Abstract

Green Airport: An Environmental Management of Suvarnabhumi Airport, Thailand

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Air transport is a major transportation channel of mankind contributing to globalization and world economic growth. Yet, the operation of airline transportation operations inevitably generates serious impacts on the environment which is needed to be addressed. The international airports have set their own policies, goals, and action plans to deal with the environmental problems. Green airport is one of the environmental concepts and marketing strategies applied for achieving sustainability in a competitive world. The objective of this study is to understand the opinions regarding environmental management of the airport staffs including airport and airlines managers/staffs working in areas related to environmental management in Suvarnabhumi Airport in Bangkok, Thailand. A questionnaire survey was used to gather the information of the opinions and attitudes of airport and airlines managers/staffs toward environmental management. The results show that staff/managers mostly have a positive and supportive attitude regarding environmental management, and believe that airports can play an important role in environmental protection as well as that having a good environmental management system also supports the effective airport operation and images. The finding implies that age, position, and length of experience had a significant relationship with the level of environmental management and practices. When testing a relationship between the level of environmental management and practices and the building of image and reputation, a significantly positive relationship was found. This study also reveals that the AOT with the collaboration with government should take a more roles and intentions to develop environmental management system in Suvarnabhumi Airport.

Introduction

Statement of Problem

Air transport has been considered as a major contribution to globalization and world economic growth. Thailand is one of the important hubs for aviation and air transportation and logistics in the world. In 2015, the ASEAN community has officially launched supporting air transportation and logistics among ASEAN countries (NESDB 2016). Not only the operation consume resources and energy but also release wastes or unwanted things causing different kinds of pollution such as air pollution, noise pollution, water pollution, and waste, all of which has a serious impact on the environment (Mayor & Tol, 2009; Lassen, 2010; Cowper-Smith & de Grosbois, 2011). Projected air travel growth in coming decades has made corporate environmental management a particularly important issue for the airline transportation sector (Lynes & Dredge, 2006). In 2007, the International Air Transport Association (IATA) put forward the Four-Pillar Strategy to deal with these impacts. The strategy encourages all parties including airports, airlines, aircraft and engine manufactures, air traffic controllers, airports, and other stakeholders in a major effort related to environmental performance with the hope to achieve carbon-neutral growth in 2020 (IATA, 2007).

In terms of environmental management, leading airport and airlines worldwide have set its own policies, goals, and action plans on environmental management. The Airport of Thailand (AOT) has also proceeded according to the AOT's Sustainability Master Plan by integrating the strategic roles of airports with the identity of surrounding communities, including the community development projects to respond to its role in social and environmental responsibility and create mutual value for all stakeholders to achieve the corporate citizenship airport concept (AOT, 2019). Likewise, the Thai Airways International, the national airline of Thailand, have also been implementing various projects and activities to demonstrate socio-environmental responsibility under the scope of Sustainable Development Goals (SDGs). Recognizing

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Full Paper Proceeding OMMSP-2020, Vol. 3, 18-27

ISBN: 978-969-670-861-3

environmental impacts arising from its business, THAI improved business conduct to be more environmental friendly through key projects like operation efficiency improvement, organization carbon footprint, and participation in the T-VER project to voluntarily reduce greenhouse gas emissions by Thailand's standard. In addition, customer and investor expectations and demands have led to the promotion of environmental management as a competitive strategy of product differentiation for airlines and airports. It is compulsory that the international airlines operate across many countries and must comply with local environmental regulations wherever they do business. Environmental protection has become an important part of corporate social responsibility (Johnstone & Labonne, 2009; Li et al., 2003; El-Mobaidh et al., 2006; Gössling et al., 2009).

Suvarnabhumi Airport is an international airport serving Bangkok, Thailand covering an area of about 8000 acres (3300 ha). It is managed by the Airport of Thailand Public Company Limited (AOT), which has an agreement with the government granting it all businesses, rights, assets and staff, and liabilities. The airport site is geographically located in Racha Thewa in BangPhli district, Samut Prakan Province. It was officially opened for limited domestic flight services on 15 September 2006, and for most domestic and all international commercial flights on 28 September of the same year (Limlomwongse-Suksmith & Nitivattananon, 2015). Suvarnabhumi is one of the busiest airports in the world revealing that the number of air traffic in 2018 were 369,476 flights accommodating 63,379,077 passengers. About 1,494,599 tons of freight and mail were operated in this airport. The airport is a main hub for four Thai airlines namely Airways International, Bangkok Airways, Thai Smile Airways (AOT, 2019).

Most research works focused on customers' satisfaction and marketing. However, there is relatively little understanding on the attitudes of airline and airport managers/staff on environmental management.

Objective of Study

This study explores to fill this gap by examining managerial views of environmental management issues and practices in Suvarnabhumi Airport, Bangkok, Thailand.

H1: The level of environmental practice does not influence by managers/staff's profile.

H2: The level of building image and reputation is influenced by the level of environmental practice.

Research Questions

1. What is the level of environmental practices of managers/staff ?

2. How environmental practice supports the airport's sustainability in terms of building image and reputation?

Definition of terms

Environmental Management refers to the developmental policy on environmental and impacts management, is a part of facility management and social responsibility.

Environmental Practice refers to activities or implementation conducted aiming to reduce environmental impacts and problems.

Building Image and Reputation means the development and maintenance of image and reputation of the airport.

Sustainability refers to the ability of Suvarnabhumi Airport to be sustainable and adaptable to changes and impacts.

Significant of study

This research aimed to find out how the level of environmental practice relates to the building of image and reputation and this research also suggests how to improve them.

Literature Review

Environmental Management

Environmental management refers to a continuous process adopted through management decisions, by which an organization's activities are monitored and appropriate programs and initiatives devised to reduce the negative impacts on the environment (Mensah, 2006). Environmental management is the process of taking steps, procedures, and behaviors to protect, enhance or reduce an organization's impact on the environment. Some have equated environmental management with Environmental Management Systems (EMS). EMS is a corporate approach based on auditing procedures, similar to the *Plan-Do-Check-Act* model of quality management, which involves setting objectives, measurable targets, a detailed program and a monitoring and evaluation process (Mensah, 2006; Chan & Hawkins, 2012). The objective of EMS is to achieve a firm's continual improvement of its environmental behavior and performance (Massoud et al., 2010).

Motivations for Promoting Environmental Management

A number of reasons have been identified to explain why businesses participate in voluntary environmental initiatives. Miller (2001) investigated factors influencing environmental responsibility among tour operators in the United Kingdom and identified five major drivers: industry structure, legal requirements, market advantage/negative public relations, long-term cost savings, and moral obligation. Quazi et al. (2001) identified eight possible factors for predicting the motivation of companies to adopt ISO 14001 (Environmental Management System): cost savings, top management concern, employee welfare, meeting environmental regulations, meeting customer expectations, concern over trade barriers, following head office environmental practices, and gaining competitive advantages. In the airline context, Lynes & Dredge (2006) interviewed top management of Scandinavian Airlines to identify the factors that shaped an airline's commitment to environmental management. These primary drivers are: the financial cost-benefit of environmental management, the regulatory setting, the desire to be a 'good corporate citizen', airline image, and relationships with the aviation community.

In view of the mentioned literature, the motivations for organizations to promote environmental management can be broadly classified into four main categories: the market drivers (e.g., green consumerism, cost reduction advantage), social drivers (e.g., community pressure, employee expectations), financial drivers (e.g., insurance coverage, financial damages), and regulatory drivers (e.g., environmental regulations, public disclosure requirements) (Bansal & Howard, 1997). Although a variety of motivations have been identified, it must be noted that the reasons to promote environmental management may be industry dependent, which relies on the nature of the decision that needs to be made (Lynes & Dredge, 2006; Zutshi & Sohal, 2004).

Obstacles to Implementing Environmental Management

Massoud et al. (2010) assessed the factors influencing the implementation of ISO 14001 in the food industry in Lebanon. The results revealed that the primary barriers to adopting ISO 14001 included: lack of government support and incentives, benefits of certification are not clear or justifiable, the certification is not required legally, and the absence of customer demand. Zutshi & Sohal (2004) summarized the barriers experienced by organizations when implementing environmental management as follows: cost consideration, lack of support and resources,

unclear guidelines for environmental management implementation, lack of set guidelines for setting of objectives and targets, lack of guidelines on how to accomplish continuous improvement, and interpretation of terms present within the standard. Kasim (2007) investigated the barriers to implement environmental management in the hotel sector of Penang, Malaysia. The author identified three major barriers: the nature of Malaysia's tourism industry and hotel sector, the lack of physical infrastructure support, and lack of conviction about corporate environmentalism.

Green marketing helps boost brand image and reputation

public awareness on the consumption of green products begins with a level of concerning to the environment which is indicated by their smarts attitude to purchase green products selectively and their efforts to help reducing the impact of environmental degradation (Poltarykhin et al., 2018). Adoption new strategies, adaptation to new development issues help companies create more benefits through meeting their customers' satisfaction on green products and green environment (Yusuf et al., 2014). Additionally, the companies that adopt

issues on green products and environment directly or indirectly helped themselves caring environmental issues which lead them adjusting their marketing strategies and educating public to increase their awareness in loving green products, keeping environmental health and having good understanding on green products and its benefits. Green marketing activities involve the effort of the companies in developing, differentiating, innovating and promoting products to meet customer needs and preferences without causing damage to the environment (Chen, 2010).

Consumer perception on environmentally friendly marketing activities is a crucial need in maintaining the company's image and reputation (Haery et al., 2013). The reputation of green companies impacts to increasing the company's positive image in conducting its business and meeting its social responsibility. Widyastuti & Santoso (2016) justifies that companies as producers carry out their business do not think to produce more benefit products in terms material profit only, but it must also take high care to environmental aspects in their production process, and research to a disposal of product waste.

Corporate Social Responsibility does not occur on a single line but it must be based on the triple bottom line since a single line will only reflect the financial condition of the company. Meanwhile, companies are

not only demanded financial value interests only but also social and environmental values. Financial condition is not enough to guarantee the value of the company to growth sustainable (Chow & Chen, 2012). Companies must be directed to be a model that integrates social, economic and environmental dimensions in their business. The community will resist a company when it does not deem paying attention to social, economic and environmental

aspects. Therefore, the implementation of CSR provides many benefits for the company, especially to maintain and improve the company's brand image. A company's reputation would be sabotaged by its way of producing a destructive products both in the form environmental careless, environmental degradation, and the rights of customers do not completely meet.

Methodology

This research used the descriptive quantitative method using questionnaire and interview as the research instruments for data collection.

Participant

This study involved participants samples of two groups of populations i.e. thirty administrative staff of the airports in Thailand, eighty-nine representatives of the airlines operated in Thailand who are working in Suvarnabhumi airport in Thailand. The sample size was determined by using Taro Yamane's formula with 95% confidence level.

Instrument

The instrument used in this research are divided into the following

1. The questionnaire consisted of three parts:
   1.1 The questions related with general information, concerned demographic information of respondents including gender, age, nationality, civil status, educational attainment, position, length of experience, monthly income.
   1.2 The questions related to environmental management and practices in Suvarnabhumi Airport.
   1.3 The questions related to the building of image and reputation.

The research methodology was divided into 3 steps below:

1. Select sample group by purposive sample method. The sample group came from 30 managers and 89 airlines representatives who are working in Suvarnabhumi Airport, Thailand
2. Develop the research instrument which were two types of questionnaire and interview.
3. Collect data and analyze the data obtained from the questionnaires and interviews from key informants.

Research Framework

Data Analysis

The data was processed according to the following steps. The measurement of calculating for average and standard deviation was done by using a computer program and the questionnaire was designed with the Five – point Likert scale for the respondents to their level of engagement with the given interpretation as the followings the score of 4.50 – 5.00 means highest level, 3.50 – 4.49 means high level, 2.50 – 3.49 means medium level, 1.50 – 2.49 means low level, 1.00 – 1.49 means the lowest level.

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Table1

Demographic Characteristics of Participants

No.	Variables	Demographic Data	Frequency (f)	Percent (%)
1	Gender	Male	75	63.03
		Female	44	36.97
		Total	119	100.00
2	Age	Below 25 years	35	29.41
		25 – 35	45	37.82
		36 – 45	12	10.08
		46 – 55	8	6.72
		Total	119	100.00
3	Nationality	Thai	112	94.12
		Foreigner	7	5.88
		Total	119	100.00
4	Civil Status	Single	65	54.62
		Married	52	43.70
		Divorced/Separated	2	1.68
		Widowed	0	0.00
		Total	119	100.00
5	Educational Attainment	Below Bachelor's degree	12	10.08
		Bachelor's degree	67	56.30
		Master's degree	40	33.61
		Total	119	100.00
6	Position	Manager	35	29.41
		Staff	84	70.59
		Total	119	100.00
7	Length of experience	Below 1 years	14	11.76
		1 – 5 years	92	77.31
		6 – 10 years	5	4.20
		Over 10 years	8	6.72
		Total	119	100.00
8	Monthly Income	Below 25,000 baht	79	66.39
		25,000-55,000 baht	32	26.89
		55,001-85,000 baht	7	5.88
		Above 100,000 baht	1	0.84
		Total	119	100.00

According to Table-1, the sample group consisted of 75 male (63.3%) and 44 female (36.97%) respondents and most of them were in the age range of 25 – 35 years old (37.82%) followed by new graduates who have the age of below 25 years. The majority of respondents was Thai (94.12%) while foreigners were only in small proportion (5.88%). Most of them were single (54.62%) while 43.70% were married. Most respondents hold bachelor's degree (56.30%) followed by Master's degree (33.61%) and about 10% had a high school or professional certificate. Most respondents were staffs and practitioners (70.59%) and only 30% were managers with the experience length of 1 – 5 years (77.31%). The monthly income varies by the positions and the length of experiences, most of them have their monthly income below 25,000 baht. (66.39%).

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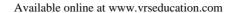
ISBN: 978-969-670-861-3

Table2 Level of environmental management and practice in Suvarnabhumi Airport

Environmental Management and Practice	Mean	S.D.	Interpretation
1. Having a clear environmental plan and policies and those policies and plans are related and up-to-date with the international standard.	4.38	0.59	High
2. Having a unit or organization to deal with environmental management as well as environmental impact mitigation.	4.62	0.63	Highest
3. Developing/allocating green areas in the airport of both indoor and outdoor.	3.80	0.57	High
4. Promoting the effective utilization and waste reduction.	3.92	0.53	High
5. Having a program to increase environmental awareness and perception to staff and passengers.	4.19	0.52	High
6. Having an environmental audit system to monitor the effectiveness of environmental	4.03	0.69	High

Environmental Management and Practice	Mean	S.D.	Interpretation
management plan and policies.			
7. Promote the use of technology to deal with current environmental problem.	4.00	0.71	High
8. Having a public relation unit to communicate with the surrounding communities who have the impacts of aviation.	3.97	0.65	High
9. Having and maintain the environmental facilities such as waste collecting/recycling system, wastewater management system etc.	3.95	0.71	High
10. Regulate the environmental implementation to comply with the national/international environmental standards.	3.86	0.67	High
Overall	**4.07**	**0.62**	**High**

Table 3 Opinion on the building of image and reputation of Suvarnabhumi Airport

Building of image and reputation	Mean	S.D.	Interpretation
1. The airport is	4.98	0.47	Highest

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well-known internationally.			
2. The airport is recognized and satisfied with corporate customers and passengers.	3.91	1.69	High
3. The airport is recognized as the top airport in the world.	4.12	0.78	High
4. The airport's reputation in social media becomes positive.	3.98	1.50	High
5. The airport receives various awards.	4.25	0.748	High
Overall	**4.248**	**0.94**	**High**

The Table-2 above presents the item mean ratings on the level of environmental management and practices of Suvarnabhumi Airport. Most respondents agreed that the environmental management and practices of Suvarnabhumi Airport still in a high level with an overall score of 4.07 (SD = 0.63). The point that was rated with the highest score was that the airport has a unit or organization to deal with environmental management as well as environmental impact mitigation. However, several points were still rated with relatively low score include: (1) developing/allocating green areas in the airport of both indoor and outdoor (Mean = 3.80; SD = 0.57).; (2) promoting the effective utilization and waste reduction(Mean = 3.92; SD = 0.53); (3) having a public relation unit to communicate with the surrounding communities who have the impacts of aviation (Mean = 3.97; SD = 0.65); (4) having and maintain the environmental facilities such as waste collecting/recycling system, wastewater management system etc. (Mean = 3.95; SD = 0.71); and (5)

regulate the environmental implementation to comply with the national/international environmental standards (Mean = 3.86; SD = 0.67).

In terms of the opinion on the building of image and reputation of Suvarnabhumi Airport, we found that almost of the respondents realized that Suvarnabhumi Airport is well-known international due to the size of its airport and the importance as the important hub for air transportation in Thailand and Asia. However, the respondents were still concerning to some points especially the satisfaction of customers and passengers and the airport's reputation in social media. The overall score of airport image and reputation was 4.248 (SD = 0.94).

Results of Hypothesis Testing

Table 4

The regression analysis of respondent's profile toward the level of environmental management and practice in Suvarnabhumi Airport

Variables	Beta	t-value	t-prob
Gender	-.087	-1.325	.082
Age	.152	-1.665*	.049
Nationality	.024	.345	.852
Civil Status	-.001	-.499	.105
Educational Attainment	-.001	-.801	.582
Position	.098	.317*	.009
Length of Experience	-.152	-1.995*	.047
Monthly Income	.721	-.150	.199

MultR = .198 F-ratio = 2.919*

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ISBN: 978-969-670-861-3

RSq = .097   F-prob = .001   *singificant at 0.05

The Table-3 shows the analytical results from the multiple linear regression analysis which was tested according to profile of respondents toward level of environmental management and practices. It was found that only 9.7% of total variation can be explained in this model (R-Square=0.097). However, the remaining 90.3% could be influenced by some factors which were not considered in this study. When considering each single variable, three variables including Age (Beta = .152; t-value = -1.665; p<0.05), Length of Experience (Beta = -.152; t-value = -1.995; p<0.05), and Position (Beta = .098; t-value =.317; p<0.05), were statistically significant at .05 confidence level. This finding implies that age, position, and length of experience had a significant relationship with the level of environmental management and practices. When testing a relationship between the level of environmental management and practices and the building of image and reputation, a significantly positive relationship was found (Beta = .279; t-value = .512; p<0.05).

Finding

This study explores to understand the attitudes regarding environmental management of managers and staff in Suvarnabhumi Airport. The research results show that the respondents generally believed that senior managers at airline companies recognize the trend towards environmental protection and strongly support the promotion of environmental management. In an overall picture, Suvarnabhumi Airport has actively implemented a range of environmental and carbon reduction measures and have achieved some initial results as well as social-cooperated responsibility. However, it seems that Thailand has not yet established special environmental regulations for the airlines resulting in that the airlines itself has a lack of local policy framework to guide environmental management, and they can only concentrate their efforts on complying with international norms. Hence, policy makers and regulatory agencies should take a leading role in proving relevant laws and regulations for the airlines to follow.
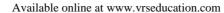
The results clearly showed that the environmental practices is a key driver to build up the airport's image and reputation. Respondents state that the most salient drivers to motivate their airports to promote environmental management are "improving company image", "reducing harm to the environment", and "fulfilling corporate social responsibility", followed by "complying with environmental regulations" and "beneficial to sustainable operations". However, the respondents believe that the main obstacles to the development of environmental management are insufficient government grants, subsidies, and incentives, investment capital too high, and inadequate aviation environmental regulations, followed by unclear benefits, pressure from consumers not large, and insufficient company expertise.

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