT) model in Garipçe-Poyrazköy. It cost 4.5 billion TL together with the Northern Marmara Motorway. The project was announced to the public in 2010 by the government and the IMM and the bridge was inaugurated in 2016. Kolluoğlu (2008;



Figure 14: An online article on the Istanbul airport's opening illustrating the international recognition of the project.

quoted from Ekinci & Görgülü, 2015, p. 73) argues that the "mega-projects" are distinguished products of urban transformation processes that derive from "a series of legal changes packaged with neoliberal language" resulting from the fundamental changes in real estate investments, and the new visibility and dominance of the finance and service sectors in the urban economy and urban space. Through these new construction and rebuilding implementations, the ruling party of Turkey for most of the last two decades, has set an agenda to support the country's economy by building upon growth and the re-production of space as underlined by Cavusoğlu and Struzt (2014, p. 141). The case of Istanbul, as a governmentally supported, transforming city represents a direct link between the overall mission of the governing authority, economy and power through an urban Plan as indicated by Tafuri's theorisations.

Decoding the Prevailing Discourse

The Plan, as noted in the context of Tafuri (1969, 1998, p:15), represents a top-down approach starting from global capital, moving to real estate investment trusts, policy makers, contractors and finally reaching various local administrative bodies. This imposed Plan is from then on distributed towards organizational production by merging the fields of knowledge, design and business through the tools of media, professional practice and education. The production of the built environment, as discussed by Boyer (1990), becomes an instrument of capitalist development (quoted from Mutlu, 2009, p. 18).

In this manner, decoding the top-down practices through to their prevailing discourses is necessary to not only understand the implementation methodology but also the position of its actors. Therefore, through descriptive research, the roles and positions of the actors of urban practices were decoded as seen in the following figure (Figure 15). Exposing the relation between the decision makers of a project, and the network of institutions responsible for its planning and execution highlights a disrupted urban hierarchy in the process of decision making, mostly in the form of 'by force' projects of a given political strategy.

This research dwells on the analysis of the discourse set by the policies announced since the beginning of the 2000s that was driven by planning the city with a top-down approach. It was a matter of determining how the policy led the planning approach, how the roles of the actors used a common political language, as well as how the language of the constructed environment advocated and "articulated" the construction of a 'new' city. Relations between power, image and the construction of the city were being legitimized through the announcements of urban policies, considering mainly the earthquake as a risk. Insufficient housing, natural disasters, secure and qualified urban living phrases were being used as the underlying reasons in a common discourse to legitimize urban development. These common expressions were shared with the public through the use of media as a transmitting tool, and they were adopted by society, often unknowingly. Through this research, such phrases, mottos, branding images and promotional media that were used by the leading project actors of the governing authority, were collected either from the project websites and/or from inauguration speeches or interviews, until saturation by

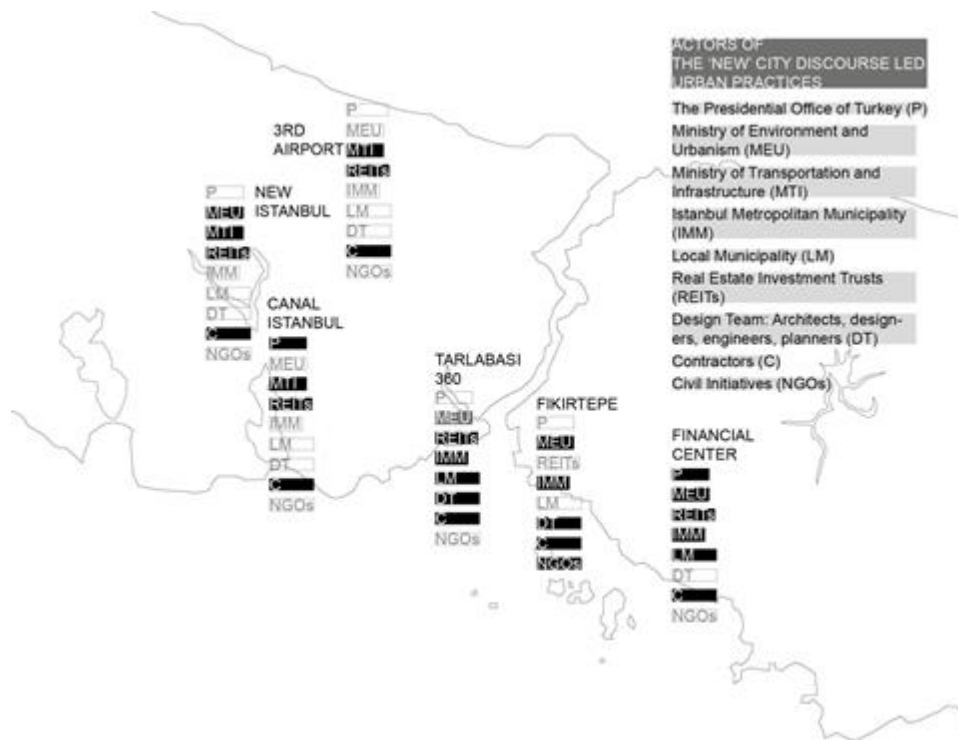


Figure 15: Actors of the new city discourse led urban practices.

	Q	P	D	N	E	\$	U	A	H	I	
Istanbul Financial Center Project	1	1	0	0	1	0	0	2	4	3	H historicism I iconic E environmental concern
Tarlabası 360 Urban Transformation Project	3	2	2	2	0	2	6	1	7	2	\$ economy U urban image A architectural style
Fikirtepe Urban Transformation Project	3	0	3	3	0	1	3	0	0	2	Q quality of life P proximity D natural disaster
Canal Istanbul Project	0	0	0	0	0	1	0	2	0	1	N a 'new' structure
New Istanbul Project	0	0	0	1	0	2	1	4	1	0	
Istanbul Airport Project	1	1	0	0	0	1	0	0	0	8	

Figure 16: Decoding the new city discourse through the top-down urban practices.

snowball sampling methodology. Thus, the qualitative research helped to expose the implicit and explicit expectations of the top-down planning approach, the political mission behind the settling of the new İstanbul discourse, and its urbanization process (Figure 16).

Out of the collected project promotional media, 76 key words and phrases were categorized within 10 clusters according to their relations. By developing these clusters, the goal of the research was to develop an alternative decoding system to expose the 'new' İstanbul discourse. Through such deconstruction, visible and invisible characters of all the analysed project implementations began to arise as major terminologies used repetitively. According to the research data, the top-down planning approach exposes a new city discourse that deploys an iconic and historicist urban image to attract - mostly foreign - investment to support the state economy. Such decoding of the discourse also highlights a major question of how the urban transformation and development strategy has set all its rules regarding disaster mitigation and the environment as an act. However, this agenda takes a back

seat in comparison to the city's branding agenda used by the governing authority.

This position of the discourse comes to light especially within the first half of the research's defined timespan. With the analysis of Tarlabası 360 and Fikirtepe Urban Transformation projects, the data shows that the major legitimization phrases for these projects had been necessary to reach safer living environments. The term safety in this manner not only referred to the earthquake risks, but also to a renewal strategy for crime prevention. A gain from both sides would envision increased urban quality within an earthquake resistant, new city at the hearts of both the European and the Asian sides of the city. Logistically very advantageous locations of the city exposed a completely new, context free project interventions, neglecting, however, the socio-cultural and historic patterns of the neighborhoods. In the end, both developments demonstrated either a cosmetic façadist urban image for the Tarlabası or a completely implanted, new context for Fikirtepe neighborhoods, both representing highly profitable investment plots in the city.

In the second half of the research's timespan, the implementations reflect direct governmental impacts, specifically from the presidential level. It reveals that mega project announcements, as well as the transfer of the republic's central bank from the capital to the city of Istanbul, refers to a major focus on the economy from a top level. It is also very critical to underline that all the debates and reviews for and against the project implementations or top-down interventions had been continuously neglected or the questions raised remained unresolved.

The main focus in this framework, evidently represented itself as branding the city for the global arena (Figure 17). Phrases popped up one after the other as 'the largest', 'the biggest', 'the most powerful', showcasing a promotional attempt to prepare the city as a stage. In other words, in order to attract more investment, the governing authority needed no criticism, debates or opposition, but rather, the tools and agents to design, construct and legitimize the act. Finally, this form of act, revealed a prevailing discourse of

projects which relied on a top-down approach, are decoded and analysed. The research exposed the implicit and explicit targets behind the 'new' Istanbul's political discourse. It is revealed that the prevailing approach in 'new' urbanization, serves the business-oriented urban economy. As Sklair highlights (2010, 2012) top-down approach urbanization, fuels the discourse of international economic competition through mega projects. As the centrepiece of the commodification process, the mega-project becomes "a product and a media representing a city" Ponzini states (Ponzini, 2014, p.11). Additionally, the form of representation, he adds, "interprets the spectacularization of [...] architecture and of the urban environment on global scale" (Ponzini, 2014, p. 11). Based on the qualitative analysis, the research exposed the roles of each responsible actor within the process. It is important to acknowledge the role of the media as an actor in the process legitimizing the discourse mostly led by the governing authority. The architect or the design team,

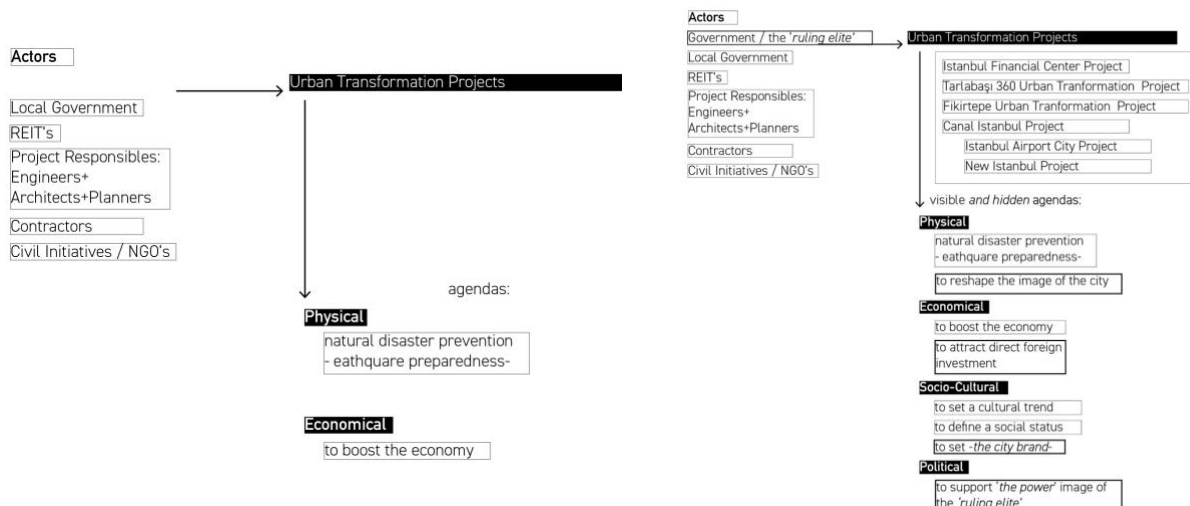


Figure 17: Visible and invisible agendas of the 'new' Istanbul's prevailing discourse.

the 'new' city. The new city would be branded and presented through its urban capacities, which were polished and redesigned, and even at some levels featured entirely refurbished spatial environments. A securer city in terms of natural disasters and criminality ratios would promote Istanbul as a safe spot for investment.

At this point considering Tafuri as a direct link between the practice and the reality of production becomes necessary. Although his reference to the act of production was highly associated with 'Modernism', one can easily link the formation of the city of Istanbul in this particular research, as the perfect environment for "an ideological climate". The city, according to his perspective, represents a place for the comprehensive 'production of...an ideological situation" (Tafuri, 1976, p.48).

Conclusion

This study identified the urban transformation strategy implemented in Istanbul for the last 15 years as a tool to promote the 'new' urban discourse and the cityscape. The actors, roles, and branding images of five selected urban

however, also plays an instrumental role through the production of a built environment fuelled by capitalist development strategies.

Due to the accepted task for the agents of politics of "politicizing", Tafuri states that the architect becomes the producer of "objects"; an incongruous figure with the sole task of organizing the cycle of production (Tafuri, 1969, 1998, p. 22). The position of the fields of design, architecture and planning, as well as the role of the designer, planner and architect clearly demarcate the boundaries of the field, setting the rules of the game, and defining the roles of the players. In this context, initiatives following the common path of configuring the city related to a top-down planning strategy reminds one of Tafuri's argument regarding the practices in the city of Istanbul, describing it as "devoid of social and individual utopia" due to the dominance of capitalist, development-led practices which embody "the drama of architecture" (Tafuri, 1998, p. 3-4).

In order to understand how design and architecture are deployed as tools for establishing an eligible environment for commodification, ideologies of power and the

promoted ideology in particular must be exposed. Accordingly, this article has attempted to highlight the features of the existing ‘new’ urban practices, lifestyles and spatial expectations. Current urban debates and trends developed from the top down, while local and global policies are presented through new imagery of urban representations. Not only is the strategy of re-writing the urban image revealed as a key subject worthy of discussion, but the position of the fields of architecture and planning as legitimizing tools of the system have been exposed. In this manner, the present article has attempted to spark a debate. Moreover, our analysis of representations of the “new” city in its promoted materials have highlighted the lack of a holistic approach to planning, while exposing the commodification of the city’s urban, cultural and historical contexts. Indeed, it has been shown that, through the practice of urbanism, a form of new urban identity is gradually being implemented.

Analysing the new urban discourse has also revealed the governing authority’s major concerns: that is, its attempts to create an iconic and historicist urban image. Connected strictly to its pre-republic history, the political discourse establishes mainly a conservative and profit-centered identity. The results from the study suggest that through the re-reading of the city and its “new” Istanbul image, one can easily capture a construction practice through the simulations of historical images and the manipulation through spaces for ‘the new’, ‘the iconic’, ‘the gigantic’ which are representations of political power. Therefore, this study offers a framework for further research on the socio-spatial impacts of the mega projects discussed, with regards to the challenges and daily life practices among displaced groups and newcomers to the city. We recommend, in closing, a comparative study that would highlight the differences between the promoted/idealized vision of the city and the experienced/realized ‘new’ İstanbul.

References

- Archdaily*. (2015). Retrieved from <https://www.archdaily.com/774710/perkins-plus-will-to-design-airport-city-in-istanbul>
- Arkitera*. (February 22, 2008). Retrieved from <https://www.arkitera.com/haber/26694/kartalda-kentsel-donusume-bir-adim-kaldi>
- Artaç, D. (2016). *Kentsel dönüşüm sosyal ve mekansal etkileri: Fikirtepe dönüşüm alanı*. (Master of Architecture, Maltepe University).
- Bauman, Z. (2006). *Liquid modernity*. Malden: Polity Press.
- Boyer, M.C. (1990). *The rise of planning mentality in dreaming the rational city the myth of city planning*. Cambridge, MA: MIT Press.
- Candan, A. B. & Kolluoğlu, B. (2008): Emerging spaces of neoliberalism: A gated town and a public housing project in Istanbul. *New Perspectives on Turkey*, 39, 5–46.
- Candan, A. B. & Ozbay, C. (2019). Yersiz, havasız, mülksüz kent. In: Candan & Ozbay (Eds.), *Yeni İstanbul çalışmaları: Sınırlar, mücadeleler, açılımlar* (pp. 11-15). İstanbul: Metis Publishing.
- Çavusoglu, E. & Strutz, J. (2014). *We'll Come and Demolish Your House! The Role of Spatial (Re)Production in the Neoliberal Hegemonic Politics of Turkey*. In: İ. Akça, A. Bekmen & B. A. Özden (Eds.). *Turkey reframed. Constituting neoliberal hegemony* (pp. 141-153). London: Pluto Press.
- Developing Regions Summit. (2019). Retrieved from <https://www.signofthecity.com/3-gelisen-bolgeler-zirvesi-istanbulda-yapildi/tr/88>.
- Diken*. (May 18, 2018). Retrieved from <http://www.diken.com.tr/kanal-istanbul-raporu-cilgin-proje-degil-geri-donusu-olmayan-bir-yikim/>
- Diken*. (December 12, 2017). Retrieved from <http://www.diken.com.tr/guzergah-artik-kesin-kanal-istanbul-kucukcekmece-golunden-denize-kavusacak/>
- Dogan, E., Stupar, A. (2017). The limits of growth: A case study of three mega-projects in Istanbul, *Cities* 60, Part A, Pages 281-288, ISSN 0264-2751, <https://doi.org/10.1016/j.cities.2016.09.013>.
- Doxiadis, C. A. (January-December 2005). The universal urban crisis. *Ekistics*, 72 (430/435), A reader on ekistics, thirty years after C.A.Doxiadis, 78-82.
- Dünya İnşaat. (n.d.). Retrieved from <http://www.dunyainsaat.com.tr/haber/torunlar-gyove-kiptastan-istanbula-yeni-bir-semt-5inci-levent/11327>
- Ekinci, K., & Görgülü, Z. (2015). İstanbul’da yeni kentsel devingenliğin iktidar gramerini açıklayıcı bir olgu olarak “bir sonraki proje endişesi” (“Next project anxiety” as the defining feature of the grammar of power of new urban mobility in İstanbul). *Planlama*, 25(1), 64–79. doi: 10.5505/planlama.2015.73792
- Emlak Kulisi. (n.d.). Retrieved from <https://emlakkulisi.com/guncel/istanbulun-yeni-cilgin-projesi-nedir/561333>
- Harvey, D. (1990). *The condition of postmodernity: An enquiry into the origins of cultural change*. Oxford: Blackwell.
- IBB İstanbul*. (February 5, 2017). Retrieved from <https://www.ibb.istanbul/en/News/Detail/19>.
- Kanalistanbul*. (n.d.). Retrieved from <https://www.kanalistanbul.gov.tr/tr>
- Keleş, R. (2004). *Kentleşme politikası*. Ankara: Imge Publishing.
- Koolhaas, R. (Spring, 1995). Whatever happened to urbanism? *Design Quarterly*, 164, 28-31.
- Mekansal Planlama Genel Müdürlüğü. (2019). İstanbul Uluslararası Finans Merkezi. Retrieved from <https://mpgm.csb.gov.tr/istanbul-uluslararasi-finans-merkezi-i-4588>
- Milliyet* (April 27, 2011). Retrieved from <https://www.milliyet.com.tr/siyaset/iste-erdoganin-cilgin-projesi-1382967>
- Mutlu, E. (2009). Criteria for a "good" urban renewal project: The case of Kadıköle urban renewal project (İzmir, Turkey). (Master of Science in City Planning, İzmir Institute of Technology).

Mutman, D. (2009). Urban regeneration: Tools, catalyzers and the outcomes. In T. Ilmavirta (Ed.), *Regenerating Urban Core*. (pp. 26-43). Publications in the Center for Urban and Regional Studies.

Mutman, D. (2010). Participative action as a temporary intervention: A tool for sustainable urban transformation. (Doctor of Architecture, İstanbul Technical University).

Mutman, D., & Turgut, H. (2018). Colliding urban transformation process: The case of Historical Peninsula, Istanbul. *International Journal of Architectural Research (ArchNet-IJAR)*, 12(1), 164-181. doi: <http://dx.doi.org/10.26687/archnet-ijar.v12i1.1369>

NTV (January 19, 2010). Retrieved from https://www.ntv.com.tr/ekonomi/tarlabasina-500-milyon-dolarlik-donusum,QLIOXLK_oESBze8NL5fD-g

Ponzini, D. (2014). The values of starchitecture: Commodification of architectural design in contemporary cities. *Organizational Aesthetics*, 3(1), 10-18.

Saunders, W. S. (Ed.). (2005). *Commodification and spectacle in architecture: a Harvard design magazine reader*. Minneapolis: University of Minnesota Press.

Tafuri M. (1969) Per una critica dell'ideologia architettonica. *Contropiano: Materiali marxisti*, Vol. 2, No. 1, pp. 31-79. Tafuri M. (1998) Toward a Critique of Architectural Ideology. In Hays K. M. (ed.) *Architecture Theory since 1968* pp. 6-35. Cambridge, Mass. and London: The MIT Press.

Tafuri, (1976), *Architecture and Utopia: Design and Capitalist Development*, p.48. The MIT Press.

Tschumi, B. (1994). *Architecture and disjunction*. Cambridge MA: MIT Press.

Uluengin, M.B. (2003). The Balat District A Study of Preservation Policy and Practice in Istanbul. *Platform*, 5(1), 16-25.

Vakıfbank Gyo. (n.d.). Retrieved from <http://www.vakifgyo.com.tr/proje/istanbul-finans-merkezi-projesi>

Yeni Akit. (n.d.). Retrieved from <https://www.yeniakit.com.tr/haber/arnavutkoydeki-yatirimlar-kanal-istanbulla-taclanacak-573849.html>

Yeni Şafak. (n.d.). Retrieved from <https://www.yenisafak.com/yazarlar/sahapkavcioglu/istanbul-finans-merkezi-205029>

Yilmaz, M., & Maz, M. (January-December 2005). Architectural identity and local community. *Ekistics*, 72 (430/435), A reader on ekistics, thirty years after C.A. Doxiadis, 140-146.

Figures

Figure 7. (2019). [Image]. Retrieved from <https://indigodergisi.com/2019/03/istanbul-finans-merkezi-projesi-degisiyor/>

Figure 9. (2019). [Image]. Retrieved from [https://www.arkitera.com/soylesi/kentsel-](https://www.arkitera.com/soylesi/kentsel-donusumun-yapi-ve-sehir-dokusu-temelli-dusunce-dunyasinin-kaliplarini-genisletmemiz-gerekliyor/)

[donusumun-yapi-ve-sehir-dokusu-temelli-dusunce-dunyasinin-kaliplarini-genisletmemiz-gerekliyor/](https://www.arkitera.com/soylesi/kentsel-donusumun-yapi-ve-sehir-dokusu-temelli-dusunce-dunyasinin-kaliplarini-genisletmemiz-gerekliyor/)

Figure 11. (2018). [Image]. Retrieved from <https://www.arkitera.com/haber/kanal-istanbul-projesi-hayata-geciyor-mu/>

Figure 12. (2018). [Image]. Retrieved from https://img.piri.net/mnresize/840/-/resim/imagecrop/2019/12/28/01/59/resized_a9aab-3af34bffinansetc.jpg

Figure 13. (2018). [Image]. Retrieved from <http://www.adimistanbul.com.tr/en>

Figure 14. (2019). [Image]. Retrieved from <https://www.thetimes.co.uk/article/istanbul-airport-worlds-biggest-airport-welcomes-first-passengers-xrv7p7b26>

Keywords

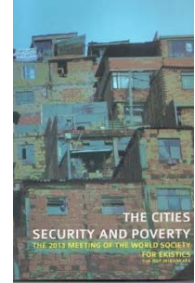
'New' City Discourse, Actors, Commodification, Representation, Image.

Book Review

by Onur Tümtürk
University of Melbourne, Australia

The Cities, Security and Poverty

Meltem Yılmaz & H. Çağatay Keskinok (eds.) (2015)
*Proceedings of the 2013 Meeting of the
World Society for Ekistics,
7-10 July 2013, Ankara, Turkey.*



The 2013 Meeting of the World Society for Ekistics was held in Ankara, Turkey around the theme of ‘The Cities, Security and Poverty’¹. The proceedings from this international meeting, edited by Meltem Yılmaz and H. Çağatay Keskinok, form an overarching account of the changing power relations in a globalized world, discussing their socio-spatial implications for human settlements with particular reference to the key issues of the weakening public sphere and communality, increasing socio-spatial fragmentation and inequalities, and emerging security problems related to both political insurgencies and environmental degradation. Although the content of the book is not structured around certain sub-headings or themes, it is possible to categorize the 18 distinctive contributions as follows: (i) changing power relations and their implications on the public sphere; (ii) spatial manifestations of changing power relations and urban segregation; (iii) crime and security problems in urban spaces; (iv) ecological transitions, sustainability issues and environmental disasters.

As a parallel to the meeting’s main emphasis on power issues and their socio-spatial implications, Luca Muscara wisely posits the notion of ‘power’ as being at the centre of ongoing discussions regarding the socio-spatial fragmentation of contemporary urban space; highlighting the inevitable relationship between political power and Urban Studies. Muscara’s inclusive approach contextualizes two distinctive urban theories within that supposition – Jean Gottmann’s Megalopolis and Constantinos Doxiadis’ Ekistics. This implies that the study of human settlements exceeds the act of mere problem-solving as it has an explicitly political role to play in the development of social cohesion and peace. In that sense, Baykan Gunay’s 2013 C.A. Doxiadis Lecture on the spatial history of Ankara provides a clear example of the Turkish state’s political desire to create a modern society and new spatial organization through the planning of a new capital city. Arguing similarly that cities are beyond mere physical artefacts, Duygu Cihanger and Burak Büyükcivelek critically evaluate the Gezi Park Movement, one of the recent political urban movements which has emerged in Turkey, discussing its social implications with respect to an increased awareness of the importance of social cohesion, the public sphere, democracy, and the

right to access the city itself. In addition, Pelin Yildiz and Berrak Erdal’s discussions on the notion of ‘speed’ as one of the parameters of the contemporary public sphere aid the reader to understand the enduring transition from communality to individuality in urban life, and add another conceptual dimension to the analysis to grasp the importance of emerging political uprisings that reflect the changing power relations in Turkish cities.

Spatial manifestations of changing power relations are discussed widely by a substantial number of articles with respect to spatial fragmentation, physical segregation and current urban transformation practices in Turkey. In this respect, Duygu Koca’s comprehensive investigation of ‘gated communities’ makes a significant contribution to the discussion of spatial fragmentation in Istanbul. Exploring emerging patterns of segregated residential architecture in relation to different socio-economic groups reveals the deepening impacts and changing dimensions of socio-spatial segregation in Turkish cities. Similarly, Ufuk Poyraz and Merve Önder bring the issue of destructive spatial interventions to the attention of readers and point out to the homogenization of urban spaces, exclusion of others and deepening spatial segregations between different and variously powerful groups in society.

Following the discussions of changing power relations and their socio-spatial implications, Diren Kocakuşak and Zuhul Nalçakar’s conceptualization of urban crime as a measure of security illustrates the necessity of considering both the main socio-economic driving forces and existing spatial factors to address security concerns in cities. Addressing the same issue, Ayhan Melih Tezcan conceptualizes urban security within the ‘territoriality’ discussion and points out the changing means of territorial order - privatization of public spaces, emerging ‘gated communities’ and shopping malls – as symptoms of struggles over security and power in contemporary urban spaces.

Environmental challenges and the negative externalities of ecological transitions form another dimension of the discussion around the issues of security, inequality and sustainability. In this context, Agni Vlavianos Arvanitis’ comprehensive account of the notion of ‘biopolis’ outlines

¹ Book cover image sourced at:
<http://www.openaccess.hacettepe.edu.tr:8080/xmlui/bitstream/handle/11655/11815/tcsap.jpg?sequence=1&isAllowed=y>

an overarching framework for the realization of an environmentally sustainable and livable city. Arvanitis emphasizes the necessity of an ecological planning approach. In contrast, Rıza Fatih Mendilcioğlu's critical inquiry into large-scale ecological architectural projects focused on natural concerns finds that socio-economic and equity issues do not receive enough attention. In this respect, Bilge Sayıl Onaran and Emine Nur Ozanözgü suggest that culture and identity are complementary and necessary for the realization of true sustainability. This approach helps readers come to grips with the multi-dimensional complexities involved in developing environmentally secure, sustainable, and just cities. Ezgi Orhan's study on post-disaster spatial planning practices in Turkey, on the other hand, critically evaluates the changing understandings of environmental security and investigates the effects of post-disaster practices on spatial and social fragmentation in earthquake-hit cities of Turkey.

To conclude, then, this comprehensive compilation brings to the forefront the problematic issues related to power, security and poverty by highlighting the recent socio-spatial experiences in Turkish cities. The multi-dimensional and fruitful discussion - including wide-ranging debates about the weakening public sphere, deepening socio-spatial inequalities and spatial segregations, emerging security problems and environmental concerns - presents an informative and stimulating overview that offers a framework for changing power relations and their socio-spatial manifestations in contemporary urban spaces. This inclusive compilation offers a fresh outlook to the emerging problems of Turkish cities and deserves to be read by the widest possible audience.



Ekistics

EKISTICS GRID

Created by Doxiadis as a Thinking Tool for Constructive Action, for Focusing Discussion, Classifying, Cataloguing, inspired by Geddes *Notation of Life* and *CIAM Grid*, with the added dimension of Ekistics Population Scale

Kinds of Human Settlements:																		
Temporary				Villages			Polises			Metropolises			Megalopolises		National Systems		International Systems	
Community Class				I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII			
Ekistic Unit	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15			
Kinetic Field	a	b	c	d	e	f	g	A	B	C	D	E	F	G	H			
Name of Unit	anthro pos (human being)	room	house	house group (dwelling group)	small neighbour hood	neighbour hood or village	small polis (town or urban ecovillage)	polis (town or suburb)	small metropolis (large city)	metropolis	small megalopolis (conurbation)	megalopolis	small eperopolis (urbanized region)	eperopolis	ecumeno polis			
NATURE - Habitat Foundations																		
ANTHROPOS - Physiological/biological and social-psychological needs and constraints																		
SOCIETY - Social, economic, governance and political organization																		
SHELLS - the envelopes that contain settlement functions																		
NETWORKS - Node-to-node systems and flows of resources, waste, data, people and information																		
SYNTHESIS - Human Settlements Combined, applied, coherent design and knowledge																		
EPS (Ekistics Population Scale) Doxiadis rounded figures	1	2	5	40	250	1.5 T	10 T	75 T	500 T	4 M	25 M	150 M	1,000M	7,500 M	50.000 M			
Core Population calculated at log 7	1	2	5	35	245	1.7 T	12 T	84 T	558 T	4 M	29 M	202 M	1,412M	9,886 M	69 B			
Population Range			3-15	16-100	101-750	751-5000	5-30 T	30-200 T	200-1,500 T	1.5 -10 M	10 - 75 M	75 - 500 M	500 - 3000 M	3 - 20 B	> 20 B			
	T = Thousand; M = Million; B = Billion (thousand million). Each unit has 7 times the population of the previous unit, based on Christaller's hexagon theory.																	
	Kinetic Fields a-g are the distances anthropos can walk for a given period: A-H are when using draft animals or vehicles.																	
	Adapted by Catharine Nagashima for Ekistics and the New Habitat 2020/05/07																	