

THE NATURAL RESOURCES OF ISTANBUL, EUROPEAN CAPITAL OF CULTURE 2010¹

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Abstract

Istanbul has been losing more of its natural resources which are defined as the life support systems, particularly the water sources and forests, due to its growing population and functions. The most developed city in economic, social and commercial terms among the 81 provinces of Turkey, Istanbul has seen a urbanization in an unplanned, unhealthy and uncontrolled manner to a great extent in the last 50 years. The rapid population growth predominantly caused by dense internal migration poses a great threat to the natural resources of Istanbul. The number one areas affected by the water scarcity that is a drastic problem of the recent years due to climate change and housing and settlement problems due to rapid population growth are the natural resources.

By the way, Istanbul which is a world city in respect of its historical, cultural and natural assets was elected “European Capital of Culture 2010” by European Commission. This process is expected to turn life in Istanbul in a direction which is longed so much.

This paper deals with the increasing urban production and service activities of Istanbul as well as the effects of its economic and social development upon its natural resources with a system of competing metropolises of the world.

Key Words: European Capital of Culture, Istanbul, the Natural Resources, Urban Planning

1. INTRODUCTION

Al Gore, the former Vice President of the USA, pointed out that “Turkey is among the countries that are likely to be affected in the most drastic way by the global warming” at a conference in Istanbul he visited on June 12th, 2007 within the framework of “**Live Earth**” concerts said, “close attention must be paid to this issue.” In his presentation named after the Oscar winning movie, “**Inconvenient Truth**”, Al Gore said that Turkey is one of the countries that will be exposed to the highest risk due to global heating for the next 100 years (www. cnnturk.com).

At the conference he organized in order to create an awareness about global climate change that is considered one of the greatest threats of the modern age, Al Gore said, “temperature and drought will increase in Turkey, *thereby, causing a huge impact on the agriculture fields*” (www.liveearth.org). The fact that the nature has lost its capability of restoring itself to a great extent, and the limitation of capacity of the soil, plants, trees and oceans to absorb the carbon dioxide emissions are the factors which make the threat even worse. The precautions taken around the world fail to reduce the

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greenhouse gas effects. The recent developments increase the importance attached to protection of the natural environment and the natural resources the countries and cities have such as forests, agricultural fields and water basins, because the world is actually, as said by Mhatma Gandhi, “will provide enough for everyone’s needs, *yet not as enough as the everyone’s ambitions...*” Just like the global scale, from the scale of Istanbul, it is urgently required to reduce the effect of the human ambitions on the natural resources.

The explanations by Al Gore have further increased the discussions in Turkey , because Turkey and, specifically, Istanbul suffer from the factors which give rise to climate change such as population rise, growth and rapid consumption to a great extent. The population growth in Istanbul is still a huge problem. The population of the city which increased from 1 million to 12 million in the last 50 years is increasing by 500.000 every year. This immense rise in the population of Istanbul risks the sustainability of the city based on the economic and natural resources as well as manageability and planning capacity of the city.

As a result of the rapidly increasing population and unplanned settlement as a result of the internal population , the economy-ecology balance has deteriorated against the ecology. Therefore, the life support systems of Istanbul (the forests, and the water basins) are under the imminent threat of structurization. The sustainability of Istanbul has reached worrying dimensions today (İBB 2007).

Meanwhile, Istanbul was chosen “European Capital of Culture 2010” by the European Commission in 2006. The European Capital of Culture program is the greatest undertaking of Istanbul to date. Thus, Istanbul is expected to make the required leap for protection of historical, cultural and natural assets of Istanbul. The process of “European Capital of Culture” is expected to change the direction of life in Istanbul in a way that has been longed for so long. The best efforts are made to make sure such transformation takes place by protecting the natural resources and the environment (İBB 2007). The greatest tool in this regard is urban planning. The new city models will be discussed along with the urban planning and different thoughts and participants within the process shall be made to move.

In this paper, the natural resources of Istanbul within the process of urbanization are studied under the light of “**Climate Change**” and “**European Capital of Culture**”.

2. LAND USE IN ISTANBUL AND EXISTENCE OF THE NATURAL RESOURCES

The 540.000 hectare large land area of Istanbul is composed of the forests by 48,85%, the areas which are the property of the institutions such as municipalities, foundations and state by 11,15%, the military zones by 10,31%, and the areas excluded from the scope of forest by 3% (İBB 2007: 134, Table 1)

Table 1: Land Use and Property Analysis in Istanbul

Property	Area (Hectare)	Ratio to the land area of Istanbul (%)
Public	51358.85	9.51
Foundation	2278.26	0.42
Municipality	6571.57	1.22
State-owned Forests	257451.00	47.68
The Private Forests	6318.56	1.17
The Areas Excluded from the Scope of Forest	16267.27	3.01
The Military Zones	55685.31	10.31
TOTAL	395930.82	100.00

73.3% of the total land area of Istanbul is public property while 26.7% is private property. According to the land use and property situation in Istanbul, the public holds a significant stock of immovable properties. However, only a limited portion of the lands which are the public property may be planned and opened for development as settlement areas. The remainder of the lands comprise the life support systems of Istanbul.

In respect of sustainability and future of Istanbul, the life support systems such as the forest areas, agriculture fields, water protection areas and underground resources are unique assets. Such areas must be protected in the urban planning of the city by taking into consideration the future of the city. Today, arrangements that encourage changes in their intended use or privatization of such areas, let alone their protection are made. By changing the rules and definitions which help such areas to be protected, it is said that easier arrangements are required in the manner of use for such areas. The majority among the executives shaping the future of Istanbul who defend the idea that such areas should be introduced to the building land process and evaluated within the market mechanism increases day by day (İBB 2007). The pressure on the natural resources caused by the population increase in Istanbul and rise in the exploitation of the land further accelerate such process.

2.1. The Forests in Istanbul

88% of the forests which comprise around half of entire Istanbul is defined under the title of “*fertile forest*”. The forests are , in general, densely populated in the northern parts of the city (Map 1). As a result of rapid and excessive expansion of the city, the settlement areas came up to the borders of the forests. Therefore, the forests are subject to a dense pressure from the public. Such pressure, on the one hand, gives rise to slaughtering of the trees and forest fires, on the other hand, and unregistered structurization, uncontrolled and dense use by the people, thus, invasion of the forests.

The forests which are the house to the ecological and biological natural habitat of Istanbul are deprived of protection assurance even today. Only 2% of the forests in Turkey is under protection (www.wwf.org.tr/wwf-tuerkiye-hakkinda). As an extension of such fact, the forests in Istanbul are far from a proper protection. 6% of the this world city’s forests were invaded and excluded from the borders of forest. 50% of such areas is used for structurization, 46% as agriculture fields and 4% as woods by the hundreds of thousands in illegal ways. Pursuant to the constitution, conversion of the forests into private property is forbidden in Turkey. Therefore, the status of the hundreds of thousands living on and the unregistered structures built on the forests which have been excluded from the scope of forest due to invasion is still under debate and no solution has been found so far.

Map 1: the Forests in Istanbul



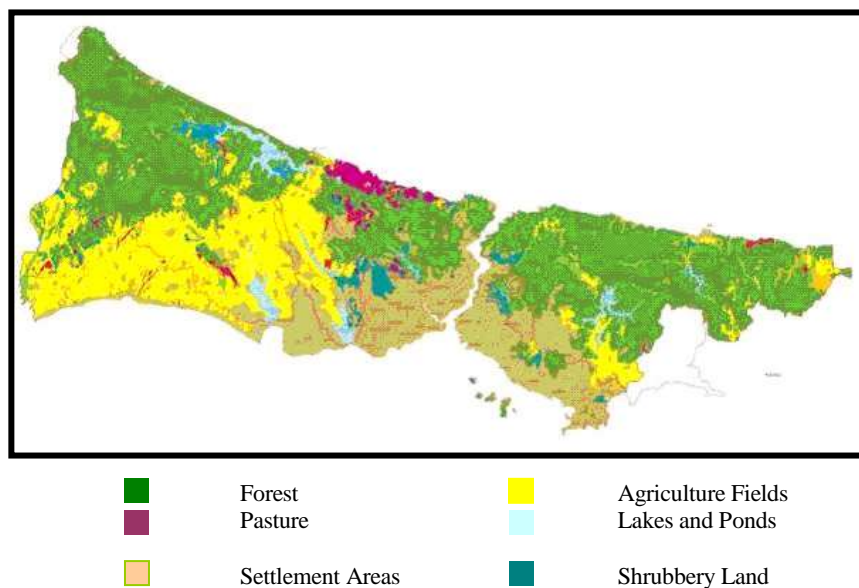
The issue of forests is also a problem of international concern. The Section 11 of the Agenda 21, the final declaration of “United Nations Environment and Development Conference” which convened in Rio de Janeiro, in 1992 is reserved for “Fight with Deforestation”. HABITAT II (Istanbul 1996), “Sustainable Development World Summit” (Johannesburg 2002) which took place up until today are the summits which dealt with this issue on an international scale. Because the dimensions of the problem get larger and larger and reach a scale which will threaten the future of the human kind. Therefore, “sustainable forestry” is a vital target. Thus, the forest invasions are perceived negatively where it may happen in the world and, and pardoning of those who destroy the forests and flora and legitimization of the invasions are considered unacceptable. The same point of view applies for the forests in Turkey, and, particularly, in Istanbul.

In order to stop the negative effect of the climate change that takes place due to greenhouse effect caused by the carbon gas surrounding the entire world, it is required to protect the forests and expand such areas. Given the size of the forest presence in Istanbul and the threats exposed to such areas, in Istanbul, projects which will present the forests to the use of the public within the framework of ecological sustainability understanding are required. The existence of forest which preserves the biodiversity, fulfills the ecosystem functions, and houses high quality diversity of species is of paramount importance for the city life.

2.1. The Agriculture Fields in Istanbul

In Istanbul, 29% of the fertile agriculture fields equal to 202 275 was lost in the last 35 years (1971-2006). When all other lands are added to this figure, the total loss stands at 111 723 hectare. In other words, the agriculture fields which were lost in the last 35 years is equal to 2% of the total land area of Istanbul (Map 2, İBB 2007: 62).

Map 2: The Use of Agricultural Field in Istanbul



The process of using the agriculture fields for non-agricultural purposes. Housing need and industrialization gives rise to land exploitation and leads to use of the agriculture lands for non-agricultural purposes. Such pressure causes huge damages in the protection-use balance of the agriculture fields.

The agriculture fields are divided into 4 groups. The area which is irrigated comprises 3049 hectare in the total land area. While the irrigated area is less in quantity, the areas that need to be irrigated are high in number (Table 2).

Table 2: The Distribution of Agriculture Fields in Istanbul

Protection -Usage Groups	Area (Hectare)	Percentage (%)
The Areas that must absolutely be protected	62 224	40
The Areas with priority in protection	30 935	20
The areas with limited agricultural quality	51 495	34
Non Agriculture Areas	9 674	6
TOTAL	154 328	100.00

Pursuant to Metropolitan Municipality Law that came into force in 2005, all villages in Istanbul were granted the status of a quarter. Such development has a negative impact on the opening of the agricultural fields for development. Also, failure to protect the meadows and pastures cause a drop in such area, increase the erosion and destroy the population inspection process of the ecology and natural nutrition chain. Such process gives rise to costs in the animal products.

It is now too late in making land usage plans and production plan of the agriculture enterprises in Istanbul. The detailed land maps should be prepared, irrigation and drainage channels should be built and the property pattern should be re-formed in a way that will ensure establishment of efficient agriculture enterprises, thus, the efforts to group the lands should be urgently initiated.

The proposal of combination of eco-production (organic vegetables, fruits, vineyard and animal products) with environmental recreation and planning of the eco-tourism activities are worth attention in the Istanbul Environment Arrangement Plan (İBB 2007: 66). It is seen that such proposal has been put forward without a scientific and technical infrastructure at the beginning of the 21st century and the likelihood of such proposal is unknown. Besides, the proposal as to the fact that the policies for protecting-using the agriculture fields may be possible not only with the managerial supervision of the central government but also individual and organizational supervision through increased roles of the local governments and NGOs is a positive one.

2.3. The Water Basins in Istanbul

There are several rivers and brooks feeding the water basins which comprise 46% of Istanbul, and the water gained from such resources are collected in 7 dams. The water gathered in the dams meet 72.4% of average 750 million m³ water requirement per year. 5% of the total water requirement is met by the underground water. The rapid population growth and industrialization in Istanbul gives rise to quantity of drinking and utility water requirement of the city. The insufficiency of the water resources in Istanbul leads to the necessity of meeting water need from the water resources of the neighboring cities. Such case brings along the concern of damaging the natural texture of water basins in Istanbul (İBB 2007: 56).

Close, middle and long distance approaching borders have been imposed for the water resources, and the structurization has been limited. To the contrary, the unregistered structurization could not be stopped. Under no circumstances unregistered structurization should be allowed in Istanbul. Although this is a common belief of all groups in Istanbul, unregistered and unplanned structurization in the water basins continue in the same pace and no effective precautions are taken.

Also, almost all of the water resources existing and to be needed in Istanbul are composed of

superficial water resources prone to pollution. Such case indicates clearly that the water resources are vulnerable to pollution. In protecting the water resources, urban planning, legal steps, inspection, sanction and rules must be applied in a determined manner. Policies for restoration of the natural features of the water basins and ensuring their sustainability are required. Implementing such policies within the framework of the projects similar to “Nature Park” is of paramount importance for Istanbul.

3. USE OF THE NATURAL RESOURCES, ENVIRONMENT PROBLEMS AND URBAN PLANNING

The bonds between the man and the city break off within the process of fast and uncontrolled population growth and physical expansion, the city becomes home to air-water-soil pollution and distress and similar adverse effects. Such phenomenon leads to the result of disappearance of the urban spaces and textures created following process of adaptation to the environment and nature, and damage of the unique natural and cultural assets. The standard consumption society identity give rise to some effects such as anonymous form taken up by the local-cultural life styles of the cities and deprivation of quality in the life environments. The overall result is estrangement of the city dwellers toward the city and irresponsiveness for their habitat (YENEN-ÜNAL-ENLİL 1992).

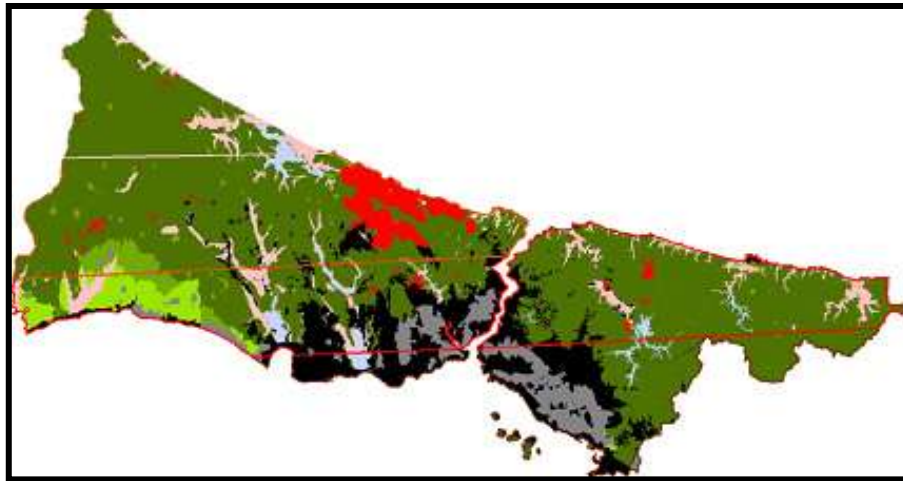
The city population that reached 12 million in 2007 is expected to stand at 20-25 million in 2023. However, the overall population Istanbul can feed is 15-16 million (İBB 2007: 95). The ever increasing population, industry-oriented economic structure and uncontrolled structural development shall destroy the natural structure and the life support systems of the city in the future. In order to make Istanbul gain a healthy and sustainable structure, its development should be directed. Protection of the natural resources feeding Istanbul and adhesion to the topographical and geological thresholds are the number one obligations. Therefore, firstly, the internal migration destined for Istanbul should be stopped and the population growth should be suppressed. A planning process which aims to protect the economic, social and environmental balances of Istanbul should be followed. The spaces based on environmental sustainability are vital (Map 3, İBB 2007).







In order to eradicate the threat for the natural resources, grouping and space planning should be done under the following titles;

1. The areas whose function should remain intact
2. The problematic areas in terms of sustainability
3. The natural areas that will be improved
4. The existing settlement areas
5. The sustainable development areas

Under the guidance of such areas, a strategy should be developed. There are areas which cannot be sacrificed in the strategy that will be set. The water resources, existence of land, biological diversity and the ecological structure are indispensable in terms of urban and environmental urban and environmental sustainability.

Map 3: The Synthesis of Environmental and Space Sustainability in Istanbul



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|---|--|
|  The areas whose function should remain intact |  The areas which are problematic in terms of sustainability |
|  The natural areas to be improved |  Existing Settlement Areas |
|  Sustainable Development Areas |  Earthquake Risk Borders |

According to Istanbul Environmental Arrangement Plan İstanbul (2007: 77), the strategic principles that shall be followed in order to ensure sustainability of Istanbul in integration with its natural environment are as follows;

1. Protection of the natural areas and ecological resources,
2. Improvement of the man's living environment,
3. Reduction of unit energy consumption and emission,
4. Closing the natural cycle in the wastes,
5. Taking steps against the risks caused by the nature and the man,
6. Costing of nature,
7. Monitoring the environment, and dissemination of awareness about environment.

Istanbul has three separate transportation axles, one being a railroad and two being highways stretching in a 150 km long east-west corridor in a linear fashion. The railroad is cut at the Bosphorus side, and the highways are connected to the one another with both bridges over the Bosphorus. Such connections connect two continents, Europe and Asia. The natural resources of Istanbul (forested areas, water resources, water basins, biological diversity and habitat diversity and agricultural fields) are located between the highway to the north of the city and the Black Sea. In re-shaping and planning of Istanbul, the target is not allow any settlement in such are, because this area has an extremely fragile structure and once this area is lost, it is impossible to regain and restore it. The fact that 91.7% of the mining activities takes place in the forested areas increase the fragility.

The stone quarries, mining areas and similar resources which are among the rich underground resources of Istanbul fall within the scope of the reserve areas that will absolutely be protected with a priority. The operating areas of such resources are left non-forested during the process from the production areas up to the consumption points, a damaged forest is left behind, thereby, creating a significant environmental problem. Also, since the city roads are used to ship such resources , the traffic jam gets worse and the traffic problems take place in the city.

In this regard, there is a need for internal planning for utilization of the natural resources in. Moreover, given the imminent danger of an earthquake, no activity which will exceed the thresholds and

damaged the natural resources should not be allowed , because the expansion to the north and the problematic areas in geological terms are now at frightening level (İBB 2007: 80).

4. TRANSITION FROM A WATER CITY TO TERRESTRIAL CITY

There several phenomena which give Istanbul its identity: Its being the capital of three empires, its historical peninsula and its 7 hills.. However, Istanbul is also a water city , just like Venice, New York... “When I tried to get to know the identity of Istanbul, I asked what the basic emotion is: *What defines the identity of Istanbul? When I asked this question, I found out that the answer was not that easy, but I somehow reached a conclusion on my own. If you ask me, the identity of Istanbul is unthinkable without a sea. Also, it possess features which no other city possess. Istanbul is the one and only city through which a sea passes. There are cities close to the sea, just by the sea, yet there is no other city through which a sea passes.*” (LEVI)

Istanbul has shores to the Black Sea, , Marmara Sea, Bosphorus and the Golden Horn... The Bosphorus is an unprecedented beauty that makes Istanbul unique among the cities of the world... The coast line along the Bosphorus is 55 km and 35 in the European Side and Asian side, respectively. The coast length of the Marmara sea in Istanbul is 75 kilometers... Therefore, sea is of paramount importance for Istanbul as a natural resource .

In 1950 almost half of the settlement areas in Istanbul were surrounded by the sea, this ratio dropped to a very low level, because the population of the city, which was over 1 million in 1950s, increased 12 times since then. “Istanbul retained its water city identity with its scale and urban image up until the end of 1960s. However, as a result of the fast and unplanned structurization since 1970, a process which ignores the natural and geographical assets goes on in Istanbul. Now, the city is expanding in every possible direction, and assumes a terrestrial identity rather than a water city. The city dwellers are unable to build the close relation with the sea which they had once upon a time. The water surfaces lose their features such as ease of access and being the fundamental space for transportation (YENEN-ÜNAL-ENLİL 1992).

Nonetheless, the water plays and should play a significant role in the life: as natural resources, natural beauty, as transportation means, potential resting -entertainment area and in terms of bio-diversity...

The share of the sea in transportation is around 6%. So, the sea is not used to a maximum extent in this regard, but the investments in the highways and rise in the number of privately owned cars give rise to one of the greatest handicaps of the city life. While the discussions about the 3rd bridge go on, such a project threatens the natural resources, particularly the forests, and does not cause a permanent effect in the resolution of the transportation problem...

The most important problem in terms of the sea is pollution apart from the transportation... The pollutant sources for Istanbul Strait and Golden Horn include the industrial facilities, settlement areas, drainage water and the ships. Majority of the population settled in the Bosphorus and Golden Horn dispose of their used waters into the sea. Some of the ships voyaging in Istanbul Strait discharge their waste water into the sea (Kurar-Aygün). These pollution processes need to be regularly observed with the external perception data derived from multiple-band dredger.

After its declaration as the industrial zone in 1954, Haliç turned into an internal marsh, and became a place where the beings could not survive or transformed. The environment pollution became noteworthy for the first time after pollution in Golden Horn. In the recent years, several projects have been implemented to clean the Golden Horn. The Officials state that 5 million m³ of mud has been dredged and 34 fish species started to inhabit here (İSKİ).

Apart from the pollution which came to surface due to the above mentioned reasons in the Bosphorus,

the Black Sea-Mediterranean connection which came into being due to Black Sea' assuming features peculiar to the Mediterranean took place again in the last 6.000 years and the species originally based in the Mediterranean, again, enter this sea. (TÜDAV 2007). TÜDAV has explained that up to 50 species living in the Marmara Sea are endangered due to the pollution. The new species which die out due to pollution, on the one hand, and the new species with an Indian Ocean origin due to the effects of global warming and advent of the tropic climate features, on the other hand, require that the biodiversity in Istanbul seas be monitored and a database be gathered. Thus, it will be possible to make better estimations about the ecological developments in the near future.

The dense structurization along the coast line, backfilling in the sea and the other reasons mentioned above require a new approach for the city which has 200 km long coastline including the Black Sea. There is a great need in Istanbul for a new and improving approach which observes the factors such as transportation, resting-entertainment, port and marina, settlement and biodiversity in a balanced way, has protection in its essence... When deciding on a new identity for the city, the decisions that will kill the identity of the city should be strictly avoided.

5. CONCLUSION

The author of several books on Istanbul and Turkey, John FREELY, in his book entitled *The Imperial City*, says the following for Istanbul (www.hurriyet.com.tr/agora/article.asp?sid=6&aid=227): “The one and only city that connects two continents, *and more importantly, and stretches like a bridge between two civilizations which are described as 'East ' and 'West ' , in general. Istanbul is not only a geographical connection point scattered between Europe and Asia , but also is a civilization bridge that makes the 'Western ' and 'Eastern ' thinking meet. It is not possible to encounter similar one more city with similar functions in today's world.*” Author Mario LEVI says the following: “I believe Istanbul is a vertical city, *one of the rare vertical cities of the world. For instance, Mardin is a vertical city; so are Jerusalem and Paris... New York is a horizontal city. The cities like Istanbul are founded on several layers; each and every layer has left an emotion on these cities...*”

For the above reasons, in the process of Istanbul European Capital of Culture 2010, the historical and cultural layers of the city become more important and we also need to focus on the natural resources comprising the infrastructure of a sustainable life in the city.

The unique geography of Istanbul is houses various life spaces in respect of Turkey and the neighboring areas. Istanbul connects Europe and Asia and is located on the crossroads of the water roads beginning from the Black Sea to the Mediterranean. Therefore, Istanbul has a rich biodiversity for the natural structure and wild life. The natural site areas which comprise 10% of Istanbul is an indication that Istanbul is important not only for Turkey but also for Europe and the World in respect of its natural resources. Such features played a great role in its selection by the European Commission in 2006 as “European Capital of Culture 2010”.

As a world city, the requirement of sustainability in Istanbul is ensure balance between the systems in the economic activities, societal life and use of the natural resources and guiding their implementation without waiving the principles.

It is required to select the areas where the increasing population will be settled without damaging the natural resources. The sectors such as commerce, service, tourism and housing must be managed and developed by protecting and improving the natural resources which give life to Istanbul. The activities which may damage the ecological structure and be harmful must be avoided in the scope of human-nature relations.

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