ITU A|Z • Vol 19 No 1 • March 2022 • 49-67

Landscape strategies for abandoned airports in the context of landscape urbanism: Case of Atatürk Airport

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Received: July 2020 • Final Acceptance: February 2021

Abstract

There are emerging discussions about two important airports when considering airport and landscape design in Istanbul, Turkey, recently. The opening of Istanbul Airport let the transformation of the function of Ataturk Airport to a "Nation's Garden" with the claim of the being the third largest park in the world. Although this proposal brings about a lot of debates it also opens a new field to investigate and discuss issues about infrastructure, landscape and contemporary urban conditions. Besides the conventional landscape planning and design approaches, Atatürk Airport urge to apply novel design strategies due its size and complex infrastructure setting. The theory of Landscape Urbanism with its focus on landscape as a part of infrastructural system propose suitable ground for large scale transformation projects. This research has two aims; to present principles and novel strategies by investigation of airport transformation projects in the context of Landscape Urbanism and to discuss the applicability of presented strategies for Atatürk Airport in its own locality from ecological, socio-cultural and socio-economic perspectives. For these aims, design research was structured by utilizing extensive literature review about 29 cases to develop a comparative matrix. Then field studies were conducted to reveal the existing conditions, potentials and limitations of the Atatürk Airport. This research contributes to the contemporary landscape and urban design agenda by presenting key strategies and principles that were introduced by Landscape Urbanism and highlights the viability of the theory into the local conditions of İstanbul and open the issue into discussion over Atatürk Airport Case.

Keywords
Landscape urbanism, Airport landscape, Atatürk Airport.

doi: 10.5505/itujfa.2022.76148

1. Introduction

Landscape urbanism is a multi-scale and multi-layered urbanism theory that focuses on complex problems, not only related to urban form, but also interlaces cultural, social, political, economic, infrastructure and ecological issues (Lister, 2010). In the twenty-first century, landscape urbanism, with its contemporary ideas, offers a new functional image to the city. In parallel, a debate about the construction of the new Istanbul Airport with its vast size and potential harms on the contiguous ecosystem, and the destiny of the existing Ataturk Airport, has emerged recently.

In this context, two ideas regarding Atatürk Airport have been put on focus. The first one evokes the expansion of the airport. The second one evaluates its potential function as a green-open space, due to insufficient service capacity in the future. Additionally, its situation within the city has been questioned, and the focus directed to the construction of a new airport in another location with a larger capacity. However, this second idea arose fear about the use of the Ataturk Airport land as a real estate index in the future, but not as a public open space.

Simultaneously, after the official opening of The Istanbul Airport, the government announced that Atatürk Airport, named as a "Nation's Garden" would be functioning as a green open space. However, no landscape design and planning proposal have been explained in detail for the new "Nation's Garden". While Atatürk Airport claims the capacity of being one of the largest parks in the world with its scale and content, the area's intensive infrastructure, should be considered within contemporary theories that result in highly beneficial ecological, sociocultural and economic design and planning approaches. One of the most important of these contemporary theories is based on the theory of landscape urbanism. In the mid-1990s, James Corner introduced the concept of "landscape as urbanism" in series of conferences, particularly concerned with "building landscapes" and "reconstructing landscapes" (Waldheim, 2002; Gray, 2006). Landscape urbanism was introduced as a disciplinary realignment, in which landscape replaces architecture as the basic building block of contemporary urbanism (Waldheim, 2006). Apart from the conventional approaches to landscape, in the 21st century landscape has gained a vital role as a "lens through which the contemporary city is represented and a medium through which it is constructed" (Waldheim, 2006; Waldheim, 2016).

Landscape approaches urbanism problems with recent design culture rather than the regional and urban planning tradition. Although landscape urbanism prioritizes landscape in urban design, it advocates an interdisciplinary approach with other occupational fields by addressing especially undefined and city hybrid areas. One of these hybrid areas are the airports. Airports, with their operating systems and exceeding dimensions, are considered as logistic landscape areas by many scholars. As landscaping areas, whether functioning or not, there are numerous examples of successful landscape airport design projects worldwide. The main factor in the prominence of these projects is the metamorphosis of cities over time. With the expansion of domestic and international air travel provided by new technologies, global markets and airline deregulation, many cities have built new international airports outside urban areas and retired old commercial airports (Dümpelmann, 2014).

Usually in operating airport landscape projects, the future programmatic and political changes of the airport positions landscape as a strategic partner in the complex airport planning process, rather than addressing it as a simple unfortunate victim. The abandoned airport landscape projects are interpreted as a performance tool related to the rehabilitation of old industrial zones that have remained as a legacy behind the collapse of the Fordist economy, and new urban life potentials of these areas are revealed by the synthesis of ecological performances and new design culture.

The aim of this article is to reveal the different principles that have come to the fore by examining the airport projects in different parts of the world, that are re-considered as urban parks in the

context of landscape urbanism, and to discuss guiding landscape-based strategies in the planning and design process for Atatürk Airport.

2.Methodology

The methodology of the research is structured upon case study investigations at two different levels. Firstly, high profile international airport transformation projects were investigated to reveal common attributes, different aspects and landscape strategies that were introduced under 9 different categories. Secondly, field and desk survey were conducted to determine the ecological, socio-cultural and socio-economic structure of Atatürk Airport, thus to indicate its potentials to transform into urban park. Thematic maps, produced in Arcmap, highlight the environmental correlations, potentials and landscape design objectives, based on the strategies derived from the investigated case studies.

2.1 Abandoned airport landscape projects and principles within the scope of landscape urbanism

Investigation and the sample set of abandoned airport landscape projects

Table 1. *Comparative Matrix - Abandoned airport landscape projects (Dümpelmann and Waldheim, 2016; Czerniak, 2001; Northern Architecture, 2019; Visit Berlin, n.d.; Presidio, n.d; Lee 2019; City of Irvine, n.d.; Reinventing Cities, n.d.; Military Airfiel Directory, n.d.; Hohnholz, 2011; Philippart, 2004; Naturvation, n.d.; Discoverquincy, n.d.; Stapletondenver, n.d.; Graememassiearchitects, n.d.).*

No	Airport Name & Year	Park Project Name & Year	Location	Size (ha.)	Project Aim	Ecological Strategies	Sociocultural Strategies	Economic Strategies	Project Program	Principles	Park Plans
1	Munich Riem Airport, 1939	Landscape Park Munich Riem 1995-2006	Munich, Germany	200	Transformation of the area into a convention center and an urban park.	The park provides a 400-meter-wide band of open space that enables airflow between the large forests in the east and the city center. The grid of native trees and their orientation were used to support this climatic condition.	Providing a local planting area and a large lake for public swimming activity.	Having 6.6 ha of photovoltaic cells.	Residential, shopping, recreation areas, theme parks and a new congress center called the Munich Trade Fair.	Sustainability, Multifunctionality	Url-1
2	Harvard Aviation Field, 1910	Squantum Point Park 1997-2001	Massachusetts, USA	19	Regeneration of bird and plant habitats and preservation of the traces of aviation history.	Developing design to improve the wetlands ecosystem and natural wildlife of the area.	Suggesting boat launch, parking, football field.	Using sustainable methods such as bioengineering where possible for the proliferation of wetlands.	Picnic areas, bird watching, fishing, sports grounds and jogging paths.	Sustainability, Process-oriented development, Multifunctionality, Restoration, Reclamation, Memory and Identity	Url-2
3	Stapleton International Airport, 1916	Stapleton Redevelopment 1997	Denver Colorado, USA	485	Development of a new public space by providing access to nearby employment areas.	Proposing land reclamation.	Preserving the airport's control tower as a landmark for the neighborhood.		Residential and working areas, schools, parks, shopping, business,and a visitor centers.	Connectivity, Multifunctionality, Reclamation, Memory and Identity	Url-3
4	Johannisthal Air Field, 1909	Landscape Park Johannisthal 1998-2010	Berlin, Germany	26	Transformation of the area into a nature reserve and recreational area.	The area includes endangered species and declared as a nature reserve.	Programming recreational and cultural areas for public. Programmatic uses were not determined at the beginning of the project in order to allow these uses to develop flexibly according to the needs of citizens and visitors.		Skate park, volleyball court, playgrounds, wooden walking platforms, nature reserve area.	Resilience, Process-oriented development, Multifunctionality	Url-4
5	Downsview Airport 1940	Downsview Park, 1999 (Bernard Tschumi Architects)- Competition Project	Toronto, Canada	129	Transformation of the area into an urban park with the idea of "urban" as the vehicle of "wild nature".	Reclamation of the groundwater and other degraded natural system and regenerate biodiversity.	The design suggests active sports, recreational areas and playgrounds for public usage.		Old tracks, science centers, public performance areas,recreational areas,playgrounds.	Resilience, Connectivity, Process-oriented development, Adaptive Usage, Multifunctionality, Memory and Identity	Url-5 Url-6
6	Downsview Airport 1940	Downsview Park, 1999 (James Cornes and Stan Allen)- Competition Project	Toronto, Canada	129	Transformation of the area into a resilient landscape that include natural systems and cultural programs.	"Circuit Ecologies"-Through-Flow Ecologies- made up of habitats, plantings, drainage systems, and infrastructure. Utilization of plantation strategies based on succession regimes.	It presents activity areas and active programs.	Establishing a stormwater strategy that slows,stores and improves water quality.	Recreational areas, running tracks,sports areas, outdoor cinema, skating.	Resilience, Process-oriented development, Multifunctionality	Url-7 Url-8
7	Downsview Airport 1940	Downsview Park,1999 (OMA)- Competition Project	Toronto, Canada	129	Targets an urban area consisting of landscape elements and plantation in stages with succession approach.	Considering the park as a self-organized sustainable ecological area rather than a maintenance area.	Programming for a variety of recreational activities.	Gradual recreation of landscape elements to the extent allowed by the project fund.	Cultural campus, parking, Outdoor theather, housing, sports fields.	Sustainability, Process-oriented development, Multifunctionality	Url-9
8	Hamilton Army Airfield	The Hamilton Wetland Restoration Project,1999	California,USA	1100	Transformation of the site into a nature park, restoration of wetland ecosystem.	Filling the bay area with clean sediment to restore the tidal swamp.			Wetland and wildlife habitat areas and recreational trail.	Restoration	Url-10
9	Air Cost Defense Station 1957	Crissy Field, 2001	San Fransisco, USA	40,5	Restoration and reclamation of the wetland ecosystem and sand dunes along the San Francisco Bay Front.	Reclamation of the highly contaminated area from aircraft fuels.	Providing various entertainment areas for public usage. Project includes public participation; community members came in the form of the many volunteers who performed work in the preparation and remediation of the site for its redevelopment into an urban park.		Beach, picnic areas, open spaces for wildlife, old hangars for rock climbing and trampoline spaces.	Multifunctionality, Reclamation, Restoration	Url-11
10	Oslo International Airport 1940	The Nansen Park, 2004-2008	Oslo, Norway	1300	Transformation of the area into a new urban neighborhood with 6000 residential units.	Being one of the largest post-industrial transformation projects in the country that includes reclamation works.	Including meeting and activity areas. Project includes public participation and several strategies were proposed by public such as reuse of El Toro stone, the use of solar-powered trash compactors, and vegetated swales for stormwater management—were ultimately implemented in the design of the park.		Meeting places, sports and activity areas, playgrounds, residential and commercial areas.	Multifunctionality, Reclamation	Url-12
11	Marine Corps Air Station El Toro 1942	Orange County Great Park, 2005, (Hargreaves Associates)- Competition Project	California, USA	526	Transformation of the park with the strategy to promote water management.	Enriches the coastal ecosystems with various flora and fauna, development of new drainage corridors.	Designing large spaces for cultural-sport events and commemorating the history of the site.	Acting as a self-organized economic and ecological resource for communities.	Crops, sports and arts areas.	Resilience, Sustainability, Restoration, Memory and Identity	(Dümpelmann & Waldheim, 2016).
12	Marine Corps Air Station El Toro 1942	Orange County Great Park, 2005, (Ken Smith Landscape Architect, Mia Lehrer and associates)- Competition Project	California, USA	526	Transformation of the area into a metropolitan park. Emphasizes sustainability, aiming to create a new social space that strengthens both wildlife habitats and social health, regional identity and sense of history.	Proposing a wildlife corridor linking the National Forest and the enclosed area to park visitors.	Providing various entertainment and activity areas. Preservation of the historic character of the site by adapting existing architecture and buildings to the new uses for public.	Providing sustainable agricultural areas.	Palm garden,wildlife corridor,art center,entertainment and activity areas, playground.	Connectivity, Sustainability, Multifunctionality, Restoration, Memory and Identity	Url-13
13	Hellinikon Airport 1938	Hellinikon Metropolitan Park, 2005- Competition Project	Athens, Greece	550	Transformation of the area into a metropolitan park with new residential, official districts and civic infrastructures.	Project introduces new water management and drainage system with soft ground corridors and with manipulated topography. Recycling of the local materials, definition of connected biotopes to support biodiversity. Minimizing the usage of natural resources, protecting and enhancing local ecosystems.	Accessibility through a network of cycling and walking paths. The park with its design based on ecological strategies aims to raise awareness and education people about sustainability. Public-private steawardship- Open the old airfield into an international design competition.		Metropolitan park with new housing, office space and civil infrastructure.	Resilience, Sustainability, Multifunctionality	Url-14

No	Airport Name &	Park Project Name & Year	Location	Size (ha.)	Project Aim	Ecological Strategies	Sociocultural Strategies	Economic Strategies	Project Program	Principles	Park Plans
14	Anfa Airport, 1920	Anfa Airport, 2007	Casablanca, Marocco	450	Transformation of the area into an urban park as a part of new urban development that includes workplaces, social and cultural activities.	The Project includes water management strategies to harvest and clean-up strom water. The flat runways and taxiways are reorganized with open plots of land to reestablish natural habitats.			The park includes office space, private residences, a new university, an aviation museum, a theater and a business center.	Resilience, Sustainability, Multifunctionality, Memory and Identity	Url-15
15	Floyd Bennett Field National Park Service,2007	Floyd Bennett Field National Park Service,2007	Newyork, USA	550	Transformation of the site into an urban park that includes diverse recreational programs, nature observation, environmental education programs and cultural elements.	Proposing breakwaters taking into account the expected sea level increase. Long-term development plan proposed to transform the site into natural state.	Providing sports facilities such as outdoor sports grounds for public. The site was registered as a historic district on National Register of Historic Places.		Recreational activities, including airplane flying, sailing ashore, cycling and camping.	Resilience, Multifunctionality, Memory and Identity	Url-16
16	Reykjavik Airport 1940	Reykjavik Airport Park, 2007 (Lateral Office)- Competition Project	Vatnsmyri, Iceland	150	Transformation of the Vatnsmyri region from a transport area into a recreation, education and production area.The design proposal "From Runways to Greenways" in Vatnsmyri uses landscape and exterior programs as a catalyst for urban development.	Connecting the north-south green path with wetlands and hills.	Providing various venues with sports and other leisure activities.	Project includes productive zones such as fish farms and tree farms, greenhouses for fruit, vegetable and flower production, orchards and markets.	Sports areas, farms, greenhouses, markets.	Connectivity, Sustainability, Multifunctionality	Url-17
17	Reykjavik Airport 1940	Reykjavik Airport Park, 2007 (Graeme Massie Architects)- Competition Project	Vatnsmyri, Iceland	150	Tranformation of the site with economic, social and environmental strategies.			Contributing positively to the city by enhancing the identity and reputation.	Public buildings,universities, residential blocks, schools, commercial blocks.	Connectivity, Sustainability, Multifunctionality, Memory and Identity	Url-18
18	Oldenburg Air Base, 1957	Oldenburg Airbase Solar Farm, 2008	Oldenburg, Germany	29	Transformation of the site into an energy park which produces about 3,200 kilowatt-hours of electricity each year.	Implementing sustinable energy approach.		Sustainable power supply from renewable energy by development of solar farm.	Solar Panel Areas	Sustainability	(Dümpelmann & Waldheim, 2016).
19	Mariscal Sucre International Airport, 1960	Parque Bicentenario, 2008 (Ernesto X. Bilbao,Robert A. Sproull, Jr.)	Quito, Ecuador	150	Transformation of the site into an urban park with diverse programs.	Reconstructing ecology. The design and planning strategy reestablishes the three unique ecologies: a humid forest, a prairie, and a transitional zone with humid forests.	Creates agricultural areas for the citizens and to give information about the farming culture of the country.	Teaching national agriculture, visiting museums, studying ecuadorian plants and animals.	Culture, accommodation, business centers and restaurants.	Sustainability, Memory and Identity	(Dümpelmann & Waldheim, 2016).
20	Mariscal Sucre International Airport 1960	Mariscal Sucre International Airport, 2008, (Anita Berrizbeitia)- Competition Project	Quito, Ecuador	150	Conversion of airport into an urban park, through the reshaping of natural and topographical elements. Proposes the establishment of 34 water bodies.	Project proposes a topographic system to direct and contain stromwater and generates microclimate, and proposing forests, farmland and gardens.	The park's edges are turned into areas for urban development that include a boundary promenade as well as public space for cultural programs.	Recycling the material from the destruction of the runway and other airport infrastructure.	Forests,farmland,and gardens,public space for cultural activities.	Sustainability, Memory and Identity	Url-19
21	Mariscal Sucre International Airport , 1960	Mariscal Sucre International Airport, 2008, (Paisajes Emergentes)- Competition Project	Quito, Ecuador	150	Conversion of airport into an active hydrological park.	The runway of the old airport was converted into an active hydrological park composed of smaller habitable parts.Use of water in the aquarium containing organic matter to fertilize the aquatic botanical garden.	Designing the slopes to have a different programmatic character, ranging from an open-air aquarium to thermal baths.	Collecting water to use irrigation systems and water heated by wind and solar energy, fill public pools and thermal baths.	Aquatic botanical gardens, wind and solar energy systems, public pools.	Sustainability	Url-20
22	Henderson Field Airport, Sand Island 1942	Midway Atoll National Wildlife Refuge, 2008	Midway, Atoll USA	59	C onversion of the site into a wildlife regage that provides a habitat for millions of seabirds.	Restoration of island for endangered marine species.	Designing space for ecotourism, education and biological research.	Deriving income only from government sources and tourism.	A habitat for millions of seabirds, spaces for ecotourism, education and biological research.	Restoration	Url-21
23	Gatow Airfield, 1934	Park Landscape and Urban Agriculture Gatow, (Stephan Bernard Landscape Architects)2010-2011- Competition Project	Berlin, Germany	90	Conversition of the site into urban park with the idea of urban agriculture.	Reorganizing the meadows and weeds and establishing a border zone by additional forests.	Suggesting outdoor lawn areas for active sports fields, picnic and barbecue areas. Uses and improves the existing structure and qualifications of the study area and to allocate areas for agriculture to the people of the region.	Converting the runway into agricultural land for crops.	Agricultural lands, active sports fields, picnic and barbecue areas.	Sustainabilty, Multifunctionality	Url-22
24	Berlin Tempelhof Airport 1923	Berlin Tempelhof Airport, 2010 (Gross Max)- Competition Project	Berlin, Germany	380	Transformation of the site into an urban park. The project preserves the character of the area and offer space for new activities.	Design supports the concept of "activation of nature", not only to preserve biological diversity, but also to improve it.	Allowing citizens called urban pioneers to occupy parts of the area and become active representatives in the transformation process.	Recycling the rainwater flowing from the existing hard surface and roofs with water elements.	Small parks, gardens,various open spaces for events. Sports fields and cafes	Sustainabilty, Multifunctionality, Adaptive Use, Memory and Identity	Url-23
25	Berlin Tempelhof Airport 1923	Berlin Tempelhof Airport, 2010 (Topotek 1)- Competition Project	Berlin, Germany	380	Transformation of the site ino an urban park which maintains the original character and qualities of the airport, based on the uses and layers of old and new structures.		Temporarily granting spaces to citizens for free use. Taxiways and food trucks provide space for mobile libraries and gaming facilities.		Small parks and gardens, various open spaces for events, sports fields, cafes.	Sustainability, Adaptive Use, Multifunctionality, Memory and Identity	Url-24
26	Merrill C. Meigs Field Airport 1948	Northerly Island Framework Plan, 2010	Chicago, USA	37	Transformation of the site into an urban park with recreational, educational and wildlife enhancement strategies.	Proposing the creation of wetlands and savannah ecosystem in the southern half of the peninsula.	Providing sports activity areas and an open-air theater for public usage.		Wetlands and savannah, a lagoon and fish habitat, open-air theatre,sports activity areas.	Multifunctionality, Restoration, Memory and Identity	Url-25
27	Shueinan Airport 1930	Taichung Gateway Park, 2011, (Mosbach Paysagistes Philippe Rahm Arch. Ricky Liu Associates)-Competition Project	Taichung, Taiwan	70	Providing citizens with an environment that allows them to escape from tropical heat, humidity, noise and air pollution.	Reducing the heat, moisture and pollution with alternative surface formations, different vegetations, water elements, atomizers and electrical devices.		Providing the energy needs of the park through wind turbines.	Cafes, restaurants, cultural center, children's playgrounds, sports fields.	Connectivity, Sustainability, Multifunctionality	Url-26
28	Shueinan Airport 1930	Taichung Gateway Park, 2011, (Stoss Landscape Urbanism)-Competition Project	Taichung, Taiwan	250	Conversion of the site into a new hybrid type of park that combines the establishment of recreational and cultural amenities with water treatment and the enhancement of biodiversity.	Project uses innovative water management strategies as the cenral goal of the project that integrates symbiotic treatment system.	Providing recreational and cultural activities.		Recreational and cultural activities.	Sustainability, Multifunctionality	Url-27
29	The Francisco de Miranda Military Airbase, 1960	La Carlota, (Glocalstudio (Kunckel Associates + Stefan Gzyl) 2012- Competition Project	Caracas, Venezuela	100	Conversion of the old military airfield into a metropolitan park with the idea of "integration with the city".	The project includes ecological strategies to grow nature with the strategies of water, soil regeneration, propogation of plants and animals.	Considering the area as a place where a diverse society can share its experiences in the context of sports and cultural activities.Converting runways into functional units such as stadiums, marketplaces, swimming pools and concert areas.	There are areas in the park that recycle materials and capture rainwater. Adaptive reuse of the structures.	Stadiums, marketplaces, swimming pools and concert areas.	Sustainability, Adaptive Use, Multifunctionality, Process based Development	Url-28

conduct data about 29 international projects, based on printed books, reports, magazines, web sites of design offices and articles (Table 1).

All projects were evaluated in the context of landscape urbanism and a comparative matrix were developed according to the parameters the theory emphasized (Table 1). These parameters include the before/after name of the airport, location, size, year of construction, project aim, plans, project programs after transformed into urban park. In addition, as stated by Waldheim (2016), in the landscape urbanism projects "*the landscape architect re-evaluates the urban area by making economic, ecological, social and cultural arrangements in a cultural product service*". With reference to this discourse, these 29 abandoned airport landscape projects, have been examined in the context of the ecological, sociocultural and economic strategies they refer (Table 1). By this way 29 airport projects were comparatively and systematically analysed.

Projects were selected to reflect wide range of typologies of transformation projects from different geographies; 16 projects from America, 10 from Europe, 2 from Asia and 1 from Africa. Although most of the projects are located in America, the first "from airport to urban park transformation project" is Munich Riem Landscape Park in Germany which was designed in 1995. 14 airport landscape projects

are named according to their original airport names. Apart from their location, another important finding is their size. As Dümpelman (2014) emphasizes the size of the abandoned airports, "*some of the largest urban parks that have been recently created or under construction are located in the old airport and airbase sites. These areas are distinguished from many other urban parks not only with their peripheral location and starting dates, but especially with their size*". The size of the investigated projects varies from 19 ha to 1300 ha and considered as large scale projects.

Most of the transformation projects have ecological and sustainability objectives such as enhancing local ecosystems, supporting sustainable water management, adapting new technologies to utilize alternative energy resource, environmental remediation and restoration. With this respect some projects transformed into self-sustaining energy parks, provide open public space for citizens, minimize heat, humidity, noise and air pollution, host commercial and residential buildings, and social and cultural activities for the city, provide agriculture areas, meet recreation needs and host nature protected areas. While possible contributing to one of these objectives, most of these parks have multi-functional purposes. For example, Oldenburg Airbase Solar Farm contains only solar panels, The Hamilton Wetland Restoration Park and Crissy Field Park host more wildlife, parks such as Taichung Gateway Park, Orange County Great Park and Landscape Park Munich Riem have many different multifunctional objectives.

Considering the scale of the projects most of them has magnitude that have an impact both at the metropolitan and city level. The parks that were transformed as a metropolitan park such as Hellenicon Metropoliten Park include diverse program ranging from housing, commercial, cultural and recreational. On the other hand, some projects such as Downsview Park, Toronto, Crissy Field, Johannisthal Air Field, have intensive remediation strategies to transform the site into a nature reserve in order to enhance ecosystem and public health and provide opportunity for nature education. By this way they raise awareness on public about local ecologies.

Public-private stewardship is another important aspects of the project such as Hellenicon Metropoliten Park, Orange County Great Park. These projects include strategies that encourage participation of different stakeholders and public into decision making process. Most of the projects were achieved as a result of design competitions. Therefore, design competitions can be evaluated as an important tool to achieve the best alternatives about these complex sites.

The design strategies reflect different spatial settings along the peripheries of these large parks. Especially, to support physical and contextual integration of these large parks with the urban pattern, most of them offer alternative transportation systems. In order to support integration with the city, most of the projects diminished its existing boundaries and create new connections and edge conditions at the perimeter by including public usages.

Productive systems are another integral part of the projects as they include, small community gardens and agricultural fields. Most of the projects have an attempt to keep the memory of the site by applying adaptive reuse strategies. Here the existing infrastructure and buildings are adapted to new public usages or protected as an iconic element symbolizing the history of the project area.

In line with the interpretation of the strategies, goals and programs of the projects, the principles drawn from the cases were defined as;

resilience, connectivity, sustainability, succession, adaptive usage, multi-functionality, restoration, reclamation, memory and identity.

The principles drawn from the investigation of airport transformation projects are summarized as follows:

Resilience

In the context of parks, Czerniak (2007) argues that resilience depends on the ability of parks to accommodate changing social, cultural, technological and political requests while maintaining their own identity. Most of the projects, listed in the table, have

adopted the resilience principle. The Downsview Park, being one of the most important examples, emphasizes a modern ecology, resilience, resolving the nature-culture dichotomy, proving that a long-term strategy can improve a contaminated site (Assargard, 2011). Further, referring to social resilience, Czerniak (2007) suggests that a project integrated within participatory processes and feedbacks is more resistant. In the Tempelhof project, for instance, collective management of green spaces contributed to resilience by increasing citizens' learning and adaptation capacity, strengthening their interest and participation in urban planning and decision-making (Urban Biodiversity and Ecosystem Services, 2014).

Connectivity

After losing their functions as important infrastructure systems, airports can take on a different role through landscape and create new interconnections. Within a new network frame, they circulate goods, people, energy and information in different ways, as well as enhance the ecological connectivity. Ecological connectivity refers to the spatial and temporal scope, in which animals or plants and related ecosystem functions, can circulate between different habitat patches (Huber et al., 2018). Ecological corridors, green roads or patches facilitate individuals' connectivity (Chester & Hilty, 2010). The airports, turned into parks, are also considered as part of this ecological network. For example, the Mariscal Sucre International Airport in Ecuador transformed into Parque Bicentenario, provides a design and planning strategy that aims to rebuild a humid forest, a prairie and a transition zone (three unique ecologies that previously united in this region), to establish ecological connectivity. In the same project, the surrounding parking areas converted to pedestrian paths, and the dead-end streets were eliminated in order to provide pedestrian and vehicle accessibility.

Sustainability

Mostly the transformed parks rely on site-specific plants, sustainable construction, maintenance and management practices, as shown in the table 1. They contribute to the wildlife habitats and provide sustainable spaces for social participation, including urban gardening and agriculture. Moreover, the process-oriented development and design focuses on the prediction of future ecological and social changes. Some old airports, such as Oldenburg in Germany, have been transformed into solar parks. In Iceland, thermal energy is considered in the design proposal for the Reykjavik Airport, as a large dispensing system beneath the old runway heats the greenhouses above, local fruits and vegetables are being grown. Evidently, the sustainability of the projects is also sought with renewable energy systems (Dümpelmann & Waldheim, 2016).

Process-oriented development / Succession

Secondary succession in areas that have lost their functions often refers to old field succession (Osbornova et al., 1990). Construction of airports result in serious damages to the flora and fauna of their surrounding environment. Referring to abandoned airports, these damaged areas are usually exposed to a secondary succession stage within new projects, which provide strategies to re-establish an ecological cycle. In Berlin's Tempelhof Airport Project (2011) development process, leading species were the first to colonize the fallow field that were followed by other species, and a balanced vegetation arose over time" (Dümpelmann, 2014). For instance, Johannisthal Park maintains grassland succession by providing sheep grazing (Dümpelmann, 2014).

Adaptive usage

The gaps in the urban textures, resulted from the recovery of abandoned airports, are catalyst for social life and urban development (Dümpelmann & Waldheim, 2016). Berlin's former Tempelhof Airport encourages citizens to shape the future city landscape and offers them predetermined temporary areas to use on the site (Dümpelmann & Waldheim, 2016). The former international airport in Munich, has been transformed into a new neighborhood with a large park that attracts people from various parts of the city. In New York, Floyd Bennett Field Airport has a

campground, hobby garden and training programs (Dümpelmann & Waldheim, 2016). Another important factor that emphasizes the adaptive principle is the adaptation of runways, buildings or towers, thus converting them to recreational, office or commercial zones. Apparently, additional investments for new buildings are avoided and the elements of memory and identity preserved.

Multi-functionality

Landscape urbanism, rather than aesthetic qualities, is inspired by the functions and operational aspects of the landscape (Thompson, 2012; Lyster, 2006; Assargard, 2011). As part of the landscape urbanism, abandoned airport projects, are considered as multi-functional projects. Johannisthal Park, for instance, offers various functions. Declared as a nature reserve in 2003, the park hosts many endangered species (Dümpelmann & Waldheim, 2016). The field is divided into four main areas, which vary in character and public allowance. The first one is the Nature Reserve and the other three are multi-functional areas, consisting of various sports, playgrounds and other entertainment fields. Mariscal Sucre International Airport, which lost Quito's function, transformed to Parque Bicentenario provides various purposes. It contributes to strengthening the local field configurations, expanding the surrounding park areas as pedestrian paths, setting up parcels where various crops for Ecuadorian agriculture, hosts museums on local and national farming, and provides walking forest and meadow areas for visitors (Dümpelmann & Waldheim, 2016).

Restoration

Airports require some degree of restoration in order to return the sites' original ecological conditions, after suspending operations. Some of the projects, are based on the primary natural and cultural heritage of the airport sites. For example, the wetland and sand dune landscape have been restored in the context of a cultural landmark at Crissy Field (Dümpelmann & Waldheim, 2016). The Orange County Great Park Design includes a wildlife corridor for various habitats, as well as a veteran memorial and other components that remind the history of the old meteorological station. Closing the airport at Chicago Northery Island allowed designers to propose a new wildlife habitat, providing spaces for recreation and cultural events. The landscape plan of Midway Island Atoll proposes to demolish runways and rebuild natural habitats for endangered species, creating research and ecotourism destinations (Dümpelmann & Waldheim, 2016).

Reclamation

Abandoned airports, like other post-industrial areas, contain a number of pollutants due to their past functions. Particularly, soil and ground waters are contaminated by benzene, trichlorethylene/CCl4, and perfluoro chemicals used in airports (Nunes et al., 2011). Although no evidence of reclamation processes in all of the projects listed in the table, the pollutants have serious harm to human and environmental health. The Stapleton International Airport, closed in 1995, has undergone reclamation, thus the largest master-planned project in the country was built on 1,900 hectares of land. The landscaping of Oslo's former international airport, and its transformation into a new urban neighborhood for 15.000 inhabitants and 6.000 housing units and working spaces, is known as one of the largest projects considering industrial zone rehabilitation. The Crissy Field area was heavily contaminated with aircraft fuels and cleaning chemicals, and the removal of toxins destroyed most of the swamp. The NPS, worked with a number of stakeholders in 2001 for the Golden Gate National Park Conservation Area to reform and prepare the area as an urban park (Dümpelmann & Waldheim, 2016).

Memory and Identity

According to the Cambridge Dictionary, memory is defined as "the part of your mind that stores what you remember". Identity - one of the components of memory, is the element that emphasizes the uniqueness of a space and includes determinant elements that have formed it within a time period. In this study, memory and identity occupy a significant place in the

examined landscape projects. In the Stapleton International Airport, for instance, the control tower of the airport was preserved as a monumental element and its correlation with the past was preserved. In the case of Tempelhof Park, the runways were protected for the functioning of various activities. Bernard Tschumi's design for Downsview Park hosted industrial military buildings, social and sporting events. In the La Carlota project, Chaguaramo palm trees, which occupy a significant area in the park, aimed to give a distinct identity. Another important element is the fact that among all, 14 airport landscape design projects have preserved their original names, as seen in the table 1. One of the most commonly used instruments in the emergence of cultural memory and transferring it to future generations is the "place name", as they refer to places where social memory is recorded as the product of social experiences (Gülbetekin & Öztürk, 2016). Adaptive strategies to maintaining a healthy and uninterrupted relationship between memory and space, make possible to protect or gain new identities from the past.

3. Case of Atatürk Airport as an abandoned airport

This part of the study focuses on site analyses including historical, ecological, sociocultural and socioeconomic determinations of İstanbul Atatürk Airport.

Atatürk Airport is located within the borders of Bakirkoy - one of the largest districts in the European side of Istanbul, and Yesilkoy district, which is bordered by the sea. On a smaller scale, it is bordered by the Marmara Sea to the south, the E-5 highway to the north, the Florya Atatürk Forest to the west and the Ayamama Creek to the east.

Historical Background

During the establishment of the Turkish aviation, the Aviation Commission conducted preliminary studies for the construction of military airports and schools in 1911 (Kurt & Korkmaz, 2018). A few kilometers north of Ayastefanos (Yeşilköy) - a flat area of about 4-5 decares, has been chosen as the most suitable place (Kline, 2002). In 1913 the airport was completed and the training department started to operate.

The new development resulted in initiatives of foreign companies to establish aviation facilities for postal and transport aviation services in Turkey. Among the companies established in Yesilköy, the CFRN (Compagnie Franco-Rouen Domaine de Navigation Aerienne) (later named as Compagnie Internationale de Navigation Aérienne CIDNA) (Yusufoğlu, 2018), made a 20 -year deal, to found Turkey's first "International Civilian" airport in 1926 (Kline, 2002). Air France, taken over CIDNA, continued its Bucharest-Istanbul flights until 1935, but upon the request of Air France to cancel the contract, Yeşilköy Airport sold its facilities to the Turkish Government in 1937 (Yusufoğlu, 2018). Yeşilköy facilities were subject to the supervision of the State Administration of the Airlines and were officially changed to State Airlines (DHY) on 3 June 1938 (Hürtürk et al., 2009). A contract was signed with two American companies (Westinghouse Electric Corp. and J. G. White Corp.) to expand and modernize airports in Yeşilköy and other provinces (Yusufoğlu, 2018). The expropriation of the required land was started in 1948 (Yusufoğlu, 2018) and in addition to the three short landing runways at the airport, only one larger and longer (2300 m.) NE / SW 'Northeast-Southwest' (06 / 24) Runway (05/23) was built according to ICAO regulations. Afterwards, Turkey's largest and first international airport was opened on August 1, 1953 (Kline, 2002).

On 26 February 1956, the management of ground handling, air traffic services and aviation communications transferred to the State Airports Authority (Kline, 2002). Upon insufficient capacity, a new runway was built. Construction started in 1968, 45 m. wide and 3 thousand m. 17/35 runway was completed in 1972 (Devlet Hava Meydanları İşletmesi Genel Müdürlüğü, n.d.). In 1971, a new master plan was planned for Yeşilköy Airport. Within the scope of the new plan, apart from the runways 05/23 and 17/35 (Devlet Hava Meydanları İşletmesi Genel Müdürlüğü, n.d.), the project included 4 terminal buildings and annexes, each with a capacity of 5 million passengers. Part of the project, prepared by Hayati Tabanlıoğlu, was

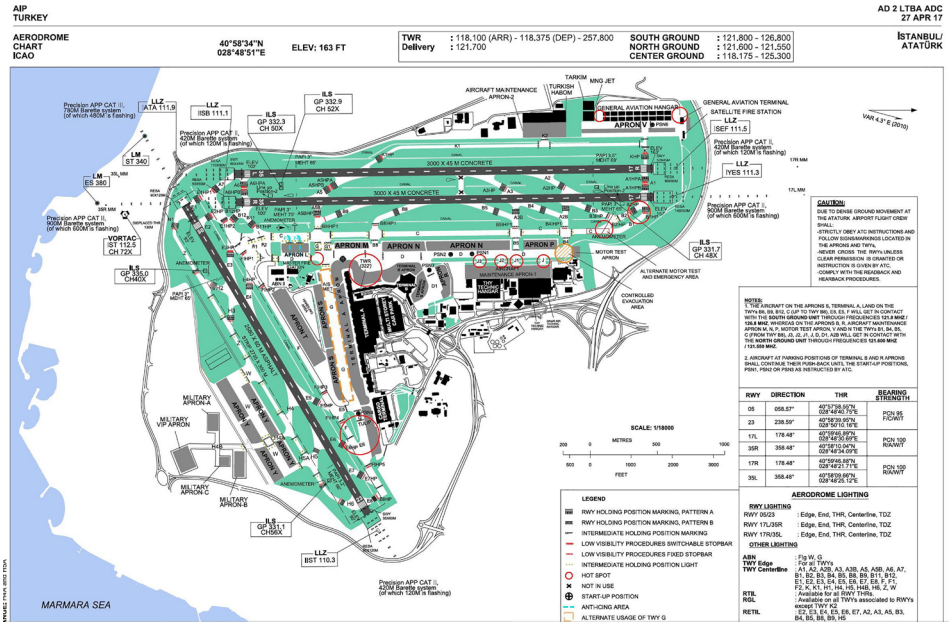

Figure 1. *Atatürk Airport Plan (Ltba Airport Charts, 2021).*

built and put into operation on 29 October 1983 (Devlet Hava Meydanları İşletmesi Genel Müdürlüğü, n.d.). Yeşilköy Airport, renamed as "Atatürk Airport" in 1985, with its modern appearance, State Airlines flights spread quickly to many regions in the country (Devlet Hava Meydanları İşletmesi Genel Müdürlüğü, n.d.). Later, construction of additional facilities to meet the demand of increasing passengers and aircraft traffic was decided (Atatürk Havalimanı Mülki İdare Amirliği, n.d.). The modern terminal building commissioned on 10 January 2000 (Atatürk Havalimanı Mülki İdare Amirliği, n.d.).

Atatürk Airport (IATA: IST, ICAO: LTBA), formerly known as Yeşilköy Airport, operated by the General Directorate of State Airports Authority (DHMİ), was used for civil and domestic flights. Covering total area of 11 million 776 thousand 961 m2, 24 km away from Istanbul's city center, the Atatürk Airport has a concrete field of runways, aprons and taxiways of 1 million 500 thousand m^2 (Figure 1). Just before closing, Atatürk, which took place among world's most important airports, consisted of a large complex with 1177 hectares and provided 20 million international lines, 7 million 500 thousand domestic passengers and 200 thousand tons / year cargo terminal capacity, and was known as Turkey's largest airport (Atatürk Havalimanı Mülki İdare Amirliği, n.d.). According to the statistics of the State Airports Authority, an increase in passenger number and flight traffic has been observed in the recent years ("İstanbul havalimanlarında, yolcu sayısı 6,5 milyon artti", 2018). Therefore, the government stated the need for a new airport, and in May 2013 the tender for the New Airport (Istanbul Airport) was held, followed by the foundation of the project on 7 June 2014. Discussions on the fate of Atatürk Airport continued during the construction of the new Istanbul Airport. In 2018, the President stated that "Nation's Garden" would be established in some provinces and that Istanbul was among these provinces, thus indicated Atatürk Airport for its place in Istanbul ("Erdoğan: Atatürk Havalimanı millet bahçesi olacak", 2018). The official flights of Atatürk Airport ended on 6 April 2019.

Field Study

The field study was conducted to reveal the existing conditions of the Atatürk Airport and to discuss its potentials to transform to urban park, resulting in determinations based on ecological, socio-cultural and socio-economic structure. Atatürk Airport, with its natural and cultural assets, has a significant potential due to its urban location.

Ecological investigations reveal green distributions, vegetation, streams and flood areas, urban heat island and fauna and their relationship within the existing environmental settings. The

nearby Florya Atatürk Forest, which has the richest plant population near the study highlight that the existing climatic conditions contribute to various plant habitats. Subsequently, public green and open areas IMP 2017 land use data map was prepared for the European Side of Istanbul (see Figure 2a). The map shows public green and open space fragmentation on the European side of Istanbul. The data shows that the total area of public green and open spaces in the Bakirkoy District is 379ha. In comparison with its 1,177ha., Atatürk Airport's area equals 3 times the area of all public green and open spaces in the district.

The ecological determinations of the study area include the natural infrastructures of vegetation as well as the fauna. In this reference, the nearby Küçükçekmece Lake and its Basin is characterized with the bird population it hosts (see Figure 2b). Kucukcekmece Lake, which is of international importance in accordance with the Ramsar Convention, hosts a significant number of waterfowl, cormorants and silvery gulls in winter. In early winter and spring small cormorants are observed, as well. The Kucukcekmece basin, protected by the Wildlife Conservation Society, is known as one of the 97 important bird habitats. The survey shows that Atatürk Airport has the potential to contribute to various fauna habitat due to its proximity to natural resources.

The important streams in Bakırköy are Ayamama, Siyavuspaşa and Çırpıcı Creek. The length of the Ayamama Creek, located on the border of Atatürk Airport, is 3500 meters (Bakırkoy Belediyesi, n.d.). As seen in Figure 3a, the flood area of the stream is larger and widely spread compared to the other streams. The holistic perspective of landscape urbanism supports the generation of future scenarios that include ecological, social and economic estimations over time. Therefore, the future scenarios of Atatürk Airport and its environment should relate to the sensitive issue of streams and floods. In this regard, predictions for 2100 shows the areas that would be inundated and lay approximately of 6 meters below the sea, resulting from

Figure 2a. *Fragmentation of public green/open spaces (generated using IMP 2017 data).*

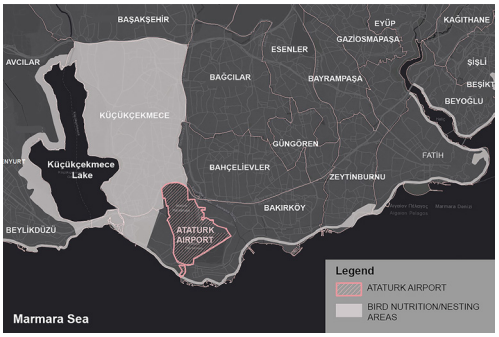

Figure 2b. *Bird feeding/nesting areas (generated with Birds of Istanbul datas).*

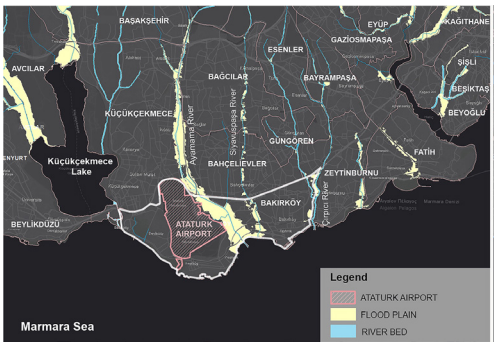

Figure 3.a. *Istanbul European Side creeks and flood areas (generated using IMP 2017 data).*

Figure 3.b. *Areas that may be inundated by the increase of sea water level in the future (generated by FloodMap data).*

global warming (see Figure 3b). The evaluation shows that Atatürk Airport is in danger in the forthcoming century. Moreover, the risk of flooding could be enhanced by the Mega Project of Canal Istanbul that link the Küçükçekmece Lake to the Marmara Sea, planned to be realized in the near future (Demircan, 2018).

In a study conducted by Şimşek Kuşçu and Şengezer (2012) (see Figure 4), the correlation between green area / vegeta-

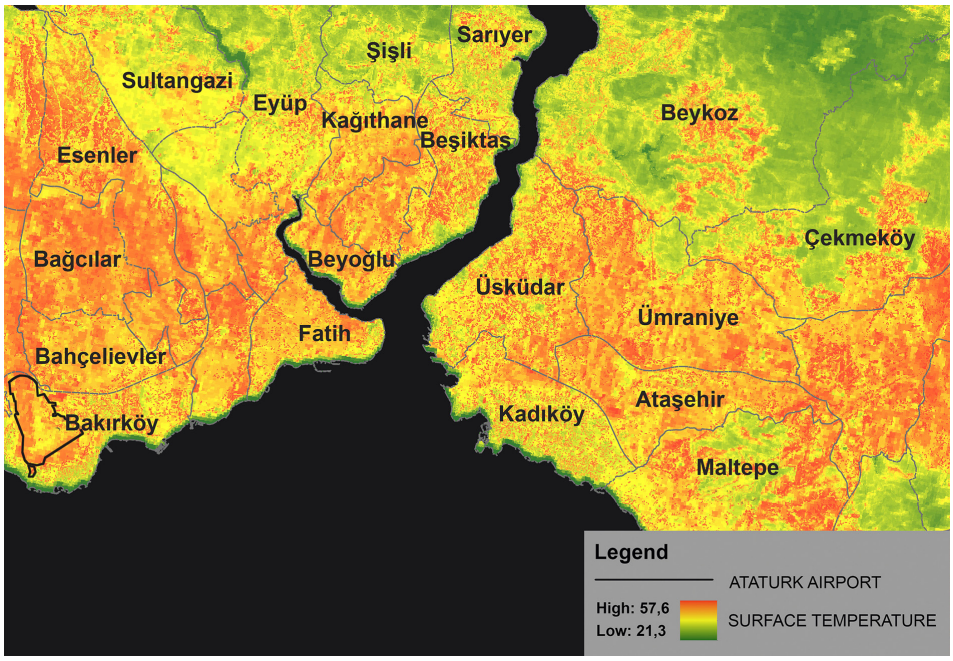

Figure 4. *Istanbul surface temperature map (Şimşek Kuşçu and Şengezer, 2012).*

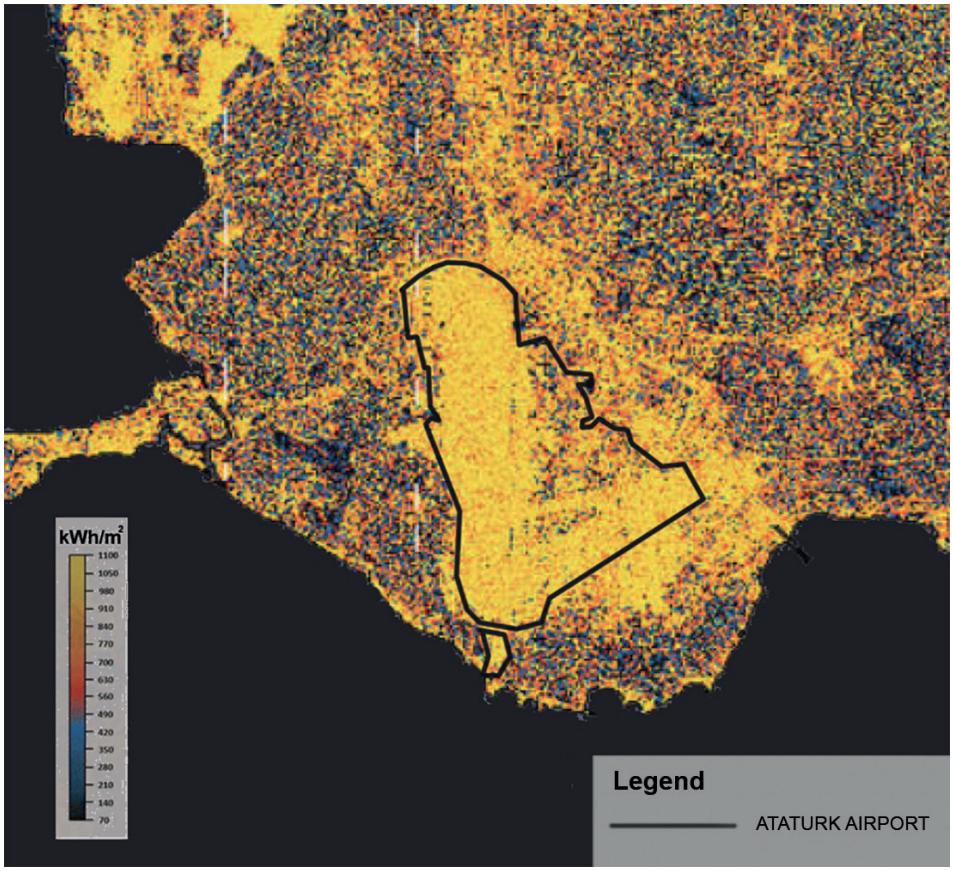

Figure 5. *Atatürk Airport solar energy potential (prepared with the data of Istanbul Metropolitan Municipality-Solar Energy Potential Map).*

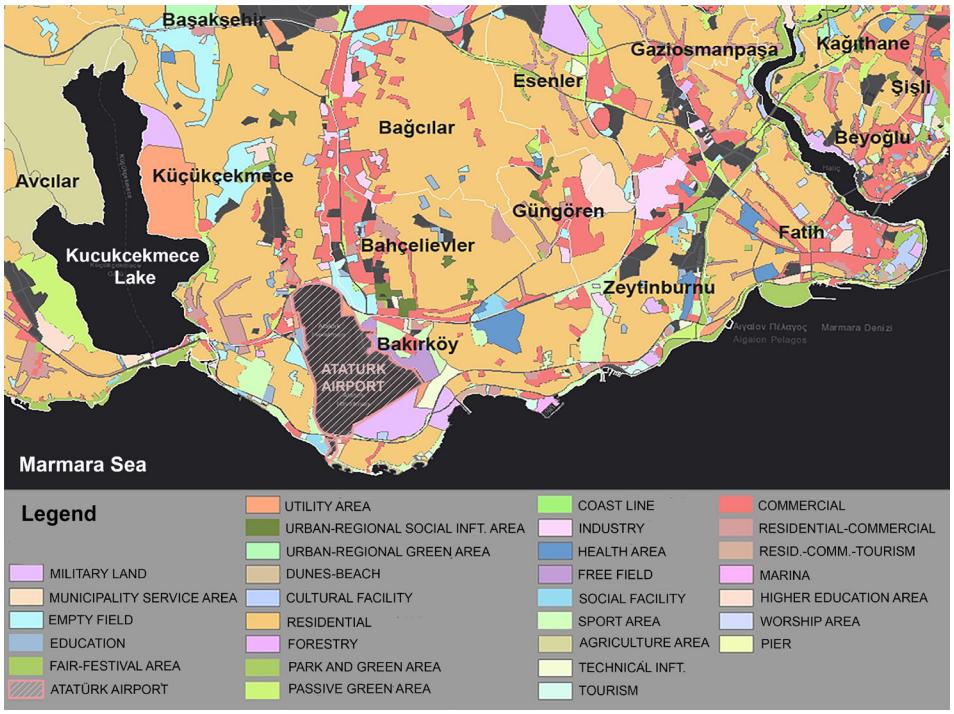

Figure 6. *Istanbul European Side land use map (generated using IMP 2017 data).*

tion and the temperature of Istanbul metropolitan area was investigated and a Surface Temperature Map was developed.

Accordingly, the Atatürk Airport region is under the influence of high heat island. Transforming Atatürk Airport into a public green space could reduce the heat effect within the whole city significantly. Nevertheless, according to the Istanbul Solar Energy Potential Map (Istanbul Metropolitan Municipality), Atatürk Airport has a high degree of solar energy potential (see Figure 5).

Istanbul's uncontrolled population growth since 1950's threatens the city's unique cultural, historical and natural landscape. Once located at the periphery of the city, the site incorporated within the city texture, as a result of spatial expansion, and became a central hub serving with more than 15 million people nationally. As shown in Figure 6, the density of residential and commercial areas, and public green-open fragmentation are prominent in the land utilization.

According to 2018 TurkStat data, Bakirkoy district with a population of 222.370, hosts significant higher residential areas compared to other land uses. Important low-density areas include educational, social and cultural facilities. Important socio-cultural and socioeconomic aspects are the central business areas. The 1 / 100.000 scale Istanbul Environmental Plan adopted by the Istanbul Metropolitan Municipality Council's decision on 14.07.2006 and approved on 22.08.2006, was used to specify the central business areas within the study case. Accordingly, the central business district extended towards TEM via Eminönü and Şişli axes. Primary centers, located in two regions, one at the intersection of Küçükçekmece, Bağcılar and Bahçelievler and the other between Bakırköy - Zeytinburnu districts, shows that Atatürk Airport has a great potential with its vicinity to the central business districts.

With a capacity of 64 million passengers in 2018, Atatürk Airport demonstrated high activity before it closed. The strong relationship with other ports, roads and rail systems, reveals it as an important logistics area. Referring to its social structure, Bakirkoy hosts mainly artisans, bureaucrats and retired citizens. In the recent years, since no significant resettlement in the region, the population and social structure has remained constant. Additionaly, Bakırköy is hosting higher density of Culture and Art centers compared to other districts of Istanbul (Bakırkoy Belediyesi, n.d.).

4. Findings and evaluation

In this study, 29 international projects were examined with the parameters emphasized by the landscape urbanism theory and, landscape based principles were introduced as resilience, connectivity, sustainability, succession, adaptive usage, multi-functionality, restoration, reclamation, memory and identity. Since their challenging conditions of degraded environmental systems and opportunities provided by existing infrastructure, airport transformation projects can be evaluated as complex projects that involve multidisciplinary approach and team composition. Their size can be evaluated as another potential to host multi-functional setting ranging from residential development to nature reserve within a park setting. Therefore, each project contributes to the environmental rehabilitation while introducing new public platform for the city. Although each project includes social and economic goals and strategies, ecological framework (storm-water management, habitat restoration, environmental reclamation, process based development, energy efficient interventions) come to forth. Based on strategies and principles drawn from the case study investigation we discuss the potential of Atatürk Airport by giving reference to the revealed strategies in the light of Landscape Urbanism.

Atatürk Airport has experienced a dynamic history since 1912, the world wars, the foundation of the Republic and the republic period. Being the largest airport in Turkey, Atatürk Airport was a fundamental infrastructure and cultural component of Istanbul. It took place among world's most important airports, consisted of a large complex with 1177 hectares and provided 20 million international lines, 7 million 500 thousand domestic passengers and 200 thousand tons / year cargo terminal capacity (Atatürk Havalimanı Mülki İdare Amirliği, n.d.).

Ecological, sociocultural and socioeconomic determinations of Atatürk Airport and its environment, suggest the necessity of multi-functional approach of landscape urbanism for the transformation process of this important structure into a city park. As a result of the analyses, it is evident that the main potentials in the field are its size, identity and location. Depending on these main potentials it has sub-potentials; contributing to reduce heat island effect, resilience, hosting various functions, solar energy, creating habitat, having a substantial past, vicinity to natural resources, easy access and proximity to central business areas. These potentials have been evaluated with the principles resulting from the tabulation of international projects and provided data for the formation strategies.

5.Landscape strategies for Atatürk Airport

The abandoned airport projects survey resulted in the following principles: resilience, connectivity, sustainability, succession, adaptive usage, multi-functionality, restoration, reclamation, memory and identity. Aligned with the Atatürk Airport potentials, a number of strategic recommendations emerged.

Divided into three categories as ecological, sociocultural and economic strategies in the context of landscape urbanism, these suggestions were presented in reference to the international projects analysed.

Ecological strategies suggest that the area should be considered as "part of the green infrastructure" in "a self-organized process-oriented program". As the area is particularly large, it could be proposed as an important large green center within an integrated green infrastructure, connected to the entire structure of the city. An open-ended landscape urbanism approach linked to green infrastructure could contribute to the resilience, as it incorporates permeable surfaces and wetlands that reduce the risk of floods within the region. Moreover, it can be used as a gathering space in case of natural disasters. As green infrastructure supports ecological resilience, Atatürk Airport's large surface area could host a diverse habitat that contributes to population prevalence and balance the ecosystem against uncertainties due to its large scale. Enhancing the green network could result in better ecological connectivity and enable the movement of animals and plants between green patches. This strategy indicates a self-organizing process-oriented transformation, which

is a basic aspect of landscape urbanism. To reduce the current damages on the soil, flora and fauna in the vicinity, as a result of the transportation services over the years, a process-oriented design proposal that includes succession dynamics within the transformation of Atatürk Airport as a city park could be adapted. As it requires limited maintenance, a process-oriented strategy could provide ecological restoration and soil reclamation. In addition, the green areas could contribute to the regulation of urban climate by reducing the urban heat island effect of the area.

Sociocultural strategies suggest that participation of the public in the project is fundamental for the protection of the identity and preserving the collective memory of the rich history of Atatürk Airport. To "ensure the participation of the public", it is necessary to include a participatory program in the project that would increase the social resilience of the area. As the public develops and the needs of the public change, the park should be able to keep up with this change. The participation of the people who are a part of the process is very important in the transformation of this area, which has been in memory with its history, size, identity and location and its important features. In order to convey the collective memory for the future generations, it is vital to correspond the name of the future park to its original "Atatürk Airport" Park. With the strategy of "linking with the past", the phenomenon of Atatürk Airport, which has been placed in the memory of the people, should be kept alive and given a feeling of trust. In this context, buildings, runways, aprons, taxiways and towers belonging to the area should be protected to a certain extent in an adaptive usage principle. As seen in the land use data of Bakırköy district, the area lacks science and cultural centers, recreation and sports areas are at a very low density. In order to protect the identity of the area, instead of building new structures that will force the budgets in the future project, it is important to evaluate the existing buildings as a part of the park program for commercial uses, congress center, cultural center or science center, runway, apron and taxi ways could be recommended for recreation functions. By using all these functions together, the proposal of "containing multifunctional fiction" is obtained from sociocultural strategies. This size of park should be evaluated not only a recreational zone of the city, but a park that can be a part of the urban life with its diverse and rich cultural program.

In *economic strategies*, production comes to the forefront in line with the principle of sustainability. As seen in the analysed abandoned airport landscape projects, site-specific plants were used in the design to achieve sustainable maintenance and management practices, and sustainable productive areas were provided through urban agriculture and renewable energy systems. Atatürk Airport could be evaluated with its production-based potentials as well. Some of the park can generate solar energy and some can be used for urban agriculture after the necessary soil rehabilitation. Another strategy that will provide economic efficiency is the "income and employment" provision. Income and employment could be provided directly or through tourism from the enterprises to be included in the park. Another strategy in relation to the economy is "rearranging the infrastructure". In the project to be established for

Figure 7. *Proposed strategies and their relationships.*

Atatürk Airport, infrastructure should be redesign within the scope of the city park and thus public access to the area should be increased.

Environmental measures taken within the principles of ecological resilience minimize the damages in case of any natural disaster in the area and relate to the economic resilience of the city. Ecological structures that produce renewable energy could be proposed in line with the principles of sustainability within an economic framework. Moreover, the adaptive usage approach in sociocultural strategies contribute economically, as new functions are given to old structures, instead of creating new buildings. Evidently, the proposed strategies are also interrelated and intertwined, as cultural and natural elements are evaluated together in the landscape urbanism theory (see Figure 7).

6. Conclusion

Situated in Istanbul, but having influence far beyond the city borders, Atatürk Airport, is a fundamental part of the national and international collective memory, as a witness to various events and associate to different community layers. As a result of the Istanbul Airport construction, the potential transformation of the Atatürk Airport into green space under the name "Nation's Garden" has emerged on the agenda, recently. The concept of "Nation's Garden" has been also subject for many open spaces in various districts of Istanbul and other cities in Turkey. Due to the timeframe limitations for the completion of these Nation's Garden projects, and management of the projects by central authority which applies standard programs and materials that restricts the designer's ability to generate innovative design solutions, these projects usually end up with a stereotypical urban park projects regardless of local circumstances. This existing practice in Turkey conflicting with the basic principles of Landscape Urbanism which focuses on process - based and participatory actions in which ecology, socio-cultural and economic goals create the backbone of projects. On the other hand, "Nation's Garden" projects can be considered as a national environmental strategy to increase green area amount in cities and can be evaluated as an opportunity to test different design methods and approaches with diverse thematic configurations. But the number of studies focusing on Landscape Urbanism and its applicability to Turkey's planning and design agenda is so limited. At this point learning from international experiences and adaptation of global urban theories and contemporary design approaches into local circumstances becomes very crucial. Especially large scale transformation projects, considered as opportunities, emerge new approaches in the field of landscape architecture and urban design as alternatives to conventional design approaches. Therefore, analyses of 29 airport urban park transformation projects, referring to the theory of landscape urbanism is used a basis to set the conceptual design framework and principles to rethink about one of the most strategic fields of Turkey, Atatürk Airport. Referring to these international practices within the goal of this article, the prominent principles in the context of landscape urbanism have been outlined and landscape-based strategies that can be guiding in the planning and design process of Atatürk Airport have been proposed.

Analogous to the examined airport transformation projects, Atatürk Airport has significant potentials in terms of its dimensions, functional structure, environmental, ecological and social settings. It is fundamental for a metropolitan city like Istanbul, with its rich historical, cultural and ecological heritage, to respect the potentials within the planning and design approaches in the process of its transformation to urban park. Transformation of Atatürk Airport is a critical issue in terms of its dimensions when considering green infrastructure integration within a continuous green system potentially interacting with the entire city network. However, it is fundamental to rely the design process on scientific axioms: ecological, sociological and economic forces should be taken into consideration.

Ecological, sociocultural and economic strategies, proposed for the transformation process of Atatürk Airport to city park are a result of

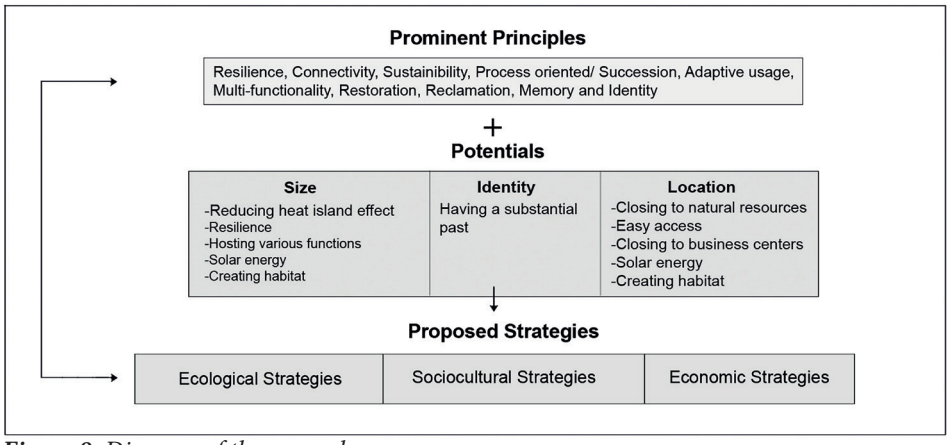

Figure 8. *Diagram of the research process.*

evaluating all the potentials of the area with the principles and field studies determined from the examination of abandoned airport landscape projects (see Figure 8).

This article, with its case study, can be used as a planning and design guide for airport-urban park transformation projects, which can be complex and challenging due to the size, location and existing infrastructure of the airports. The principles drawn from the investigation of landscape urbanism cases can be applied to analogous projects from conceptual framework to design process. Having importance on national and international scale, the Atatürk airport transformation process should lean on modern sustainable approaches that integrate culture, arts, sports and fair areas, to acquire a world-class project. In this regard, this article with its findings and case study investigations contributes to the contemporary landscape and urban design agenda by presenting key strategies and principles that are introduced by Landscape Urbanism. By this way the article highlights the viability of this global urban theory into the local conditions of İstanbul and open the issue into discussion over Atatürk Airport case by presenting alternative strategies.

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