



Airlines' Environmental Management System

A Case of: Egypt Air

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Abstract:

Mindful of the global recognition of aviation sustainability, this research aims at studying and evaluating the environmental management system (EMS) in Egypt Air towards enhancing the environmental performance of the company. Within this context, a questionnaire form was directed to the concerned official representatives in the company. It was concluded that Egypt Air must be more oriented to the EMS through advocating the scientific approaches of the concept.

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Introduction:

Globally, air travel has become a norm and routine for many types of tourists. Business travelers may increasingly rely on air connections, even to cover short distances, and a growing number of people may commute by air between their places of residence and work on a daily basis (Sigala et al., 2002). Social groups with children regularly fly on their own to visit their friends and relatives. Elderly people travel to warmer and drier climate for health care (Moscardo, 2006). Also, leisure travel frequently fly distant or peripheral destinations, often for short periods of time.

Since 1960s, air travel, the fastest growing transport sector, has turned from a luxury form of mobility for wealthy few into a contemporary form of hypermobility, which is considered a characteristic of industrialized societies. Hypermobility involves movements that are frequent in time and often long distance in space. This phenomenon has emerged with the growing network of airports facilitating global travel between two places as well as perceived low-fare airlines offering particularly in contrast to other means of transport (Peeters & Gossling, 2008).

Worldwide, air travel growth rates have been in the order of 5-6% yearly in the period 1970-2000. At the beginning of the 21st century about 2 billion people were traveling by air annually, by 2020 that figure is expected to have tripled, taking into accounting strong competition, lower air fares and improved networks (Richardson & Fulker, 2004). Consequently, air travel will continue to be one of the key factors in international long-haul tourism development.

On the other hand, air travel has increasingly significantly environmental consequences. According to Gale (2008), it is noted that air transport is the most environmentally harmful form of tourism with respect to climate change which results in specific threats to the most vital environments for tourism activities- coastal zones and mountain regions. These threats include erosion and flooding at the coast, loss of snow cover, an increased incidence of heat stress, and the spread of insect-borne diseases such as malaria and yellow fever to areas in which they had disappeared and disruption of flora and fauna. Such impacts will actually lead to displacement of demand for tourism as well as the limitation of tourism growth in the later part of this century (Stabler & Goodall, 2000).

Moreover, although aircrafts do not have the same impact on the chemical quality of the air as the motor car, its influence on the global warming is considerable (Richardson and Fluker, 2004). Global warming is the result of the increase in the effect of greenhouse gases (such as chlorofluorocarbons (CFCs, carbon dioxide, NO_x, water vapour and methane. One consequence of global warming is the negative effects it may have on tourism and the environments it occurs in (Yeoman, 2008). Examples include the reverses of the shape of seasonality with a growing demand for coolness in summer and leading to increased energy consumption for air conditioning, the greater the number of extreme weather events which could threaten tourism such as flooding, sand storms, droughts (Page&Connell, 2006).

Despite this, aviation sustainability is considered a difficult task. Fuel consumption per passenger km would have to be reduced by 80-90% to make the sector sustainable which can not be achieved by current aircraft flying at high cruise speeds and attitudes. Moreover, the



industry itself is not seriously engaged in developing hydrogen as an alternative fuel context which would certainly minimize air pollutants and enhance air quality (Peeters & Gossling, 2008).

In addition to its pollution concerns and crucial share in climate change, aviation is considered a main source of different problems related to noise, congestion and wastes (Cooper et al., 2005). Accordingly, due to the recognition of their responsibilities of the environmental pollution, many international airlines such a British Airways and Air France have been continuously implementing an EMS leading to the reduction of the environmental impact of air carriage in line with the ISO14001 Environmental Management Standard.

Kirk (2008) defined EMS as: "a part of the overall management system that includes the organizational structure, responsibilities, practices, procedures, processes, and resources, for determining and implementing the environmental policy".

The main elements of an EMS are: a written policy statement, a set of targets against which to measure progress, agreed specific actions and monitoring results against targets. Accordingly, an EMS starts at the highest level of the organization through a policy statement. Below this will be operational systems impact on the day-to-day management of all of the areas of the business. Achievements against targets will be measured against a regular audit of environmental performance (Kirk, 2008).

However, an EMS requires to be fed from a variety of sources including internal subsystems and the external environment. Some of these may be considered as 'tools' of environmental management which provide feedback. The EMS then responds to this feedback, i.e. the EMS needs norms to ensure that the environmental performance is improved over time. This may be achieved when the organization first assesses its own performance and then responds to that data by setting benchmarks (Shaw & Williams, 2002).

Egypt Air is one of the companies that have recently implemented an EMS. Egypt Air was established in May 1932. It was the seventh airline in the world. Throughout more than 78 years of services, the company has successfully extended its network to reach major destinations all over the world.

In July 2002, Egypt Air changed its structure into a holding company with nine subsidiaries: Egypt Air Airlines, Egypt Air Express, Egypt Air Cargo, Egypt Air Tourism (Karnak) and Duty Free, Egypt air Maintenance & engineering, Egypt Air Ground Services, Egypt Air In-Flight Services, Egypt air Medical Services, and Egypt Air Supplementary Industries. These nine subsidiaries play complementary roles in the services of the air transport industry.

On July 17th 2008, Egypt Air joined the star Alliance network, the largest airline alliance in the world, to offer its customers better flight connections and more comfortable travel. Egypt Air's membership to the Star Alliance network is unique in that it is the only airline that is based in North Africa and Middle East.

Nowadays, Egypt Air's fleet consists of 65 aircrafts and includes a mixture of a long, medium, and short haul as well as cargo aircrafts with an average age of 8 years. The fleet also includes



the latest generation of aircrafts: B777-300 ER, B777-200, A340, A320, A321, B737-800, B737-500, Embraer 170, and A300-600. It is planned to reach 72 aircrafts by the end of year 2014.

Research Problem:

Despite the rapid growth of air travel as one of the key factors in international long-haul tourism development, air travel has increasingly significant environmental consequences in regard to climate change, air quality, global warming, noise standards, fuel consumption.....etc. Only some few international airlines were concerned with the scientific implementation of EMS to control the negative impacts of aviation. On the other hand, many airlines are not seriously engaged in the system which represents a crucial threat to the health of humanity.

Research Objective:

Studying and evaluating the EMS in Egypt Air, one of the world's pioneer airlines and the flag carrier of Egypt, is the aim to stand over the strengths and weaknesses of the implementation of this system and the factors that affect the environmental performance of the company.

Research Methodology:

A structured questionnaire form was designed and used in conducting in-depth interviews with the Chairman of Egypt Air Airlines Company, General Manager of Safety, Quality and Environmental Department, Environmental Department Manager, and Environmental Department Consultant.

Results and Discussion:

In-depth Interview Analysis:

Egypt Air's Quality, Environmental Occupational Health and Safety Policy:

A company's policy should include specific and attainable goals and targets, including performance targets, and details of the arrangements for monitoring, control and communication. The policy should also clarify responsibilities (Greene, 2006).

Egypt Air's quality, environmental occupational health and safety policy is issued in 2010. Egypt Air committed to continually improve the effectiveness and efficiency of its Integrated Management System (IMS) through which it manages its selected resources for ensuring the continual satisfaction of its employees, customers, and other interested parties and to ensure the continual compliance with international, regional, national and air transportation industry legislation, regulations and requirements. Moreover Egypt Air ensures the preservation of the environment and improves the standards and levels of performance.



According to Kirk (2008), Egypt Air's policy should indicate the individuals who will be assigned with direct responsibility. In addition, it should indicate that an auditing programme will be set up to measure the implementation of the policy. Moreover, it must have a commitment to review the policy after a specified period.

Egypt Air's Environmental Objectives:

The findings revealed that 75% of the interviewees stated that the environmental objectives of the company summarized as follows;

- Enhancing flight operation standards and environmental techniques without comprising safety.
- Developing the environmental program towards greener flights by reducing its share in gases.
- Improving Air Traffic Management (ATM) through Egypt Air' continuous co-ordination with the international Aviation Organization (ICAO) and its Contracting States to mitigate environmental impact.

In addition to the above mentioned objectives 25% of the sample noted that the following objectives represent some of the main environmental objectives of the company:

- Optimizing day-to-day aircraft operation so that the ATM related environmental impact is minimized.
- Reducing noise and air emissions.

Although these objectives seem to be comprehensive, they are not useful. They must be as specific as possible, i.e. translated to a set of targets for a specific period of time (Kotler & Armstrong, 1999).

The Environmental Department at Egypt Air:

The interviewees noted that the history of the department returns back to 2002 when an environmental committee was formed including specialists in environment, economics, mass communication, forwarding and guidance fields. This committee was responsible of identifying different environmental problems (emissions, noise and wastes) related to airplanes, routes and airports. It was assured that no effective environmental management procedures have been undertaken till 2008 when the European Union (EU) issued its Emission Trading Scheme that determined certain financial punishments on airlines which contribute to that contribute to the enhancement of emissions on their routes to and/or over the European countries.

Accordingly, the committee began to undertake regular aircraft environmental analysis (every three months) which is submitted to each of the high administration of the company and the EU. A daily aircraft environmental analysis is considered to be undertaken by the beginning of 2011.



Recently, an environmental department has been included within the structure of the company. Although this department has not been activated yet, its responsibilities are identified as follows:

- Identifying the environmental objectives of the company.
- Suggesting environmental programs and their action plans.
- Executing the overall environmental policy of Egypt Air.
- Carrying out the environmental laws and legislative requirements.
- Measuring performance and outcomes.
- Setting the executive plans of employees' awareness and training programs
- Preparing regular documents about the company's environmental performance.
- Identifying different sources of environmental pollution.
- Analyzing the environmental complaints and recommendations quoted within the documents of the environmental auditing.

Egypt Air' Environmental Auditing:

The term 'audit' is usually associated with finance and a financial audit involves the application of rigid rules. By contrast, environmental audit (EA) is based on balancing of facts and values, rather than just on financial measures (Kirk, 2008).

EA is a voluntary exercise that different companies may undertake to assess how their activities affect the environment and how they can reduce this impact by making modifications to existing business practices. Accordingly, EA is to assess the performance against the prescribed targets related to inputs, process, and outputs. Such an audit of the whole organization must be carried out at regular intervals, feeding back internal information for control of the EMS (Wall and Mathieson, 2006).

Egypt Air, through a systematic environmental audit program, reports on its performance of environmental management system. Each department records its actions on a monthly basis and a report listing audit findings is provided to division managers who then prepare action plans to address the findings. The action plans are then reviewed and approved by senior managements and significant findings are reported to the directors. This system is considered an internal review of operations to verify environmental regulations.

It is quite obvious that the EA within Egypt Air is concerned with the nature of output systems, which are considered as waste. However, it is becoming increasingly clear that in order to manage the impact on the environment, it is crucial to consider not only the outputs, but also the inputs and processes. Moreover, Egypt air considers neither the indicators nor the targets which represent major input measures in the EA, as the company should discuss its effectiveness of managing its operations and services in regard to its environmental objectives (Kirk, 2008).



Noise reduction:

Psychological stress, high blood pressure and inappropriate life quality are usually associated with high noise levels. Noise pollution is a major environmental problem of aviation. Early tourist travel on turbo-prop and jet aircrafts generated a crucial impact during take-off, in flight and on landing. The most significant noise types are those generated in flight either by engines by engines or through the aircraft's movement (i.e. aircraft aerodynamics) (Page and Connell, 2006).

Technological innovation has reduced sound output in newer aircrafts in response to international conventions and legal requirements at specific airports. According to Richardson and Fluker (2004), noise annoyance resulted from today's aircrafts has been reduced by 75 percent due to their quieter engines which have significantly reduced the number of people affected by aircraft noise. It was noted that a 1960s Boeing 727 on take-off created a 'foot' print of noise which covered an area of more than 14 square km. In contrast a modern commercial jet of similar capacity but with greater take-off power, such as Airbus A-320, creates a 'noise footprint' covering only 1.5 square km. This is due to the addition of winglets and engine modifications which have yielded a quieter aircraft (Marshall, 1999).

Moreover, indirect attempts to control noise by altering flight procedures, reducing the number of night flights and implementing flight curfews have allowed those living near airports experience a decrease in annoying noise. Despite these developments, aircraft noise is virtually continuous for most of the day and much of the night due to the increase in the volume of aircraft landings and take-offs at many airports (Page and Connell, 2006).

Egypt Air is currently committed to reducing noise pollution generated by its aircrafts through undergoing different procedures summarized as follows:

- The phasing out of older aircrafts is one of reducing the noise impact in line with recent guidelines issued by countries abiding by International Civil Aviation Organization (ICAO) recommendations.
- The upgrading of the fleet in compliance with the company's environmental policy, programs and with the new aircrafts certified under international standards for lower noise categories.
- Egypt Air is applying the Balance Approach (BA) according to ICAO recommendations to control the output of the airline operation to make a limit for airplanes' noise and its environmental negative effects.
- All Egypt Air pilots follow Noise Abatement Departure Procedures (NADP) approved by the ICAO to attenuate the effects of jet engine exhaust noise that predominates on take off.
- Training courses are regularly organized to acknowledge Egypt Air pilots of the up-dated noise -level reduction procedures.



- Egypt Air was successfully able to make an agreement with Cairo Airport Operations of being assigned the nearest parking stands to the arrival halls which led to noise and emission reduction levels.

- The level of noise has been measured in the area around the airport in different times by day along the year to identify the noise levels of different Egypt Air aircrafts.

By applying these procedures and according to IATA report it is expected that the noise will be reduced by 50% during take off and landing by 2020.

Probably, the undergoing noise procedures are not to be offset by people moving closer to airports. Control of land use near airports is vital through sensitive developments. In this response, Egypt Air works with the Civil Aviation Organization through:

- Studying a plan for using the areas around the Egyptian airports which results in noise and emission reduction as well as the positive impacts on the inhabitants.
- A tree belt has already surrounded Cairo International Airport.
- A noise reduction program has been activated for all airport new buildings N: 1 and N: 2.
- The fuel station has been located inside the tarmac and away from the airport buildings.

In addition to the above mentioned procedures, operating instructions should be applied as restrictive measures preventing excessive noise caused by aircraft operation above places sensitive to noise (hospitals) or during a certain time (at night). Also, the operational procedures should be reviewed on a regular basis to identify opportunities of reducing noise impact (www.qatarairlines.com).

Fuel Rationalization:

Fuel management is the major concern to the aviation industry next to safety and customer satisfaction, as efficiency in fuel consumption benefits the airline as well as the environment (WTO, 2008). However, fuel management requires change management through a top down approach and a clear vision as well as the full buy-in at all levels in the organization.

Huang (2010) noted that fuel efficiency in the air has doubled over the last 20 years. Recent developments in aerospace technology, such as better engines and winglets at the end of the wings, have reduced the fuel consumption of air travel to 50% less than the previous generation of aircrafts. The newly released of jumbo aircrafts, such as Boeing 787 and the Airbus 380 (which have ever better engines and made of lighter materials) will result in about 70% more fuel efficient per passenger kilometer than planes of 40 years ago. Compared with today's aircraft, a 20% improvement in fuel efficiency has will be projected by 2015 (Richardson and Fluker, 2004).



It is noted that Egypt Air, in rationalizing fuel, uses fuel (jet A-1) the purest fuel with high density, slow evaporations and less negative environmental impacts at the high atmosphere layers when it burns.

Moreover, in order to rationalize the fuel consumption cost and protect the environment, Egypt Air works on substituting the Auxiliary Power Unit (APU) with its poor fuel efficiency, with Ground Power Unit (GPU) (IATA, 2001). So far, Egypt Air regulates the use of APU during aircrafts' take off and landing at both domestic and international journeys, as APU is turned on only five minutes before switching on the engines. Moreover, the APU is turned on at the arrival point till the GPU is connected and then it is switched off and turned on once more five minutes before the departure time.

In addition, Egypt Air created a dedicated fuel optimization committee which primary task is to identify ways on which the company's dependence on fossil is reduced through an integrated fuel management program. Accordingly the main responsibilities of this committee includes: procedures related to aircraft weight reduction, more efficient routings, new take-off and landing procedures and the progressive reliance of GPU instead of APU.

Moreover, this committee should adjust flight profile and flight attitude in air to maintain additional efficiencies. In addition, a specific fuel burn factor for each aircraft should be established through Aircraft Performance Monitoring (APM) which enables it to gauge fuel needs for each flight.

Noteworthy, fuel efficiency should also take place on ground through engine washing which became practical and eco-friendly. Washing an engine enhances its efficiency, reduces fuel burn which reduces carbon dioxide emissions. The Eco Power Engine Wash Service, offered through the Pratt and Whitney Global Service Partners Network, uses a system that captures and purifies the wash water, allowing it to be recycled and used for another wash greatly reducing the total amount of water used in the process (www.southwest.com).

Air Emissions Reduction:

With the increase in the volume of air traffic, more emissions of green house and other gases will enter the atmosphere (Conrady & Bakan, 2008). Aircraft emissions include carbon dioxide, water vapour, nitric oxide, nitrogen dioxide, sulphur oxide and soot. In 1992, aircrafts were responsible for about 2 percent of all human-included carbon dioxide emissions. They produce 2-3 percent of global man-made nitrogen dioxide emissions (Richardson and Fluker, 2004).

Although aircrafts are responsible for only a small amount of hazardous pollutants, missions have a greater impact because of the highly sensitive regions where they are emitted (Page and Connell, 2006). Emissions are released at 10-12 km height in the upper troposphere and lower stratosphere, where they have a larger impact on ozone, cloudiness and radiative forcing factor (results from the combination of carbon dioxide, nitrogen dioxide particles and water vapour particles). It is noted that the radiative forcing factor for aircrafts is two to four, while for rail, road and sea based it is near to one (Peeters and Gossling, 2008).



Broadly speaking, airlines aim at mitigating these impacts by investing in the aircraft fleet, meeting the ICAO standards on these emissions and improving the utilization of ground vehicles at airports (Janic, 2009).

In an attempt to reduce air emissions and reduce the environmental pollution, Egypt Air regularly upgrades its fleet. The following table represents Egypt Air's plan of its fleet upgrading from 2009/ 2010 to 2013/ 2014.

Table (1)
The Plan of Egypt Air's Fleet from
2009/ 2010 to 2013/ 2014

Type	2009/2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/2014
B777/ 200	3	0	0	0	0
B 777/ 300	2	6	6	6	6
AB 340	3	2	2	1	0
AB 320	13	13	11	9	9
AB 321	4	4	4	4	4
B 737-500	4	0	0	0	0
B737-800	4	4	4	4	4
B737-800 NOW	8	13	14	16	16
AB 330-200	7	7	7	7	7
AB 330-300	0	1	5	7	8
TOTAL	48	50	53	54	54

Source: Safety, Quality and Environmental Department, "Environmental Report", 2010.

From the above table, it could be noted that by 2014 Egypt Air will get rid of some of its aircrafts which enhance air emissions such as B 777/200, AB 340 and B 737-800. On the other hand, number of aircrafts with less air emissions will be increased such as AB 330-300, B 777/300 and B 737-800 NOW.



Also, Egypt Air carries out continuous efforts of reducing plane load through filling the plane water container up 75% for long haul flights and 50% for domestic flights. Also, through reducing the non important over load on flights from equipments such as food and beverage, fuel, newspapers and magazines. These result in fuel reduction, thus less air emissions.

Moreover, Egypt Air utilizes the route optimization unit by maintaining the official addressing with the Airport Company and Flight Navigation, as it corrected some of its internal flight routes to save time and reduce both fuel consumption and air emissions.

Waste Management:

According to Novak (2010), 75 percent of the waste generated by airlines could be recycled. Despite this, statistics show that only 20 percent of the waste is recycled. Examples of airlines ranked best to worst in recycling are: Delta Airlines, Virgin America, Virgin Atlantic and Southwest Airlines.

Generally speaking, airlines' approach to managing waste revolves around the principle of reducing, reusing, recycling and responsible disposal.

It is noted that airlines throw away enough aluminium cans can build 58 Boeing 747 jets. Without a comprehensive program in place, recyclables like aluminium, glass, plastic and paper continue to fill our landfills. But recyclables waste is not the only issue. Every airline provides over-packaged snacks and meals and they are not working with manufacturers to minimize it (Stone, 2010).

The interviewees noted that some actions have been directed towards the rationalization of paper consumption within the company that can be summarized as follows:

- Flight Operation Manual (FOM) of some airplane types has been changed from the paper system to electronic system which saves around 476000\$ yearly which represent costs of manual forms.
- Actions of the rationalization project of navigator manual have already taken place which are expected to save around one million euro per year.
- Egypt Air has introduced E-ticket system (electronic ticket) that most of the international airlines have already worked with to save a big amount disposable paper.
- Mileage application for loyal passengers had been put into Horas Magazine which is issued every three months to save papers.

Noteworthy, Egypt Air is taking positive steps to reduce the amount of paper used within the company. On the other hand, Egypt Air should promote the reuse of products in their current form. This includes using the item again (such as furniture, blankets and mobile phones) for the same function it was originally designed or for new-life reuse where it is used for a different function. Moreover, recycling opportunities may represent in many guises such as plastic cups and lids, paper beverage cups, newspapers, and printer and photocopier paper (www.britishairways.com).



Water Savings:

Fresh water is becoming increasingly scarce, and conservation and control of water consumption must be a high priority to all airlines. This is accomplished by assessing current performance through conducting a water use audit which relates the measure of water consumption to the time of year and the airline's level of business and gives a detailed evaluation of efficiency. The performance is then compared with previous figures for the airline or those of other airline businesses (Kirk, 2008).

As previously mentioned, Egypt Air fills the plane water container up 75% for long haul flights and 50% for domestic flights. This is considered the company's only action concerned with water savings.

Several efforts should be undertaken either in air or on ground to implement water savings, including (www.corporate.airfrance.com):

- Low flow water saving plumbing for replacement and in new facilities.
- Auto shut off water faucets for replacement and in new facilities.
- Meeting Leadership in Energy and Environmental Design (LEED) standards for efficient water use at many of the new facilities.
- Landscaping with native and drought tolerant plants.
- Recycling the water used in the company's engine wash program.

Procedures Overcoming the Difficulties of EMS Implementation in Egypt Air:

The interviewees assured that the implementation of EMS within the company faces many difficulties represented in the lack of the environmental awareness among the company's employees, in addition to the high resistance of maintaining environmental programs within the company. To overcome this, 50% of the interviews agreed that the company has undertaken different procedures represented as follows:

- Egypt Air has already engaged in training courses since 2005 to all employees at the managerial and technical levels to enhance their awareness of environmental protection and rationalization of resource and energy use. Total number of the stakeholders of these programs has reached 130 employees till June 2010.
- Pilots are obliged to fulfill training courses concerned with noise reduction procedures during take off and landing.
- A plan was set to train pilots, air hostesses and cabin stewards by the beginning of 2011 about the different procedures of air emission reduction and water savings.



In addition, the other 50% of the sample noted that the following procedures have already been carried out within the company to enhance EMS implementation:

- Actions have been carried out through the company's sales to aware travelers about the importance of lessening the plane load and handbags' weight.
- In 2007, Egypt Air signed a contract with the IATA green team about executing a technical program concerned with the rationalization of fuel consumption.
- An agreement between Egypt Air holding company and Ministry of Environment has been signed to enhance the employees' environmental experiences, carry out environmental training programs, exchange scientific references and undertake studies related to air pollutants, noise reduction and water savings.

Conclusion:

Although air travel is considered the fastest growing transport sector especially in long-haul tourism, it is the most environmental harm form of tourism with respect to climate change and global warming. Moreover, aviation is considered a main source of different problems relayed to noise, wastes, and fuel consumption. The key challenge to minimize air travel's harmful environmental consequences, is to advocate an EMS within airline companies. Many international airlines such as British Airways and Air France have achieved successful steps in the implementation of an EMS leading to the reduction of the environmental impact of air carriage in line with the ISO 14001.

Mindful of its remarkable significance, Egypt Air has recently introduced the EMS within its overall management system. Despite this, the scientific concept of EMS has not been implemented yet. Although the environment is considered one of the main components of Egypt air's policy, the policy statement neglects crucial key factors of the EMS. The objectives of the EMS are so board that they are quite immeasurable.

The findings indicate that positive actions of the environmental management have been undertaken. A new environmental department has recently included within the structure of the company with different environmental tasks, among which is to monitor and analyze the environmental performance of Egypt Air. Serious reasonable steps have been achieved in the fields of: fuel rationalization and air emissions. Moreover, different training courses are frequently carried out to enhance at the managerial and technical levels. On the other hand, Egypt Air suffers from the deficiency of the EA. Procedures of waste management are inadequate. Finally, the efficiency of the organized training courses, especially those directed to the pilots are unmeasured.

Recommendations:



Based on the results achieved, some suggested recommendations about enhancing the EMS at Egypt Air are illustrated as following:

- Setting up an auditing programme to analyze the implementation of the policy and facilitate the periodical review of it.
- Identifying a set of measurable environmental targets to evaluate the environmental performance of the company.
- Activating the role of the environmental department at Egypt Air to undertake efficiently its environmental responsibilities.
- Reviewing the operational procedures on a regular basis to identify the opportunities of reducing noise impact.
- Establishing a specific fuel burn factor for each aircraft through the APM to gauge the fuel needs for each flight.
- Managing Fuel consumption on ground through engine washing to enhance its efficiency.
- Directing some actions towards reusing and recycling the company's products to activate Egypt Air's waste management like recycling plastic cups and lids, paper beverage cups, and newspapers.
- Measuring the efficiency of the organized training courses on the employees' environmental awareness and performance
- Undertaking more serious efforts to implement water savings either in air or on ground such as auto shut off faucets and low flow water saving plumbing.
- Implementing creative procedures to recover or minimize the environmental pollution resulted from the company's aircrafts.



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نظام الادارة البيئية بشركات الطيران دراسة حالة: شركة مصر للطيران

أصبح النقل الجوي وسيلة نقل أساسية للعديد من الشرائح المختلفة للسائحين على مستوى العالم نتيجة للعديد من العوامل من أهمها: التوسع في خطوط الطيران العالمية و انخفاض أسعار الطيران في كثير من الأحيان.

بناء على ذلك، وصل عدد مستخدمي الطيران مع بداية القرن الحادي عشر الى حوالي ٢ بليون مسافر سنويا، لذا من المتوقع أن يستمر النقل الجوي كأحد العوامل الرئيسية المؤثرة في الرحلات السياحية طويلة المدى.

وبالرغم من ذلك، فهناك العديد من الآثار البيئية السلبية للنقل الجوي من أهمها: التغيرات المناخية، تدمير المناطق السياحية شديدة الحساسية، التلوث السمعي.....الخ. الأمر الذي يتطلب ضرورة اتباع نظم علمية لإدارة البيئة بشركات الطيران للحد من التأثيرات السلبية للنقل الجوي في مختلف المجالات.

و لقد اعتمد هذا البحث على اجراء المقابلات الشخصية مع عدد من المسؤولين بشركة مصر للطيران للوقوف على أوجه القوة و الضعف في الادارة البيئية بالشركة و ذلك فيما يختص بالعديد من المجالات مثل: الضوضاء، عوادم الطائرات، استخدام البترول، ادارة المخلفات، ترشيد المياه.....الخ.

و لقد خلصت الدراسة الى أن نظام الادارة البيئية بشركة مصر للطيران يفتقر الى العديد من المفاهيم العلمية و خاصة فيما يتعلق بالسياسة البيئية للشركة، و نظم الرقابة البيئية، و ترشيد المياه، و ادارة المخلفات.

ولقد أوصت الدراسة بضرورة اعداد برنامج لضمان الرقابة السليمة لنظم ادارة البيئة بالشركة، و مراجعة النظم البيئية بصورة مستمرة، و وضع بعض الأهداف البيئية المحددة، و كذلك تفعيل ادارة البيئة مما يساهم بصورة فعالة في تطبيق النظم العلمية السليمة، فضلا عن التوسع في نظم ادارة المخلفات بالشركة.

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