A NEW LANDSCAPE DESIGN STRATEGY FOR CREATING CONTINUOUS, PERCEPTIBLE AND PRODUCTIVE URBAN GREEN:
a case study of Kadıköy - İstanbul

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Abstract

It has been suggested that there exist an optimal spatial arrangement between and inside the ecosystems and land-uses, and that arrangement maximizes the ecological integrity of land mosaics. A similar spatial structure can be discovered in urban environment and it might be used to create a sustainable and continuous urban landscape.

This paper offers a new design strategy to *create more spaces with less spaces* by analysing potentials of spontaneously formed urban green which had been broken into pieces due to rapid urbanization process**.** Central to this design strategy is the re-establishment of street networks to improve their identity as well as to emhasize integrated green spaces in the built environment for human benefit. Spatial configurational and axial analysis methods will be used in order to explore potentials and evaluate the structure of proposed urban landscape network.

Kadikoy region within the city of Istanbul exemplifies a remarkable characteristic in terms of green structure and spatial street network which is suitable for creating walkable and attractive street network. The paper will seek the possibilities of creating a web of connected open spaces in Kadikoy that would offer a continuous and perceptible urban environment when people are moving in the city.

Introduction

If we look through the landscape we can say that all land approves itself as mosaic patterns and that mosaic-like compositions are perceivable at different scales (Figure 1.). The conceptual framework of natural spatial arrangement between and inside the ecosystems, in terms of land-use, maximizes the ecological integrity of land mosaics. A similar spatial arrangement can be discovered in urban environment and it might be used to create a sustainable and continuous urban landscape. If so, the challenge of designers should be to discover that arrangement and make it discernible by creating sustainable, continuous and perceptible urban environment.

Figure 1:

Natural land mosaics of Turkey (Photos: Alp Alper, 2006)

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During the establishment of the cities, buildings had started to expand into existing natural landscape. In time, the green environment had been broken into pieces due to rapid urbanization process, and green spaces has remained as distributed in the cities after the invasion of buildings. In order to propose a new design strategy to develop this existing but invisible natural spatial structure of green spaces and to achieve integration between urban open spaces they should not be considered as isolated units such as streets, parks, squares, or gardens. Identification and development of such spatial continuities within urban open spaces might be possible, even though currently they are small, invisible or accidental. Central to this design strategy is the re-establishment of street network to improve their identity as well as to emhasize integrated urban open spaces in the built environment for human benefit.

If we turn to Richard Forman's ideas about land mosaics, it has been observed that fundamental components of spatial organization in landscape and ecological systems. The detail of the mosaic is described by Forman in terms of the patch-corridor-matrix model: patches are relatively homogenious non-linear areas that differ from the surroundings; corridors are strips of particular types that differ from the adjacent land on both sides; and matrices are the background ecosystem or land-use type (Forman, 1995, p.522).

If we compare this theory with urban space in terms of morphology of the street network and spatial configuration in urban environment we should define components of the walkable and continuous landscape of cities. The main question of this new approach is "from where and with which measurements we should start to seek for walkable and continuous network?"

The Design Strategy

Although it is yet underdeveloped in terms of urban regeneration, our recent experiences shows that the creation of compact and many-centred cities with mixed uses and high density seems to be the most sustainable urban form. Through what we define as an interconnected open space network for city environment we need to have a new approach for an environmentally pleasant network of pedestrian movement or a web of connections providing the series of choices and experiences when they move in the urban mosaic. Instead creating large scale and useless green spaces we need to look utilities of interconnected open space network with long and short distance walking routes.

If we classify the urban mosaic as in the Forman's theory, it can be observed that there exist a local and public networks which is completed by the open space network from private to public in each integrated matrices of the mosaic (Fig. 2).

Open Space Network: recreational spaces (parks, waterfronts), squares- transportation nodes, empty lots /dead spaces between buildings, pocket parks, corners, courtyards, inner-gardens.

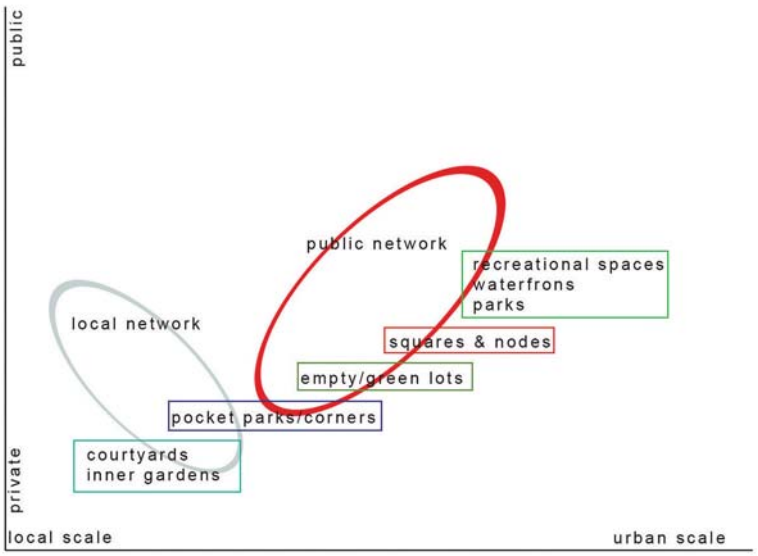

Figure 2:

The components of continuous and perceptible urban open space network in Kadikoy: Street Network: Public network /Local network

In this context we should define the main steps of the design strategy in three categories: Firstly we should make clear the characterization of borders which is define the compact and self-enclosed matrice of urban mosaic with its natural potentials in terms of everyday usage by people. The second step is consist of the analysing process of street-space network with space syntax tools by overlapping axial maps and convex spaces. The last step is defining component typologies and functional potentials of green space network to improve sequential experience with connectivity and perceptibility. All these steps can be defined as a conceptual shift in terms of urban regeneration in order to introduce existing but invisible interwowen networks of small open spaces, including streets that connect them.

Case Study in Kadıköy District

The Site

Kadıköy is one of the oldest settlements of Istanbul, and through time it has evolved as a market place and important transportation node for whole Asian side of the city. At the time of the Greek city of Chalcedon, the area was a rural settlement locating outside of the inner-city in which surrounded by city walls. In the Ottoman period, the site was put under the jurisdiction of the Istanbul courts, hence the name of Kadıköy, 'village of the judge'. In time Kadıköy became a popular market for agricultural goods and developed into as a shopping center and residential area. In current situation, as being a hub of traffic, the central waterfront of Kadıköy is the main station area for several type of transportation vehicles crossing between the Asian and European side of the city.

Within the city of Istanbul, Kadikoy region exemplify a remarkable characteristic in terms of green structure and street network. Because of its rhytmic urban daily life, the area is suitable for creating walkable and attractive street network enriched by a squential experience when people moving throughout the urban mosaic. It is aimed that to develop a configurational analysis on green space morphology in order to explore their functional potentials as natural urban harbours in the busy city center, Kadikoy.

The exploration of open space network

With this study it is aimed that to find the possible practical solutions in order to create continuous and perceptible open space network with

existing potentials of a compact urban district through three coordinated steps as mentioned in the second part.

Defining the main borders and urban grid of the site

If we look through Kadikoy district, the characterization of borders should be explained under three categories: first, the railway and its embankments on the north and east; secondly, the main highway (E-5) which connects the district to the city; lastly, the crescent shape waterfront area enriched by several public spaces being non-attractive and disconnected with the everyday urban life because of the inaccurate functionality. With these borders the site can be described as a “compact and self-enclosed matrice” of urban mosaic (Fig 3-a).

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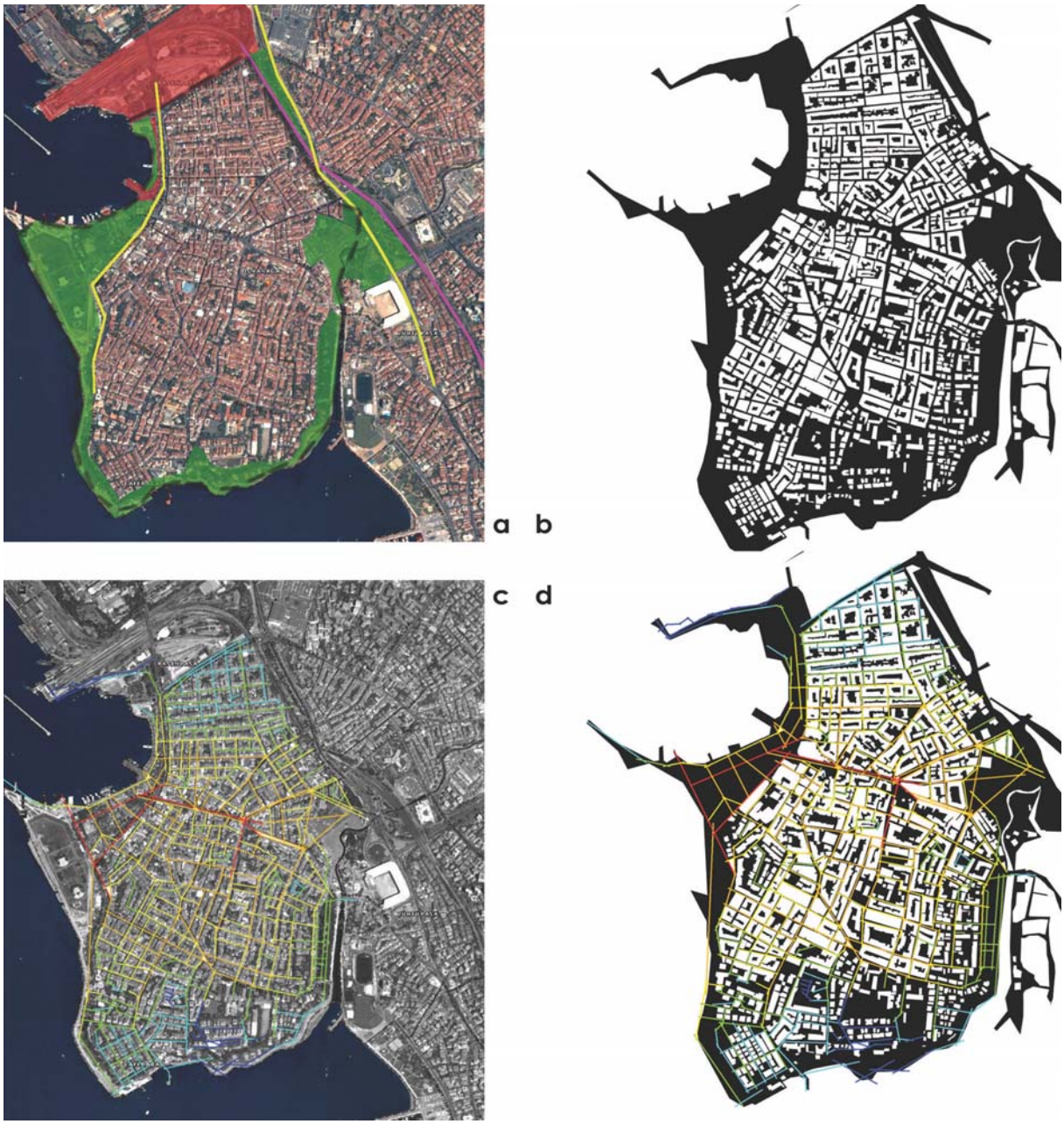

Figure 3:

a- Characteristic borders of the site,
b- open space structure of Kadikoy,
c- overlapping axial map(Rn) with aerial map of the site,
d- overlapping axial map(Rn) with open space structure of the site

The existing situation and future potentials of open space-street network with space syntax tools

In the second step, the street-space network had been analysed with space syntax tools by overlapping axial map with existing urban structure (Fig.3c and 3d).

The axial map shows that Sogutlucesme Street is the central axis of our case study area. Although the street has high integration with both the inner city and waterfront, there is no-correlation between its integration and the activities of the convex spaces presented along the axis. Actually, at the beginning of the axis where is near the sea, there is a potential convex space in which a large terminal of public transportation and the ferry docks is located on. Even though the main street connected to the docks is a welcome place for pedestrians who participated Kadikoy from the sea, here is the least attractive aspect of the district with its busy and crowded traffic confusion and the grey facades of buildings enclosing the street. At the top of the street there is a road intersection being famous with the statue of a bull, called Altıyol ('six ways'), where the streets leading to the huge street market called Salipazari ('Tuesday Market') and Kurbagalidere Park.

According to axial map the integration of these open spaces with the street network is weak, on the other hand they have high functional potentials as being an attraction point for regulating pedestrian movement from the waterfront through the inner city. If we provide integration of locational, transitional and directional spatial arrangement between existing and potential open spaces, the central axis and the convex spaces through the street need more attention in terms of achieving functional and visual integration of the public street network.

Through the streets away from the waterfront to the top of the district, the area gets prettier with busy and attractive shopping district, with a great variety of atmosphere and building style; narrow streets with alleys and shopping arcades; pedestrianized streets crowded with street vendors. On the other hand, this secondary public network does not have significant integration with the large green spaces located along the waterfront. The design strategy offers to create remarkable green links between these convex spaces to identify potential pedestrian circulation armatures for journeys to work, to schools, to the shops and to public transport interchanges.

Because there is less global integration in the residential area, we should look to the local integration between open spaces to create continuous green links as defined sub-network. The sub-network establishes a new local network with its components such us sidewalks, small pocket parks, corners, children playgrounds. At the same time the local network is semi-interconnected with inner-courtyards of apartment blocks because of the privacy. This local street-space network can serve as an interface to provide the connectivity through the public network, will increase acces to the city center from the residential area.

Explaining the potentials of network in terms of continuity and perceptibility

Accordingly, the distribution of green spaces in the urban structure of Kadikoy are dispersed without integration or less integration, to develop the integration between them, it has been proposed to consider these green spaces as a new layer in the urban structure where they can be analyzed as interconnectable convex spaces (Figure 4).

In Kadikoy the most important key issue is to create continuous mobility for pedestrians; to support and utilize the anticipated quality of activities in their experiences when they move throughout the urban mosaic; to create perceptible urban green even it is not perceptible in current situation.

In Kadikoy, the designed street network with its connected green spaces should be identified as a new layer in a multi-layered urban

mosaic. Furthermore it will provide a web of connected open spaces that would offer a continuous and perceptible urban environment when people are moving in the city.

Figure 4:

Potentials for proposed open space-street network to improve the connectivity and perceptibility for pedestrian movement

This new layer is *continuous* because the design strategy aims to improve social potential of existing situation by re-interpreting the integration of locational, transitional and directional spatial arrangement between them. The continuity will also be ensured by emphasizing open spaces with green elements that provide continuity of spatial experience, a sense of visual coherence and organization on the pedestrian network.

This new layer is *perceptible*, because the most integrated axial lines with their characteristic green spaces will be emphasized with attractive landscape elements if it is suitable for the existing situation.

The concept argues for fundamental benefits of the continuity as perceptibility with walkable green street network in different distances and dimensions. Moreover, it can be suggested that the green network might be used as a tool for facilitating ecological activity and socio-ecological sustainability in cities.

Conclusion

The aims of the design strategy are;

- to explore the potential green mosaic which had been broken into pieces and remained as distributed green patterns in urban fabric.

- to evaluate the possibilities for seeking best use of walking routes with a connected web of spaces in the case of Kadikoy's urban mosaic

- for re-establishment of street network with improving potential usages of convex spaces and identifying them with landscape elements to increase public awareness on walking opportunities in urban environment.

The main question of the study is "Which materials and spatial attributes can facilitate and enhance the green space network to improve the connectivity and perceptibility for pedestrian mobilitiy?" On such a basis, the study should be evaluated in the next steps as follows:

1. An environmentally pleasant network of pedestrian routes should be established in terms of interconnected open space network with long and short distance walking paths.

2. The pedestrian directions should be emphasized through the axial direction by creating visual targets on important nodes.

3. Existing convex spaces which has directional and transitional potentials should be evaluated as visual targets of the sequential experience on the public network.

4. Waterfront spaces should be integrated with urban fabric by rethinking pedestrian connections linked to waterfront parks in order to create direct connection with most integrated axial routes in urban mosaic.

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