A GIS Based Urban Transformation Project in Istanbul, Turkey

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FIG WORKING WEEK 2012
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Introduction

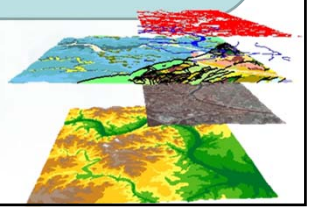
Since the beginning of the urban life, cities have had many functional and physical changes. In Turkey, this dynamism have not been satisfactorily controlled since last 3 decades. Physical quality of spaces, clean environments and necessary public areas were not developed sufficently at the desired level. Not only, rapid population growth, immigration from the rural part of the cities and unplanned urbanization are the main reason of the corruption of physical environments; but also increase of social, economic and environmental problems. In briefly, it causes decreasing of quality of life.

Introduction

Inadequate infrastructure, outdated and improper structuring regulation of the earthquake, reconstruction laws and regulations to meet the criteria of the environmental conditions of social reinforcement; need to be improved over time, specific and targeted investments. Within the boundaries of a particular area, re-zoning plans, rehabilitation and physical structures of urban transformation are essential to improve the quality of life. By the Urban Transformation projects, the economic, social and environmental conditions are improved in order to increase the quality of life. Integration of society plays an important role for balancing.

Introduction

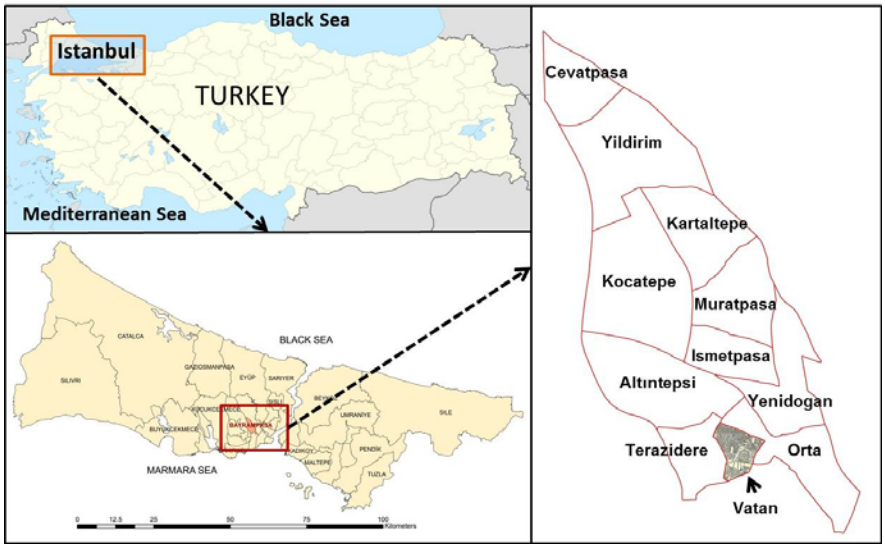
Urban stagnation, urban decay, urban re-development and urban change seem as independent, but these steps are definitely necessary for healthy urban transformation projects being applied. Urban recession; immigration and other social movements (increase in population density), and the economy adversely affected the development of urban areas, and led to the decline in quality of life.



Study Area

Vatan Neighborhood of the Bayrampasa District of Istanbul is selected as the study area. Istanbul is the world's 22 most crowded city, which has 39 districts. Bayrampasa is one of the most densely populated districts of Istanbul, raised the status of the district in 1990. The area of Bayrampasa is 950 ha, and population is approx. 300000. Bayrampasa has eleven neighborhood; Cevatpasa, Yildirim, Kocatepe, Kartaltepe, Muratpasa, Ismetpasa, Yenidogan, Altintepsi, Vatan, Terazi ve Orta Mahalledir. Vatan neighborhood has the smallest area and population. Medium and low-income families lived after 1980, lived in a neighborhood of those who imigrated to Istanbul.

Study Area



Data Used

Administrative boundaries and plans, which were obtained from the Municipality of Bayrampasa, together with the building and parcels are used as main data in the study. Building types, such as the use of ground floor and upper floor, were obtained from field studies in Bayrampasa.

Methodology

Used geographic data which are in CAD format converted to Geodatabase format of the ESRI ArcGIS. Obtained layers are; Buildings, Parcels and Neighborhood boundaries. Necessary field such as floor number, type of building, status of the building etc. which are used for analysis were added to the buildings layer. A spatial join relationship was established between the parcels and buildings at the beginning of the process. After the establishment of this relationship topology was established between these layers. Using this topological relationship, buildings which are either cutting or extending the parcels boundaries were determined both graphically and numerically.

Methodology

Model used for converting CAD data into GIS format

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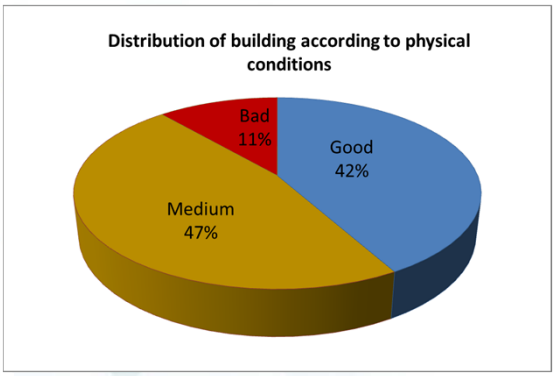
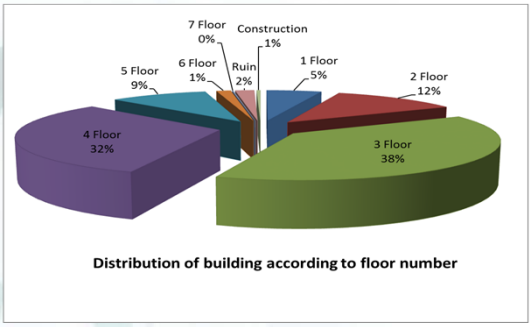
Results

According to Istanbul reconstruction regulations; determinations of the individual areas for per person are specified, but while analyzing of the certified urban plans of Vatan neighborhood, the social areas, definitely, are needed. To make decisions for new urban plans, these regulations should be applied during planning process.

Results

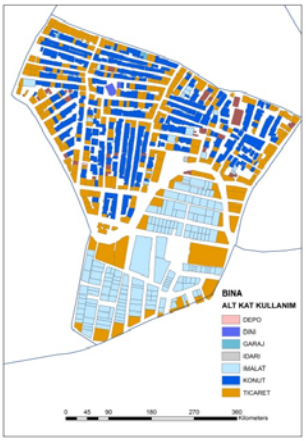


Results



Distribution of building according to floor number

Result



Results

Results

Results

The new plan created using GIS

Conclusions

To produce an effective plan, accurate, reliable and updated information is needed.

Geographic Information System supply a great advantage for the managing of spatial and non-spatial data together.

The results of this study demonstrate the importance of using Geographical Information Systems technologies for producing a new plan in the transformation projects.

GIS is not only used for the producing new plan but also used for better visualization of the products.

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