

Can A Green Business Strategy be an Alternative to the Success of the Airport Environmental Management System?

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Article Info

Received: April, 07. 2022

Revised: July, 04. 2022

Accepted: July, 13. 2022

Keywords:

Aviation Industry

Airports

Environmental Management System

Climate Change

Green Business Strategy

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REVIEW ARTICLE

<https://doi.org/10.30518/jav.1128353>

Abstract

Environmental problems, which continue to exist as a global threat in the world, have recently been frequently discussed both in the media and in academic. It is obvious that enterprises in different sectors in the business world cannot ignore environmental problems. One of the most important of these sectors is the aviation sector. In the sector, there are harmful effects on air, water, soil pollution, natural life and wildlife, especially noise pollution. With the establishment of airports and the start of aviation activities in the sector, it is suggested that construction works, increase in waste, development of industrialization around the airport, rapid consumption of energy resources, growth of residential areas, increase in population should be brought under control with 'Environmental Management System' practices. A green business strategy is being researched in order to successfully manage the environmental management practices applied at airports around the world and to spread environmental awareness throughout the enterprise. Green business strategy refers to the tendency of all business units to integrate environmental issues into business strategy. In this work you can stop the environmental degradation and even the environment etc. As a result of these factors, environmental pollution also increases. Today, the green business strategy is being researched as a phenomenon that can contribute to the successful management of environmental management systems in order to control the environmental pollution effect resulting from the activities at the airports. From this point of view, whether the green business strategy will be an alternative to the success of the airport environmental management system is discussed with the conceptual-theoretical application method.

1. Introduction

Aviation activities have negative effects on the environment. Although there are technological and systemic developments to reduce the environmental impact, the environmental problems are more than the positive effects of the increase in air traffic (Netjasov, 2012: 1077). Air traffic has been increasing rapidly from past to present, and as the number of aircraft in the sector and the number of airports in the regions increase, environmental problems also increase. One of the best examples of this is the Covid-19 pandemic, which emerged in 2019 and caused the world to be declared a pandemic (Mhalla, 2020: 96). In the rapidly growing sector, passenger transportation has come to a standstill due to the pandemic, and this has proven that the skies are cleared with the closure of airlines and the planes landing on the ground. The National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA) have noted a drastic reduction in the levels of Carbon Dioxide (CO₂) and other greenhouse gases (GHGs) with the decreasing level of transportation. Again, according to NASA and ESA, air

pollution in some epicenters of Covid-19, such as Wuhan, Italy, Spain and the USA, has decreased by up to 30% (Barua and Nath, 2021: 2). Of course, it is not desirable for passenger transport to come to a standstill. However, it is important to eliminate or minimize the negative situation caused by the aviation industry to the environment. In the return to the new normal after the pandemic, the total passenger traffic in the world has increased. The actual and estimated values of the total passenger traffic in the world for the year 2020-2021-2022 are shown in Table 1 compared to 2019. It is obvious that the increase in environmental problems continues due to the increase in traffic and that measures should be taken by the relevant authorities, businesses and governments in this regard. Recently, the climate crisis and its proposals as a global problem have become an issue that countries cannot ignore. The continuous increase in air traffic in the aviation sector and the increase in the number of airports in the world have brought the environmental problems arising from the sector to be dealt with together with the climate crisis and urgent solutions to be found. According to the report published by EUROCONTROL, it has been stated that activities to reduce

the effects of climate change in the aviation sector can be effective now and in the future. However, studies on this subject have never been done by aviation actors (CAPA, 2019 Gürçam (2022) revealed that the practice called green washing and adopted by the aviation industry was unfortunately not successful. The aviation industry ignored the environmental impacts and covered up the climate crisis. With the

development of technology and the aviation industry, electric airplanes, hydrogen-powered airplanes, biofuel studies, high efficiency, etc. Despite such innovative projects, it has been revealed that it is quite dysfunctional in environmental problems and the climate crisis continues to increase (Gürçam, 2022: 178).

Table 1. World Total Passenger Traffic.

The Covid-19 impact on world scheduled passenger traffic for year 2020 (actual results), compared to 2019 levels:	The Covid-19 impact on world scheduled passenger traffic for year 2021 (preliminary estimates), compared to 2019 levels:	The Covid-19 impact on world scheduled passenger traffic for year 2022 (estimated results), compared to 2019 levels:
Overall reduction of 50% of seats offered by airlines – Overall reduction of 2.7 billion passengers (-60%)	Overall reduction in 40% of seats offered by airlines – 49% reduction in 2.2 billion passengers	19% to 22% reduction in total seats offered by airlines
Overall reduction in 50% of seats offered by airlines – 60% reduction in 2.7 billion passengers	Overall reduction in 40% of seats offered by airlines – 49% reduction in 2.2 billion passengers	– Overall decrease from 1,123 to 1,292 million passengers (from -26% to -30%)
Approximately US\$ 372 billion loss in gross passenger operating revenues of airlines	Approximately US\$ 324 billion loss in gross passenger operating revenues of airlines	– Airlines lost between \$169 and \$191 billion in gross passenger revenues

Reference: (Rahma, 2022).

With the rapid development of the aviation industry, there has been a significant increase in the number of airports around the world. There are over 41,700 airports all over the world according to the Central Intelligence Agency. The United States alone has over 13,000 airports listed with the Central intelligence Agency (Welsch, 2021). The increase in the number of airports around the world may cause environmental problems to increase if necessary precautions are not taken. This includes local noise disturbance from airplanes around airports, soil pollution from fuel kerosene leaks and material spilled from airplane tires, waste from traffic at airport ground operations, etc. The problems are cause for concern. Particulate matter, other atmospheric emissions, can harm the environment in wider geographical areas. The transport of greenhouse gases such as CO to the upper atmosphere at the global level has potentially serious global warming effects (Button, 2003: 167). Airports face greater environmental challenges as they develop and/or expand. In other words, an increase in airport-related activities means an increase in environmental impacts (Asinjo, 2011: 2). An airport environmental management system is recommended for the environmental problems of airports. Airport Environmental Management System prevents or minimizes the environmental impacts arising from the operational activities of airports. The purpose of the environmental management system applied at airports in the world is to identify, monitor, evaluate, reduce and manage the process of negative environmental effects resulting from the activities of the enterprise (ICAO, 2021: 5).

This article considers from a conceptual-theoretical point of view whether the green business strategy can be an alternative for the success of the airport environmental management system. More specifically, the following questions are addressed;

- What are the environmental problems that may arise in airport operations and what are the suggestions for solving these problems?
- What is the purpose of the airport environmental management system?
- What is the importance of the green business strategy?

- Can a green business strategy be an alternative to the success of the airport environmental management system?

A green business strategy is a strategy that complements business, operations and asset strategies, public or private, government or commercial, that are already well understood and often well-articulated by the organization. A green strategy can basically be expressed as an organization taking decisions as a positive impact on the environment (Olson, 2008: 22). The implementation of the 'green business' strategy, which has recently attracted attention in the literature, can be effective in eliminating the environmental problems caused by the operation carried out at the airport. The green business strategy, which is expressed as the environment-friendly activities of enterprises rather than causing environmental problems, may be important in terms of minimizing the negative impact, although it does not completely eliminate the environmental problems arising from airports. In this direction, the applicability of the green business strategy in the success of the airport environmental management system is investigated in this study of.

2. Methods

In this article, the case study method, which is one of the qualitative research methods, was used. First, the purpose of the airport environmental management system and how it can be implemented as a strategy are discussed in depth. Air, water, soil, noise pollution etc. created by airports in the geography. environmental problems and what these problems are are revealed. The concept of green business has gained importance in the literature, as the depletion of natural resources and business activities in different sectors cause environmental problems. Green business refers to environmentally friendly products and services that do not harm the environment. In this study, it is emphasized that the green business strategy in business activities and the execution of activities without harming the environment. It is not easy to implement the green business strategy in the activities carried out at airports and increasing day by day. It is not possible to completely eliminate environmental problems at airports. Successful implementation of airport environmental

management strategies is effective for reducing potential environmental problems; however, good management of this process is very important. In this article, the green business strategy in the success of the airport environmental management system strategy is discussed and solutions are proposed to improve the process.

3. Airport Environmental Management System

Environmental management system can be expressed as part of the overall management system that includes the organizational structure, planning activities, responsibilities, practices, procedures, processes and resources to develop, implement, achieve, review and maintain environmental policy. The purpose of the environmental management system is to put the environmental policies of the relevant organization into practice (Lozano and Valles, 2007: 495).

ISO 14001:2015 is recommended as the environmental management system that a business can use to improve its environmental performance. ISO 14001:2015, which can be used partially or wholly to systematically improve environmental management, is designed to be used by an organization that aims to manage its environmental responsibilities in a systematic way that contributes to the environmental pillar of sustainability (ISO, 2022). ISO 14001:2015 summarizes how the environmental management system can provide added value for businesses to achieve long-term success and contribute to sustainable development (ISO 14001, 2015);

- To prevent environmental problems and protect the environment;
- To reduce the possible negative effects of environmental conditions on the organization;
- Assisting the organization in meeting its compliance obligations;
- Increasing the efficiency of environmental performance;
- To provide continuous control of the product life cycle of the enterprise;
- Achieve financial benefits and operational efficiency;
- Communication of all environmental information.

One of the studies to identify the environmental aspects at airports and which of them can have a significant impact on the environment is to follow the steps described in ISO 14001:2015. First, as an environmental dimension, it is an element of the airport's activities, products and services that can interact with the environment in a beneficial or negative way (eg material consumption, discharges, spills, etc.). Second, as an environmental impact, it is a beneficial or negative environmental change resulting from activities, products or services. An example of this environmental review was made by the Athens International Airport Environmental Management System, which mentioned the effects on noise, water, energy, air pollution, bird control, biological monitoring, public awareness, environmental management, protection of global heritage (Boulevard, 2022: 12-13).

Airports are very important because of their functional role and economic impact. The increasing intensity of civil air transport and the increase in the number of airports cause different environmental problems. A wide variety of research activities have been applied to analyze and reduce the environmental impacts of airports. Among the civil aviation environmental problems covered by the research studies are noise pollution, electromagnetic effect, aircraft and land

transport emissions, waste water management and thermal pollution (Radomska, 2020: 76).

In the literature, there are studies on the negative environmental effects of airports. Previous research on airport environmental protection has mainly focused on two factors: noise pollution (Brecht and Picard, 2012; Girvin, 2009; Lijesen et al., 2010; Prats et al., 2011) and air pollution (Girardet and Spinler, 2013; Kurniawan et al. Khardi, 2011). Regarding airports around the world, there is no evidence of a reduction in overall environmental impact or adherence to overall consumption or waste limits (Chao, Lirn, & Lin, 2017: 62). Korul (2004) developed the Airport Environmental Management System in order to reduce and control the noise, air and water pollution and the effects of airports on natural life, Oto (2010) environmentally friendly approaches and green airport project at airports, Akın (2013) energy efficiency and energy efficiency at the airport. Dursun and Aksoy (2017) discussed the implementation of the installation in all its dimensions under eight headings; noise, air pollution, water pollution, impact on wildlife, wastes, public health, construction works, and land use, which are environmental effects originating from airports. Pitt, Brown, and Smith (2002) report waste management at airports, Blacka et al. (2007) discussed the noise management regulations and policies at commercial airports and discussed the negative effects of noise on public health. and investigated the differences and common applications in systems. In the studies put forward, it is suggested that the environmental management system applications should be integrated into the aviation industry and the airport environmental management system. As seen in Figure 1, the issues addressed as airport environmental management strategies; management of noise control, environmental impacts on public health, management of water and air pollution, impact from construction works, land use impacts, etc. is in the form (Graham ve Guyer, 1999: 175).

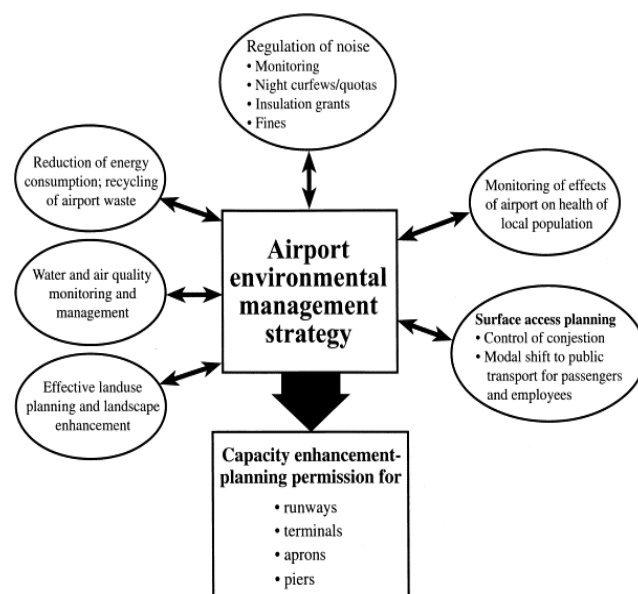


Figure 1. Airport Environmental Management Strategy

Airport Environmental Management System (EMS) is an organizational structure that enables an organization to proactively and systematically manage its operations with potential environmental impacts in order to fulfill its regulatory compliance obligations (Chao, Lirn, & Lin, 2017: 62). The airport environmental management system has a

direct impact on the development of the aviation industry. If explained in order; The growth of aviation directly affects airlines and related businesses, civil aviation manufacturers selling aircraft and their components. On the other hand, indirect impacts include the employment and activities of suppliers to the air transport industry, such as aviation fuel suppliers, construction companies building airport facilities, suppliers of aircraft subcomponents, manufacturers of goods sold at airport retail outlets, and a wide range of activities in the business services sector (call centers, information technology, accounting, environmental management, etc.) (Mehta, 2015: 180). Among these activities, the environmental effects of airports' activities negatively affect the geography they are located in. Environmental impacts such as air pollution, noise, water and soil pollution, waste, loss of biodiversity can result from the operation and development of airports. For this reason, it is important to manage and implement the Airport Environmental Management System correctly.

Airport Environmental Issues

According to EUROCONTROL (2008), when the environmental impacts of airports' activities exceed the limits determined during the planning stages, they adversely affect the society in their geography. In particular, noise or emissions, lack of energy and water resources have the potential to limit the operational capacity or growth potential of airports. As a result, the challenges for airport operators will be to balance the social and economic benefits an airport provides to a region or city with the inconvenience on the environment and human health (Dimitriou, Voskaki and Sartzetaki, 2014: 2). In the congress organized by the EU (European Union) in 2007, the main effects of airport operations, maintenance and expansion are listed as follows (Comendador, Valdes and Lisker, 2019: 6);

- Noise issues
- Water quality issues from fuel storage as well as the effects of de-icing and anti-icing activities
- Air quality issues
- Emission of toxic air pollutants

According to the European Aviation Environment Report, the main environmental impacts of aviation are defined as noise, air quality and climate change. The environmental survey conducted by ACI in 2018 specifically addressed the state of environmental impacts at European airports. The environmental problems created by the airports in the geography where they are located are explained in detail below.

Air Quality Management

The main causes of air pollution in airports are; are the polluted gases emitted from aircraft engines and ground handling vehicles engines. Technological developments over the next 5 to 10 years predict significant improvements in emissions globally and air quality impacts locally; however, these advances do not completely eliminate the negative effects on the quality of life and the additional environmental effects caused by environmental pollution (Cohen et al., 2008: 119). Therefore, efforts to prevent air pollution should be sustainable. It is important to eliminate or minimize the problems that will cause air pollution by country governments, international aviation authorities, aviation enterprises and stakeholders. International Civil Aviation Organization (ICAO), a memorandum of understanding named CORSIA (Carbon Offsetting and Reduction scheme for International

Aviation) has been achieved in emission reduction focused on the aviation sector. The aim of CORSIA is to reduce toxic gas emissions. Thus, it is aimed to support clean technology, use less fuels that give less to the environment, and increase forest areas in the world (Doğan, 2018: 147).

Noise Reduction

One of the biggest problems facing modern airports is the noise from air traffic and the effect this noise has on those living near the airport. Aircraft noise affects quality of life (health effects such as sleep disturbance, hearing, etc.). The lack of noise control also prevents the expansion of the airport (Sardjono et al., 2021: 3). At the global level, the noise problem around airports needs to be given great attention at the legal, professional and scientific level. In this direction, Netjasov (2012: 1078-79) discusses 18 measures to reduce noise at airports. These are not listed below;

1. Determination of noise reduction procedures
2. Restriction of starting the engine
3. Choosing suitable runways
4. Determination of airport bans
5. Studies on noise charges
6. Restricting Air Power Unit operation
7. Determination of noise level limits
8. ICAO Annex 16 Chapter 3/Chapter 2 Studies on Restrictions
9. Setting quotas for businesses
10. Determination of noise budget constraints
11. Supporting sound insulation (Residential and Public Buildings)
12. Assurance of purchase of houses in the airport noise-affected area
13. Overflight Easements
14. Enactment of zoning laws
15. Airport Noise Contour Overlay Maps

In order to control the noise, noise measurements should be made. Noise mapping describes the acoustic situation in large areas using long-term indicators. These measurements are an important tool for reducing noise emissions and defining different strategies (Gasco, Asensio and Arcas, 2017: 839).

Waste Management

As a result of the activities carried out at the airports, a large amount of waste is produced every day and this causes a major environmental problem. Waste management directly affects the airports environment, and this can be effectively mitigated by dumping waste at sources, that is, separating it and recycling it into renewable materials (Li et al., 2018: 1). The environmental management system can also be effective in this process. Wastes at the airport vary. In general, airport solid wastes can be listed as follows (Parameshwar, 2012: 152); (1) Municipal Solid Waste (2) Industrial Waste (3) Hazardous Waste (4) Hospital Waste (5) Construction and Demolition Waste (6) Waste from electrical and electronic equipment (7) Agricultural Waste.

Liquid waste at the airport comes from various sources. Domestic sewage wastes (from terminals, offices, personnel facilities, canteens and restaurants, kitchens and catering companies), industrial wastes from aircraft maintenance and washing, and wastes containing de-icing liquids as a result of aircraft de-icing operations. Waste management is one of the critical environmental issues facing airports. Although it has social and economic effects, it is mainly an environmental problem. For waste management at airports, it is necessary to develop a waste management system that includes waste

separation and recycling at the source (Santos et al., 2020: 1). Waste reduction, reuse and recycling are important policies that should be promoted within airport companies as well as tenant concessionaires and airlines. Leveraging recycled materials is also important to improve recycling markets. Airport companies need to provide their staff, tenants and airlines with information and training on ecologically sound behavior. More research is needed to identify best practice approaches to mitigate issues and achieve continuous improvements. This should be accompanied by stronger policies led by the central government. (Pitt, Brown and Smith, 2002: 206).

Energy Monitoring

Airports of all sizes offer minimal services that require energy use to keep flights safe and efficient. The most common energy uses at an airport are (1) the airport terminal and (2) the airport airside. Lighting, heating and cooling (air conditioning) and appliances (luggage handling systems, terminal bridges) in the terminal use energy. Airside facilities such as runway lighting, auxiliary power units (APUs) and aircraft ground energy systems (AGES), ground vehicles (from airport operators, ground handling companies and firefighting services) and hangars also use energy (ICAO, 2022).

However, airports consume a significant amount of energy, which is CO₂ emissions from power generation. The airport industry, like many other industries, is facing the effects of increasing environmental pressure. Therefore, the global community is currently paying more attention to the impact of airports on the environment (Baxter, Srisaeng, & Wild, 2018: 334). Energy efficiency is a fundamental factor in achieving environmental targets, optimizing the expenditures required to meet energy requirements, and achieving sufficient energy security at the airport (Rubeis et al., 2016: 261).

Dağlı and Rodoplu (2021) revealed that the use of solar energy within the scope of energy management at the airport both saves energy and contributes to reducing the environmental impact of airports. It is foreseen that the use of solar energy systems will become more widespread in other airports around the world in the future. With the development of the aviation industry and especially the increase in the number of airports, it is important for airports to turn to alternative renewable energy sources within the scope of sustainable energy management. It is also possible to evaluate some other renewable energy sources at the airport. (1) Integrated wind turbines mounted on the large roofs of airport buildings can be used. (2) It can be converted into fuel that can be used in various applications (heating, cooling, electricity) of airport buildings. (3) Geothermal energy systems can be used for heating and cooling airport buildings. (4) Hydroelectricity can be utilized at some airports surrounded by oceans (Yıldız et al., 2020: 167). *Water Control Management*

There are many reasons for water pollution in airports. Anti-icing agents, waste water consumed by passengers and employees, rain water and sewers all constitute water pollution (Ankaya, Yazıcı and Aslan, 2018: 163). In addition, airports are potential settings for the implementation of policies and technologies aimed at conserving water, mostly due to their large consumption for non-potable purposes such as water cooling systems, fire control, cleaning and washing of vehicles, runways and aircraft. Alternatives that require more intervention in airport infrastructure, such as the reuse of wastewater and the use of rainwater for toilet flushing, are usually only implemented in the construction of new terminals (Carvalho, vd., 2013: 28). However, nowadays, considering

the global water problems and the climate crisis, it is obligatory to develop these systems at almost all airports.

Biological Monitoring

The effects of airport activities on plants and animals in the region should not be ignored. The ecological impacts of airports arise as a result of airport construction works and daily activities. Therefore, it can have negative effects on plants and animals in the region. Aircraft noise causes the animal communities in the region to be frightened, to migrate and change their settlement areas. In addition, it creates behavioral changes in all animals, especially livestock, due to physiological reasons. The use of the area allocated for the construction of the airport leads to the change of vegetation living on the same land, the migration of animals living in the region, and the deterioration of the ecological balance (Korul, 2014: 116).

Bird Control

Many airports are located near wet areas, bodies of water or sea shores without environmental concerns in mind. The airport and its surrounding area may be favored by waterfowl, bird birds and their raptors during the breeding season, local movements and migrations. Approach paths to these airports may pass through areas with frequent breeding or migratory bird concentrations or where seasonal bird flight paths pass. Due to the increase in population size of some bird species, such a location leads to problems with reduced flight safety (Matyjasik, 2008: 11). In order to keep the birds under control at the airports, methods that direct the behavior of the birds are applied. These techniques listed below do not harm the birds, but encourage them to stay away from the area (Mayntz, 2019).

- Using sonic cannons, recorded predator calls and other noise makers to annoy birds,
- Using lasers at dawn and dusk to simulate predators and scare off birds,
- Flying trained hawks over roost areas to disturb birds before they nest,
- To train dogs to monitor habitat and to teach birds that the area has many predators.

4. Green Business Strategy

In green businesses, the term 'green' has almost the same meaning as sustainability and is often used interchangeably. This term also covers a wide area such as scarcity of energy resources, environmental friendliness, pollution-free, social or political stability (Hasan et al., 2019: 327). The understanding of green business, adopted within the framework of environmental sustainability, is aimed at protecting the natural balance of the activities of the enterprises, minimizing the damage to the environment; It is a modern understanding that enterprises carry out production, human resources, marketing, financing and R&D activities in an environment-oriented manner (Şenocak and Bursalı, 2018: 162). Green businesses focus on environmentally friendly activities such as green practices throughout society. Green practices in businesses have significant effects on the use of natural resources at different stages of activities and production.

Green businesses specifically (Čekanavičius, Bazytė and Dičmonaitė, 2014: 76);

- Interested in and supporting environmental activities,
- Tendency to protect environmental quality,
- Having a permanent commitment to environmental principles in business activities,

- Business or organization that prepares a plan and takes action to reduce its environmental impact on the area it is directly related to,
- It can be defined as an enterprise whose activities do not have a negative impact on the environment.

Today, environmental problems, the impact of which is felt globally, has become a problem that businesses that have an economic and social impact on society cannot ignore. In the literature, the concept of green businesses refers to the environmentally sensitive activities of businesses. The increasing harmful effects on the biophysical environment have required many small firms to take a more strategic stance towards taking advantage of green-related opportunities. In this sense, the green business strategy emerges as an important strategy to support the green practices of businesses. The green business strategy is the inclusion of environmental elements in the basic strategic functional areas of the business, such as production, marketing, finance, purchasing, human resources, research and development, which aim to protect the natural environment (Leonidou et al., 2017: 585).

Green business strategies today have two conflicting symbols. The first is the industrial worldview, the second is the ecological worldview. Finding a middle ground between these two views is essential for today's environmental problems. It is clear that the ecological worldview cannot be duly followed and fully realized in the contemporary business world. Therefore, green businesses have to make some vital concessions in their day-to-day practices. Green business is based on the corporate vision of the company aimed at surrounding its operation. Environmentalization means that the company takes into account the needs of the ecosystem with which it interacts. A good example is British Airways, which is concerned and taking action for society and the environment. Accordingly, it is important to determine the following environmentally friendly strategies (Zsolnai, 2002: 657);

- To take environmental factors into account when making commercial decisions,
- Working constructively with organizations dealing with the environment,
- Announcing the environmental activities of the enterprise to employees and customers,
- To consider environmental rules and regulations,
- Constantly redefining and applying the standards of the enterprise according to environmental legislation,
- To provide support and advice on environmental issues related to the activities of the enterprise,
- To use natural resources efficiently.

It suggests that businesses need to balance four components to help green industries thrive: (1) enabling technological systems (2) an innovative and customized business model (3) an underpinning market adoption strategy, and (4) favorable government policies (Nair and Paulose, 2014): 176-177).

Green business strategies are also seen as an opportunity to reduce costs or save money (Karagülle, 2012: 457). Studies show that environmentally friendly company activities in the local context provide financial gains (Bıçakcıoğlu, Theoharakis, & Tanyeri, 2019: 58). Ullah et al. (2022) revealed that the impact of financial resources on green business strategy (environmental, social and economic) and competitive strategy (cost leadership and differentiation strategy) have a significant mediating role (Ullah et al., 2022:

15). It is seen that green business strategies are very effective in reducing costs and gaining competition strategies.

5. Green Business Strategy in Airport Environmental Management System

According to 2021 data, it is known that 41,820 airports (CIA) in the world cause environmental problems and solutions need to be developed. The 'Eco-Airport' project developed in Japan regarding the environmental problems of airports draws attention. Eco-Airport is an airport project that implements measures to protect the environment and produce a healthy environment in and around the airport. As an environmentally friendly eco-airport, it increases energy efficiency and reduces CO2 emissions. With these studies, the eco-airport aims to realize a low carbon society, a recycling-oriented society and a society intertwined with nature (TIAT, 2022). According to the project, the basic planning steps of Japan's Narita Airport as an environmentally friendly airport are shown in figure 2 (Oto, 2010: 1211).

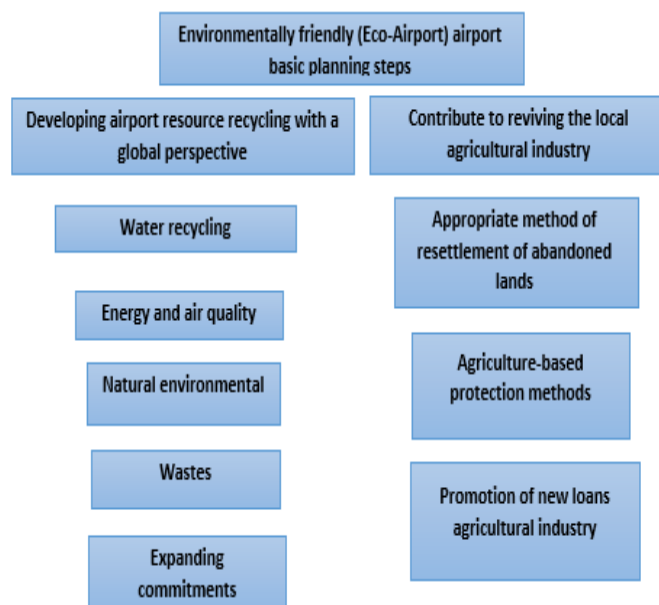


Figure 2: Eco-Airport Eco-Friendly Airport Basic Planning Steps: Narita Airport Example

Eco-airport airport contributes to lift the local agriculture industry while producing solutions to the environmental problems of airports from a global perspective. This project is important not only for the sector but also for the society to maintain a quality life. It also provides practical and ready-to-use information to support the development of airport infrastructure projects. In this direction, an eco-airport vision is created with the master plan and decisions that concern the whole society are taken. As seen in Figure 3, the eco-airport master plan deals with (1) community environment initiatives (2) resoure recycling initiatives (3) environment management (4) climate change initiatives that concern the whole world. The master plan aims, in collaboration with stakeholders, to take measures to reduce the environmental impact of airport operations on local communities and to pursue the development of a sustainable society by addressing environmental issues on a global scale (NAA, 2018).



Figure 3: Eco-Airport Master Plan

The fact that airports cause environmental problems is gaining importance day by day with the development of aviation. While the development of the industry is supported by governments and businesses, solutions are sought for environmental problems posed by growing or newly established airports. Environmental management techniques that will minimize the environmental impact of airports and increase the quality of life both locally and globally are discussed. Environmental issues covering various fields of expertise such as health, safety, energy, air and water quality, waste, noise and resource use control are recommended to be developed at airports (Korul, 2004: 113). In this study, it is explained that the green business strategy can be seen as an important alternative for the solution of airport environmental problems. With the green business strategy, it is possible to use resources effectively and to minimize the damage to the environment. It may be possible to reduce waste, consider the environment in energy use, protect the ecological balance, and create green workplace opportunities and conditions.

Considering the elements of green business strategies, it is important to integrate these elements with the airport environmental management system. The main elements of green business can be listed as follows (Çavuş and Tancı, 2013: 74-75).

- Preferring the use of renewable energy and raw material resources,
- Investing in environmentally friendly clean technologies,
- Reducing waste,
- Developing recovery and recycling processes and methods,
- To constantly review all activities of the enterprise, from the use of energy and raw materials to the ways of managing waste, in accordance with acceptable ecological indicators and compliance with environmental law, and make necessary corrections,
- To develop a green marketing approach, which aims to respond to the spread of green consumption awareness and the increasing expectations of the public within the framework of total quality understanding,
- To create green workplace and working conditions.

Integrating the green business strategy with airport environmental management systems can be recommended at the very beginning of the activities to eliminate or minimize environmental problems. Table 2 presents how the green

business strategy can be implemented in the airport environmental management system from the perspective of an airport operator.

Table 2. Green Business Strategy in Airport Environmental Management System

Airport Environmental Management System	Green Business Strategy
Noise Control Management	<ul style="list-style-type: none"> -Developing and supporting technologies that will provide noise control in aircraft operations -Construction and monitoring of the runways in a way that does not cause noise at the airport -Making and monitoring noise measurements -Airports should not be built inside city centers.
Water Pollution Control Management	<ul style="list-style-type: none"> -Reducing water use -Supporting innovative water waste technologies to recycle water -Recycling of rain water and wastewater for reuse within the terminal
Air Pollution Control Management	<ul style="list-style-type: none"> -Supporting the use of fuels that are less harmful to the environment -Carrying out activities for the protection of forest areas -Investing in clean technology (Dogan, 2018).
Waste Control Management	<ul style="list-style-type: none"> -Supporting the reduction of waste, the storage of materials that can be separated and reused, and the rapid disposal of waste that will not be used -Improving waste separation at source -Supporting recycling -Collection of construction waste for recycling (ICAO, 2022).
Energy Control Management	<ul style="list-style-type: none"> -Reducing energy consumption with passive design approaches -Using systems that will provide minimum energy consumption in energy-requiring systems -Using systems such as photovoltaic solar panels, trigeneration systems on roofs, -Preferring insulated materials and light colored materials for energy conservation on facades -Adoption of transparent design approaches in order to make the most of daylight and to establish visual contact with the outdoors (Çelik and Görgülü, 2021)
Bird Control	<ul style="list-style-type: none"> -Watching the movements of the birds -Eliminating food sources accessible to birds at airports
Environmental Awareness	<ul style="list-style-type: none"> -Supporting the use of sustainable, environmentally friendly and low-VOC materials

Unless the activities at the airports are completely stopped, it is not possible to talk about the elimination of environmental problems. But controlling these problems can only be possible by adopting green business practices by influential businesses in airport operations. Accordingly, the implementation of the

four effective components of the green business strategy in the airport environmental management system is essential. Activation of technological systems can be effective in water, air, energy control and waste management, especially in noise management. The innovative approach supported by the management should be adopted by the employees, and green practices should be integrated in business models and market strategies. It is not possible for the green business strategy to be effective in the airport environmental management system only with the actions of the businesses that carry out the airport activities. The government's environmental management policies may also be effective in carrying out these activities. In order for the government to protect natural resources and provide solutions to problems that threaten public health, they can set restrictions and rules on activities for businesses in the sector.

When green business strategies are applied in the success of airport environmental management systems, businesses can also use energy, air, water management, etc. can generate savings. Not only that, they can reduce the cost of capital assets (facilitating access to mutual funds) and workforce inputs (loyalty, performance improvement) (Yahya et al., 2022: 39501).

6. Conclusion

Airports cause environmental problems that can affect the entire ecosystem, especially the region where they are located. In other words, it is thought that green business strategies can be an alternative for airport environmental problems. Environmental problems in airport activities, which also cause global environmental effects, are taken under control by establishing an environmental management system within the airport. In order to understand the importance of the airport environmental management system and to implement it successfully, the green business strategy alternative has been evaluated. Green strategies are one of the most important environmental issues in business research. It is an important issue that what should be done in the good management of activities in airports in terms of noise pollution management, water, air, soil pollution management, waste management and energy management, or how businesses will successfully implement the airport environmental management system.

In this study, green business strategies are recommended for airports to achieve successful results in environmental management systems. Especially with the global climate crisis, it is emphasized that solutions for environmental problems should be produced all over the world, while airports are working to make themselves more environmentally friendly. In this direction, it will be effective to reduce energy consumption with the airport environmental management system, reduce the effects on water and air quality and reduce pollution, reduce waste, improve construction and project techniques, and reduce resources through green business strategies. A green business strategy will enable new practices in businesses that can provide a variety of opportunities to reduce costs, improve the airport's sustainable image, provide better access to communities and even positively impact socially connected activities in the region. In order to achieve this, actions and public policies should be prepared to support new technologies, promote environmental awareness, create a sustainable policy framework.

Ethical approval

Not applicable.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Cite this article: Şen, G., (2022). Can A Green Business Strategy Be An Alternative to the Success of the Airport Environmental Management System? *Journal of Aviation*, 6(2), 241-250.



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