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Barriers to a Low Carbon Society in an Academic Community:

A Quasi-Experimental Study at Rajamangla University of Technology, Thailand

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ABSTRACT

As an exceedingly knowledgeable community that lacks commitment and support, the leaders of the university have attempted to promote a green society by various means, i.e. multimedia infographics and workshops. A study was conducted of the barriers to implementing a low carbon society among the students as well as the academic and administrative staff at Rajamangala University of Technology Rattanakosin, Salaya Thailand. This was done with a quasi-experimental study to understand the potential barriers implementing a low carbon society in an academic setting. A quasi-experiment was done due to resource constraints. The information required by this study was gained through a structured questionnaire. Some design variables were tested in the sample of 200 of the 400 eligible participants. No randomization was done as the attributes of the participants were similar. We used a t-test and ANOVA analysis to test our hypothesis. A Weighted Average Index (WAI) was employed to evaluate the barriers that likely affect the implementation of a low carbon society. It was found that a majority of the participants were women, accounting for 56.50% of the population while males were 43.50%. Members of the academic community exhibited no significant differences in their contributions to the university's inability to implement a low carbon society with a level of significance of 0.05. The participants perceived that an effective low carbon society would be accomplished if it was practiced from childhood as part of their learning process. In this way, it would become a mainstream practice as part of a school curriculum with the goal of instilling good citizenship in the students. Strong support from the university's top management will make low carbon society practices habitual in our academic community.

Keywords: *low carbon society, academic community, environment, learning process*

ABBREVIATIONS

EMMs	*Environmental Management Measures*
FGD	*Focus Group Discussion*
GDP	*Gross Domestic Product*
LCS	*Low Carbon Society*
RMUTR	*Rajamangala University of Technology Rattanakosin*

BACKGROUND OF THE STUDY

A low carbon society is one of the strategies to cope with the global increase of greenhouse gases through reduction of carbon emissions that stem from anthropogenic behaviors (Permana and Aziz, 2016). The increase of carbon emissions along with other greenhouse gases are believed to be one of the main causes of climate change (Smith, 2006). The low carbon society concepts encourage people to change their behavior and adopt low carbon lifestyles, although some sacrifices will be necessary in the post-adaptation process. The purpose of a low carbon society is to reduce the amount of greenhouse gases in the atmosphere, resulting in cleaner air and mitigating climate change (MOE, 2007). At the city level, Environmental Management Measures (EMMs) are a common approach to support low carbon society strategies by integrating the EMMs into city policies (Potipituk and Permana, 2014; Permana et al.,2015. If a concerted effort is made than an awareness of the benefits of a low carbon society can be fostered in all levels of society; at an individual's level, community, city, country level and eventually the global level. Thus, a low carbon society addresses both, the various lifestyle strategies of individuals and addresses government policies at national levels. Global protocols can be established (Skea and Nishioka, 2008; Shukla et al., 2011).

This study focuses on a low carbon society within a distinguished community. An academic community is a specific group due to its significant differences from the community at large in terms of level of education and opportunities. By their present advantages and opportunities, they can also be a change agent and role model as communities might replicate the academic community's behavior and attitudes towards this particular matter. Therefore, it is important to understand and gauge levels of awareness to improve methods of implementing a low carbon society within an academic community, and the community at large, to drive voluntary behavioral changes that address climate change. Since they are a role model for the community at large, changing their behavior will have multiplier impacts.

Thailand is a country that has had rapid industrial development amid an agrarian society (Nidhiritdhikrai, Vivanpatarakij and Wangjiraniran, 2013). In Thailand, there are 272,521 tonnes of CO_2 equivalent emissions are generated by an economy that has a USD 16,310 per capita GDP (IMF, 2016). Thailand generates greenhouse gases, particularly methane, from its agricultural practices and carbon from industrial and manufacturing processes.With these industries, Thailand has been ranked as one of the top 25 developing countries in the release of greenhouse gases (NESDB, 2012).

The Thai government realized this issue and launched campaigns to reduce carbon emissions in conjunction with promulgating effective policies and launching pilot projects. For example, in 2002, Thailand ratified the Kyoto Protocol that reflected the government's commitment to reducing carbon emissions. The goal of these campaigns is to reduce the release of carbon equivalent emissions by 1540% by 2020. One of the campaigns uses public relations to foster people's awareness of climate change and the other key environment issues. For this purpose, the Thai government set a national policy to manage climate change (NESDB, 2012). Still, most Thai people are not fully aware of the issues and ignore recommendations dealing with urban environmental management.They have not changed their behavior to reduce greenhouse gases (Nidhiritdhikrai, Vivanpatarakij and Wangjiraniran, 2013). These campaigns are important to generate high awareness and voluntarily cooperation that will result in reduced greenhouse gas emissions from anthropogenic activities.

Immediate action should be taken. At this stage, mainstreaming policies and adjustment of lifestyles must be done simultaneously. Thais are unaware and do not understand how to modify their behavior and lifestyles to minimize carbon emissions. Therefore, they do not contribute to the reduction of greenhouse gas emissions. A concerted effort among Thais from different levels of society, including academia, would have significant impact on emissions reduction. Accordingly, there would be a better environment and a higher quality of life. Additionally, changing lifestyles to include low carbon emissions can reduce energy costs and demand for resources (Amin, 2009).

A low carbon society within an academic society is essential in the sense that it can be a change agent in the country. Thus, policies to engage academia must be in place prior to implementing large scale programs for carbon emissions reduction. Chomaitong (2014) asserted that providing policies and other necessary support from the top management of the faculty and university for a low carbon society, in a clear and comprehensive manner, could lead to substantial reduction of carbon emissions.It will also promote savings of resources and energy and thereby lead to reduced costs. For example, budgets for office supplies can likely be reduced. Additionally, a low carbon society may be promoted through public relations, training, and study visits (UNEP, 2009). Moreover, as experience is gained, increasing skills could reduce the costs of running a university (Timlett and Williams,2008).

The Faculty of Architecture and Design, Rajamangala University of Technology, Rattanakosin, is aware of this issue.It is willing to contribute to the reduction of carbon emission by creating an effective low carbon society within its jurisdiction. For this purpose, the university focuses on environmental management.It attempts to influence human behavior to reduce greenhouse gases. However, prior to establishing an effective low carbon society, it is necessary to understand level of awareness of community members, their expectations and priorities regarding a low carbon society. Thus, this study was undertaken.

The research was carried out at the Faculty of Architecture and Design, Rajamangala University of Technology Rattanakosin (RMUTR), Thailand. RMUT Rattanakosin is one of the public universities under the Thai Ministry of Education. The selection of this university was for practical purposes since one of the researchers is a faculty member. It has a high degree of similarity to other Thai academic communities with respect to the social culture of the community.The results of this study are expected to represent Thai universities as a whole.

RESEARCH OBJECTIVES

The objectives of this research were: (1) to understand the awareness, attitudes, responsibilities and views of an academic community with respect to a low carbon society, (2) to find the barriers to implementation of a low carbon society, and (3) to formulate practical guidelines for implementing a low carbon society in an academic community.

METHODOLOGY

Considering a manageable sample size of participants amid limited resources, a suitable method for this study is quasi-experimental research. Thus randomization, a key component of conventional research, was absent from the current study. Rather the participants were selected based upon their availability to be interviewed and/or to complete a questionnaire, since the probability of being selected as arespondent was 50%. The participants were lecturers, researchers, administrators and students. The total number of potential participants in this study was 400 people, while 200 participants were selected (p=0.5). Key components of a questionnaire were used to acquire data about the participants' awareness, views and perceived barriers to the current practices of a low carbon society. The quasi-experiment study was done for a shorttime while a true experiment would require a full cycle of observation and monitoring.

The sample consisted of 50 lecturers/researchers, 10 staff/management employees, and 140 students. Data analysis was done in three parts; an analysis of the general attributes of the participants, hypothesis testing, and barriers analysis to implementing a low carbon society.

Part one used a computer program to analyze the attribute data to determine the numbers and percentages of each group of participants. Part two involved hypothesis testing using the ttest statistic for two groups of variables. ANOVA statistics was used for variables that had more than two with a significance level of 95%. Part three was an analysis of the data acquired by the questionnaire employing a Weighted Average Index (WAI) to find the barriers to implementing a low carbon society at the Faculty of Architecture and Design.

RESULTS

The survey first assessed participants' basic knowledge about a low carbon society. This was to determine if the participants had a fundamental understanding of the concepts. There is an assumption that if participants do not understand the concept, they will not be able to participate in a low carbon society. Then, a very strong effort to awaken the academic society would be needed. The questionnaires indicated that 78% of the respondents did not have a basic knowledge

concerning low carbon societies. It is possible that they were unaware that they actually engaged in some practices that generated a low carbon society. Furthermore, the staffs' work behavior, students' learning activities and lecturers' teaching activities were not compatible with low carbon practices. Thus, it is necessary to promote awareness and encourage low carbon practices.

The leaders of RMUTR pledged to create a low carbon campus through implementing systems for a low carbon society.The knowledge and practices of all in the RMUTR academic community is an essential ingredient of this process. Encouraging the academic community to change their attitudes about greenhouse gas emissions should be done gradually. Learning the barriers constraining a low carbon society can help to find the solutions to the problems. Finally, the lecturers, staff and students will have to change some of their behaviors to become an effective low carbon society.

This study is expected to find some of the impediments and their solutions. Subsequently, lecturers, staff, and students will be able to practice an effective low carbon society. Becoming a low carbon campus also promotes the image of RMUTR in the global academic community. Once established, these practices can be horizontally transferred to the larger community over time.

Determining the Potential Barriers

To determine the various barriers of implementing a low carbon society in this academic community, a focus group discussion (FGD) involving lecturers and some excellent students was organized prior to the full-scale study. The brainstorming session was conducted in two phases to reduce lengthy discussion and criticism. The first phase was to determine various factors that could be categorized as barriers (from very strong to very weak barriers). During this phase of discussion, a the group welcomed wild ideas and withheld criticism.

In the second phase, the FGD attempted to reorder the potential barriers uncovered in the first phase to identify very strong and significant barriers.This distillation process was simplified to avoid lengthy discussions. The results identified only a few barriers.Thus, the questionnaire investigated these few, significant barriers. The identified barriers from the FGD are shown in Table 1.

Table 1: Barriers identified by FGD

First Phase (Brainstorming Session: Welcome Wild Ideas and Withhold Criticism)	Second Phase (Improve Ideas Session)
1. No role model on LCS	1. Lacks financial support to organize LCS
2. Teaching and research consume a lot of time	2. Lacks environmental awareness
3. Lacks financial support	3. Insufficient knowledge and experiential practices onLCS
4. No clear guidelines	4. LCS is not a priority
5. LCS has no strong impacts on GHG	5. Insufficient management within the university for a LCSto flourish
6. Lacks environmental awareness	
7. Students have no leisure time	
8. Insufficient knowledge and experiential practices in alow carbon society	
9. Needs support from the university	
10. Not a priority	
11. Infrequent awareness campaign within campus	
12. Insufficient management within the university	

The FGD managed to identify some potential barriers during the first phase, but at the end of first session, the floor agreed to forward only 12 potential barriers**.** In the second phase, these 12 potential barriers were further reduced to five**.**

Key Attributes of the Participants

Since the participants were not chosen randomly, their selection was designed to represent the population of each category of participants including their gender.No category of participants had any significant difference with respect to gender as shown in Table 2.

Hypotheses Testing

Two hypotheses were offered to enhance the outcomes of the study. This study hypothesized that the participants had different levels of adoption of the practices of a low carbon society. In order to understand the way people in an academic setting adjust their way of living to develop a low carbon community Hypothesis 1 is put forth: (Table 3)

Ho: The academic community, i.e.,lecturers, staff, and students have very highly differentiated adaptation approaches to low carbon society practices varying by their ages

H1: Reject Ho

Analysis of hypothesis 1 revealed that there are not significant differences in the adaptation approaches across the ages of the participants, as shown in Table 3. From this table, it is confirmed that only the <20 and 31-40 years old age groups (mean diff.=0.583, sig.=0.078), and the 21-30 and 31-40 years old age groups (mean diff.=0.372, sig.=0.375) had significant difference in their approach to a low carbon society. The other age groups showed no differences overall, particularly the 41-50 and 51-60 age groups (mean diff.=0.015, sig.=1.000). The 31-40 age group is a unique since these people are in a transitional age and are still developing. Thus, they are in a position that allows them the liberty to be different from other age groups. People in the <20 year old age group were mostly students and therefore had a slim choice to be different. The 21-30 year old age group is a mix

Table 2: Proportion of participants ineach category

			Participants		**Total**
			Male	**Female**	
Participants	Lecturer	Count	18*	32*	50
		% of Total	9.0%	16.0%	25.0%
	Staff	Count	2*	8*	10
		% of Total	1.0%	4.0%	5.0%
	Student	Count	67*	73*	140
		% of Total	33.5%	36.5%	70.0%
Total		Count	87	113	200
		% of Total	43.5%	56.5%	100.0%

*Participants whose column proportions do not differ significantly from each other at the 0.05 level.

Table 3: Post hoc age group comparison of adaptation approaches to a LCS

Tukey HSD

(I) Participants	(J) Participants	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
< 20 years old	21-30 years old	-0.211	0.160	0.680	-0.65	0.23
	31-40 years old	-0.583	0.226	0.078	-1.21	0.04
	41-50 years old	-0.358	0.241	0.571	-1.02	0.30
	51-60 years old	-0.343	0.283	0.744	-1.12	0.44
21-30 years old	< 20 years old	0.211	0.160	0.680	-0.23	0.65
	31-40 years old	-0.372	0.207	0.375	-0.94	0.20
	41-50 years old	-0.147	0.222	0.964	-0.76	0.47
	51-60 years old	-0.132	0.267	0.988	-0.87	0.60
31-40 years old	< 20 years old	0.583	0.226	0.078	-0.04	1.21
	21-30 years old	0.372	0.207	0.375	-0.20	0.94
	41-50 years old	0.225	0.274	0.924	-0.53	0.98
	51-60 years old	0.240	0.311	0.938	-0.62	1.10
41-50 years old	< 20 years old	0.358	0.241	0.571	-0.30	1.02
	21-30 years old	0.147	0.222	0.964	-0.47	0.76
	31-40 years old	-0.225	0.274	0.924	-0.98	0.53
	51-60 years old	0.015	0.322	1.000	-0.87	0.90
51-60 years old	< 20 years old	0.343	0.283	0.744	-0.44	1.12
	21-30 years old	0.132	0.267	0.988	-0.60	0.87
	31-40 years old	-0.240	0.311	0.938	-1.10	0.62
	41-50 years old	-0.015	0.322	1.000	-0.90	0.87

of students and entry level professionals.They are unlikely to hold divergent views for the same reason. The 41-50 and 51-60 year olds are in a stable career and have usually have firm and established opinions.

Conclusion on Hypothesis 1: Reject Ho and accept H1.

In terms of gender of the participants, the following hypothesis was offered (hypothesis 2):

> Ho: The academic community, i.e.,lecturers, staff, and students, have very highly differentiated adaptation approaches with respect to gender to a low carbon society practices

H1: Reject Ho

With respect to gender, the analysis revealed that there was no significant difference in the adoption of low carbon society practices (sig.<0.05, male=4.09±0.996, and female=4.41±0.820). There appears to be no gender issues in the Thai academic community concerning low carbon society efforts. Further post hoc analysis could not be done as the number of groups was fewer than three. The ANOVA test for the male and female participants on the adaptation towards a low carbon society is shown in Table 4.

Conclusion on Hypothesis 2: Reject Ho and accept H1.

This study also attempted to clarify the differences in the adoption of LCS practices across the participant categories. To accomplish this, hypothesis 3 was offered: (Table 5)

> Ho: The academic community, i.e.,lecturers, staff, and students, have very highly differentiated adoption approaches to low carbon society practices across the category.
>
> H1: Reject Ho

Analysis found that there was no significant difference between lecturer and staff categories of participants in their adoption of a low carbon society (mean diff.=0.120, sig.=0.922). This finding can be explained by the stability of particpants' values and views on an issue that is important to their society, as well as their submission and loyalty to government programs. If a low carbon society can be regarded as a government program that is good for the society, these groups in the academic community will be supportive.

On Hypothesis 3, Ho was rejected, and H1was accepted.

Table 4: ANOVA test of male and female participants

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	4.881	1	4.881	6.020	0.015
Within Groups	160.539	198	0.811		
Total	165.420	199			

Table 5: Post hoc analysis of the category of participants comparison on adoption approach to LCS

Tukey HSD

(I) Category	**(J) Category**	**Mean Difference (I-J)**	**Std. Error**	**Sig.**	**95% Confidence Interval**	
					Lower Bound	**Upper Bound**
Lecturer	Staff	-0.120	0.313	0.922	-0.86	0.62
	Student	0.309	0.149	0.098	-0.04	0.66
Staff	Lecturer	0.120	0.313	0.922	-0.62	0.86
	Student	0.429	0.296	0.318	-0.27	1.13
Student	Lecturer	-0.309	0.149	0.098	-0.66	0.04
	Staff	-0.429	0.296	0.318	-1.13	0.27

Alternatively, there was significant difference between the lecturer and student categories of participants (mean diff.=0.309, sig.=0.098). It is interesting that students had different views and attitudes about a low carbon society. Usually, the views of students are similar to those of their lecturers. However, this was not the case as students and lecturers' views were different. This issue also reflects the liberty of students to act independently of their mentors.

In this case, Ho was accepted.

There were insignificant differences in the approaches to a low carbon society across age, gender and categories within the academic community.Thai universities have a potential power to develop a sustainable low carbon campus and a low carbon society. However, potential barriers have to be addressed to pave the way. Further analysis of the barriers is required.

Table 6: Weighted average (WA) of barriers

		Statistic	Bootstrap[a]			
			Bias	Std. Error	95% Confidence Interval	
					Lower	Upper
WA - Lacks support	N	490	0	0	490	490
	Mean	0.5686	-0.0002	0.0075	0.5531	0.5837
	Std. Deviation	0.15728	0.00022	0.00451	0.14919	0.16626
WA - Insufficient Management	N	490	0	0	490	490
	Mean	0.5792	-0.0001	0.0081	0.5629	0.5959
	Std. Deviation	0.16901	0.00023	0.00449	0.15960	0.17814
WA - Not a priority, social barrier	N	490	0	0	490	490
	Mean	0.6918	0.0001	0.0084	0.6739	0.7061
	Std. Deviation	0.19549	0.00036	0.00428	0.18622	0.20410
WA - Lacks environmental awareness	N	490	0	0	490	490
	Mean	0.6588	-0.0001	0.0081	0.6421	0.6735
	Std. Deviation	0.18975	0.00028	0.00422	0.18054	0.19851
WA - Insufficient knowledge/technology	N	490	0	0	490	490
	Mean	0.6286	-0.0005	0.0083	0.6135	0.6441
	Std. Deviation	0.18369	0.00021	0.00422	0.17656	0.19327
Valid N	N	490	0	0	490	490

a. Unless otherwise noted, bootstrap results are based on 200 bootstrap samples
b. Note: Weighted Average (WA): 0–0.20 = very low; 0.21–0.40 = low; 0.41–0.60 = moderate; 0.61–0.80 = high; 0.81–1 = very high

Analysis on barriers that resulted in a low-carbon society

As shown in Table 1, during the FGD session potential barriers were discussed that could hamper developing a low carbon society. The barriers were identified by the group as: lack of financial support to organize a LCS, lack of environmental awareness, insufficient knowledge and experiential practices in a LCS, a LCS is not a priority at the current time, and insufficient management within the university to enable a LCS to flourish.

In Table 6, the values and attributes of each barrier were based on a five scale group scale of 0-0.20:very low,0.21-0.40:low,0.41-0.60:moderate,0.61-0.80:high, and 0.81-1.0:very high. The scale was arbitrarily chosen considering its suitability for the analysis. The barriers were weighted by the frequency that the participants discussed them. The bootstrapping was carried out to determine whether the barriers' scale was reliable by evaluating the bias. Table 6 shows that the biases were insignificant, i.e.,0.000±0.0000 for all barriers. Thus, the values are reliable.

Financial Barrier

Lack of financial support (WA=0.5686±0.15728, in Table 6) was identified as one of the barriers to allow for acarbon society, and carries moderate impact. Surprisingly, lack of financial support was perceived as the lowest weighted average among the five barriers. While money is an essential resource, it is perhaps legitimate to say that in a Thai academic society, the aphorism 'everything needs money but money is not everything' is definitely reasonable. Considering this, subsequent actions by the university should be directed towards providing sufficient financial support to effectively implement a low carbon society, including providing an activity-based budget and guidelines for essential practices. Revisiting and simplifying project approval associated with a low carbon society is necessary. There needs to be a budget provision to support the training of lecturers, staff, and student to enable them to work towards a low carbon society. The objectives of the project are reduced costs for resources and office tools. The community at large will look to academia as a role model. It therefore requires full support from the government to establish academia as a change agent of a low carbon.

Managerial Barrier

The managerial barrier shows a weighted average value of 0.5792±0.16901 (Table 6). It is the second lowest value as perceived by the respondents. It also reflects a moderate impact towards a low carbon society. The managerial barrier was designed to cover the following aspects:

(1) the way university drives the academic community towards a low carbon society
(2) the attention of the university's top administration, i.e.,President, Vice Presidents Deans, Heads of the Departments
(3) the availability of clear guidance and direction in the way to develop a low carbon society within an academic community
(4) periodical campaigns promoting a low carbon campus and society. The respondents did not consider the managerial barrier a serious barrier.

However, it leads the university to address its shortcomings in achieving its goal. Some faculties have unclear policies to support low carbon practices. Furthermore, the existing overall environmental management system in the university was not able to lead the way to becoming a low carbon society. The high commitment of the university's top administration to a low carbon society is a key factor for successful implementation of a low carbon society within the university.

Social barriers

The social barrier refers to the reflections of an academic on their communication for successfully implementing a low carbon society. They feel that the realization of a low carbon society is too distant in the future to accomplish. This feeling was reflected by the respondents, for the WA for social barrier accounts was 0.6918±0.19549. This reflects a high impact. Therefore, mainstreaming the low carbon society concept into university's policy is necessary. Embedding the sentiment of a proud academic society with a low carbon footprint and a sustainable or green campus could, perhaps, avoid the sentiment of 'it's not my business' or 'not a priority'. Communication within academia must be intensified with the university and faculty's vision of a low carbon society.

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Lack of environmental awareness

Environmental awareness is a fundamental concept prior to awareness of a low carbon society. It is normally valid that people with high environmental awareness would also have high awareness of a low carbon society they carries similar messages about the environment. Lack of environmental awareness was perceived as 0.6588±0.18975. It is considered as a high impact on the implementation of a low carbon society. People's daily attitude towards sustainability often reflects their lack of environmental awareness of a low carbon framework. For instance, turning on/off the air-conditioners when it is unnecessary is one such behavior. Setting the temperature of air-conditioners without thinking of the number of the users in classrooms or offices is a poor practice. Turning the lights off after finishing classes or work and using non-motorized transport within campus and destinations within walking distance are good practices. An environmentally aware person always considers the carbon footprint of their lifestyle. The Weighted Average on environmental awareness was at high level, but the level of their implementation was low. All efforts for successful implementation of a low carbon society must be carried out in an 'at-all-cost manner' because high awareness is actually in place. The remaining issue is to uncover this shielded awareness.

Knowledge Barrier

Insufficient knowledge and skills with existing technology associated with a low carbon society is an impediment to its implementation in an academic society. It was surprising that from the questionnaire, that 78%of the respondents did not really know the basic definition of a low carbon society. They identified only knew that a low carbon society is a way to save energy. It is true that saving energy is a goal of a low carbon society. However, a low carbon society is not only about energy savings. The barrier of lack of knowledge about technology accounted for a score of 0.6286±0.18369 and was considered a high impact on developing a low carbon society. Within the social environment, the academia is usually a reference for the rest of society. A knowledge barrier should not exist in an academic society.

DISCUSSION

First and foremost, the study revealed that most of the respondents were unable to give a basic definition of a low carbon society. They had a 'it's none-of-my-business attitude' about a low carbon society. It can also be said that the low carbon society concepts are not really popular in the academic society of Thai universities, or at least at Rajamangala University of Technology. However, they know the activities associated with a low carbon society. Even though they could not offer a good definition they already apply some of its practices.

The study also assessed the differentiation of the approaches of the respondents based on age and gender. There were no significant differences on these bases. An academic society is homogeneous community in general. This also reflects the potential power of academia as a role model or a change agent for a low carbon society, since they are one of the most trustworthy groups within the community at large (McKena and Boughey, 2014; Cownie, 2014). The homogeneity of an academic society was empirically shown (Ben-David and Zloczower, 1962;(Bourguignon, 1973; Halliday, 1992; and Robertson, 1995). The researchers therefore, subscribe to this school of thought.

This study identified five potential barriers to development of a low carbon society; financial, managerial, social barriers as well as a lack of environmental awareness and technical knowledge. The academic society considered the financial and managerial aspects as the two lowest barriers to the accomplishment of a low carbon society. Alternatively, the social barrier, lack of environmental awareness and lack of knowledge were considered the three highest barriers in this regard. The top management of the university may promote the implementation of a low carbon society at the university level by improving its knowledge, increasing awareness and providing policies that drive the academic community towards its goal. This is in accordance with the study by Potipituk and Permana (2014), who argued that to increase awareness of lecturers, staff, and students of the environment, they must first integrate and mainstream the awareness aspect as part of the curriculum of the study at very early age, e.g.,primary schools. Using this approach, a low carbon society could be accomplished in a more systematic manner.

Chomaitong (2014)asserted that providing clear and widely disseminated policies and potential support from the faculty and university administrators of a low carbon society policy could substantially promote its implementation. It will lead to savings of resources, saving energy, and finally reducing costs. Providing information about the low carbon society concept can promote learning (NEMA,2009). Moreover, increasing skills and gaining experience can reduce managerial costs (Timlett and Williams,2008).

CONCLUSIONS

A low carbon society is a necessity in the current global community. For the broader part of society the academic community serves as a role model They are trusted and are knowledgeable about new things such as the low carbon society concept. This study targeted an academic society in particular, since it has the power to be a change agent in the community and country.

Additionally, the researchers admit that the study remains incomplete due to the sample being small. It cannot reflect the overall attitude of society. Hence, further study is necessary. A side-by-side comparison would enrich an understanding of the aspects that encourages a community of people who operationalize low carbon lifestyles in their daily life. A prerequisite for an effective low carbon society is the presence of strong but doable policies and guidelines for the society.

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