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Editorial Notes

From the desk of Chief Editor: the International Journal of Built Environment and Sustainability

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All praises belong to God. Finally, we are able to publish the very first publication of the International Journal of Built Environment and Sustainability. Thank you to all colleagues who have been supporting the establishment of this Journal. The International Journal of Built Environment and Sustainability, or in short, the IJBES, is the elevated version of Journal Alam Bina. At that time, Faculty of Built Environment, Universiti Teknologi Malaysia managed Journal Alam Bina. However, because of some difficulties, the Journal Alam Bina discontinued to publish in 2008.

The IJBES, on the other hand, is a fully open online journal with a mission to share the knowledge among the academic colleagues and practitioners in the field of built environment and sustainability. For this purpose, the IJBES accepts the responsibilities to promote in a synergistic manner the advancement of the sciences of built environment and sustainability with all academic colleagues and professionals, the region. By this majestic mission, we invited many academic colleagues and professionals from Australia, Japan, Korea, United Kingdom, Bangladesh, Indonesia, Nigeria, Thailand and host country, Malaysia. We asked them to foster the advent of built environment and sustainability sciences synergistically through the IJBES.

We pleased them to be the editorial board members of the IJBES without offering any financial benefits to them, and they accepted the offer eagerly because of their conscience and concern. Their optimism reflected in their acceptance to work beyond his/her roles as an editorial board member. During the absence of online submission system, in which the reviewers are difficult to contact, they voluntarily accept the additional roles to be a reviewer. We are indebted to all colleagues for his/her idealism and altruism to foster the advancement of scientific knowledge.

Let me briefly explain the plan of the IJBES. We establish the IJBES with practically no financial capital and gain but idealism and concern. We believe that idealism can overtake other factors towards our goals. By this notion, the online journal system that we are presently developing

uses Open Journal System. We impose no publication fee. We use no hardcopy, thus minimize footprint to our environment. The persons in the IJBES secretariat are all volunteers. However, we guarantee our professionalism and enthusiasm. We are working towards indexing in Scopus or any recognized indexing systems. We will publish as many as issues we can publish while maintaining quality of the papers. Peer reviewed articles will be our fundamental policy in the IJBES. Let us move forward promoting our scientific knowledge by publishing quality papers.

In this issue, we publish ten peer-reviewed articles out of twenty articles we received. Four articles were originated from Bangladesh, Indonesia, Japan and Thailand, and six articles were from the Universiti Teknologi Malaysia (UTM), Universiti Sains Malaysia (USM), Universiti Malaya (UM), Universiti Malaysia Kelantan (UMK) and International Islamic University of Malaysia (IIUM).

Finally, we would like to thank all colleagues who directly or indirectly support the establishment of the IJBES.

Johor Bahru, Malaysia 30 October 2014.

Roslan Amirudin

Chief Editor, IJBES

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Barriers to the Implementation of Environmental Management Measures in the Operation of Shop-House Enterprises in Bangkok Metropolitan Area

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ABSTRACT

Shop-house enterprises in Bangkok Metropolitan have so far been the best alternative of the citizens to earn income. At the same time, these enterprises also generate negative environmental and health consequences. While facing this dilemmatic situation, the implementation of environmental management measures (EMMs) to deal with environmental and health impacts generated by the enterprises is not presently practical. We identified some potential barriers. However, which one is the most influencing barrier to EMMs we must identify it. The study attempts to understand perceptions of different group of randomly selected stakeholders on the most influencing barriers given fourteen potential barriers to EMMs in Bangkok Metropolitan. The analysis shows that there are four essential barriers as perceived by the stakeholders that needs in-depth attention for the practical application of EMMs. By these critical barriers, policies should be directed to cope appropriately with the issues to accomplish better performance of shop-house enterprises in terms of environment and health.

1. Introduction

A shop-house is a building type that has the characteristics of both native and unique to urban areas of Southeast Asia (Kullathamyothin, 2006). This hybrid building form characterizes not only the historical centers of most towns and cities in the region but also newly developed arena including real estate development. Shop-houses are a remarkable feature of the architecture of many Southeast Asian cities including Bangkok, Phnom Penh, Vientiane, Hanoi and Ho Chi Minh City. We categorized some shop-house enterprises as part of an informal or unregulated economy. This enterprise is an unorganized sector with uncontrolled employment. A reliable classification of these enterprises is offered to facilitate a clear and unambiguous understanding of shop-house enterprises. The classification focuses on two criteria. These are: scale of enterprises and status of enterprises. Shop-house enterprises have more informal characteristics than formal characteristics.

Shop-house enterprises are likely to become more important, particularly in developing countries because of their roles in the informal economy. While their successes can significantly contribute to sustainable economic development, the large number of shop-house enterprises or micro-enterprises will also carry substantial environmental impacts because they are primarily located within or in proximity to residential areas. Their effects on the environment can be critical. For example, micro-enterprises may cause local pollution and land use conflict (Frijns and Van Vliet, 1999). Additionally, planning

and other regulatory systems are rarely hospitable to micro-enterprises. There are good reasons for researchers to examine the untreated outputs of these shop-house enterprises or micro-enterprises because their successes can contribute significantly to the sustainability of economic growth and development.

As discussed above, shop-house enterprises have more informal than formal characteristics. The informal-formal sector dichotomy has been used as a conventional method of analyzing the structure of urban economies (Amin et al., 2006). The sample can be used to comprehend environmental and health impact of enterprises and their activities. Large scale industrial activities are primarily responsible for the majority of the pollution load and risk. Therefore, attention has not been focused on micro and small scale enterprises and their environmental performances (Frijns and Van Vliet, 1999). In short, micro-enterprises do not receive much attention in terms of policies. Small and medium enterprises (SMEs) are put on the economic development strategies (Ayanda, 2011). In contrast, micro-enterprises are supported separately as mean of earning subsistence incomes, especially in the current economic difficulties. There is no doubt that micro-enterprises also contribute to environmental pollution because infrastructure and mechanism do not support adequately and appropriately to deal with the pollutants. Some particular people criticize them as they produce liquid effluents, solid wastes, and air pollutants. They create smoke, noxious odors as well as toxic contaminants and discharge them into public drains, nearby land, water bodies, etc. (Frijns and Van Vliet, 1999).

Studies have shown that the informal sector can have positive economic impacts as well as negative environmental effects particularly on pollution control and waste management. Despite positive contribution of the informal sector to the creation of job opportunities, the informal sector can also be a pollution generator (Perera and Amin, 1996). The environmental pollution could then be the strongest negative impact of micro-enterprises as well.

The adverse impacts, i.e. environmental pollution and health hazards, are frequently cited to be reasons to control the informal sector and home-based enterprises (Perera and Amin, 1996). The informal sector can be a bigger polluter than the formal sector (Omuta, 1986; Sethuraman and Ahmed, 1992; Perera and Amin, 1996; Potipituk and Perera, 2013). Operate at home, enterprises can create dangerous conditions in what Sethuraman (1981) calls ramshackle, hazardous and visually intrusive sheds setup on spare land that are occupied by so many informal enterprises. Micro-enterprises indiscriminately use hazardous and inflammable substances, such as dyes, disinfectants and detergents, turning benign residential areas into unpleasant places replete with dangers and shedding pollution into the urban environment (Tipple, 2005a).

In the case of the use of shop-houses in Thailand, one of the pertinent examples associated with shop-house policy, is the Building Regulation Act of 1979. The Act specifies the purpose of dual function shop-houses that is primarily residential with minor commercial use. The Act allows residents to do activities such as cooking, sewing, selling drinks and foods. However, no industrial or small factory could be operated within shop-houses. In short, the authorities restrict shop houses from engaging in most commercial or industrial activities. If a resident wants these regulations waived to use a shop-house for a commercial purpose or light enterprise, she/he must get approval from the local authorities prior to engaging in this activity. However, Hameed and Raemaekers (1999) identified a range of reasons that command and control measures like permissions are ineffective. They asserted that unmanageably high rates of urbanization, incomplete legislation, and uncoordinated planning and pollution control are the main factors leading to weak regulation. In Thailand, when people construct shop-houses for residential, commercial and industrial purposes they must submit different applications to various authorities to obtain permission. These agencies include, among others, the Social Security Office, Department of Industrial Promotion, the local administration organization. It is a lengthy and time-consuming process. The loose coordination and cooperation among the authorities further aggravated the problem. People then resist submitting the required applications and operate without authorization. As a result, pollution from shop-house enterprises goes uncontrolled.

Pollution control or any efforts of environmental protection are principally carried out to internalize the effects of pollution. An insightful concept to deal with this environmental impact is environmental management measures (EMMs). The use of EMMs is presently almost entirely limited to the formal sector in the formal economy while informal sector does not formally receive the same attention. It is part of the dichotomy between the formal and informal sectors. The difference is glaringly present when comparing formal and informal work environments. In the context of living environments, this contrast has long been present, for instance, between squatter or slum settlements and housing of the affluent (Amin et al., 2006). The urban squatters, usually, create social and environmental impacts, and slum settlements generate urban decay and can, therefore, create adverse environmental impacts as well.

In Thailand, the Bangkok Metropolitan, the capital city, is the largest economic entity and population center of the country. Another face of Bangkok completely exhibits the phenomenon of the formal-informal dichotomy, where the formal economy entirely meets informal economy at the same arena. This dichotomous event sometimes generates symbiotic mutualism that benefited for both the industry and the authorities particularly Bangkok Metropolitan Administration. However, amid loose coordination and insufficient policies on the informal sector, the Bangkok Metropolitan Administration Authority receives the environmental consequences generated by informal sector activities. There are presently limited rules on shop-house enterprises in Bangkok Metropolitan. Table 1 briefly describes the present building & environmental regulations and gaps on shop-house enterprises in Bangkok Metropolitan.

Table 1: The present building and environmental laws and regulations of Bangkok Metropolitan Administration

Regulatory Framework	Possible Gaps
The Building and Environment regulation No.55/1999 prescribes that shop-houses for the purpose of commercial and industrial activities must be approved by local authorities prior to operation. They must not operate in harmful and hazardous manner.	Home-based manufacturing and service activities use no explicit regulations on the buildings
The objective of the Building and Environment Regulations No.55/1999 is to ensure the safety and security for residents and neighborhoods	Although only micro-scale businesses are allowed to operate in shop-houses by city government, but operation of manufacturing and service activities are commonly found. The regulation does not correctly accommodate the present needs.

The effectiveness of existing EMMs to deal with the formal-informal dichotomy in the Bangkok Metropolitan Area remains unclear. This study attempts to recognize the formal-informal dichotomy of shop-house enterprises, which are the one operating in shop houses as an important subject matter for research in urban environmental management field. The current study tries to identify significant gaps pertaining to the formal-informal dichotomy of shop-house enterprises. The differences include lack of effective EMMs, regulatory and financial instruments as well as suasive measures, and lack of government support and coordination on environmental, economic, institutional, social, gender and equity matters. EMMs are presently used in isolation and without a full appreciation of the fundamental basis of their existence as policy instruments.

Development of small and medium-scale enterprises (SMEs) are one of the government's policies to promote economic development and investment. Meanwhile, most shop-house enterprises are operating in a quasi-policy environment. Lack of industrial, commercial or trade registration of micro-enterprises exemplify this quasi-policy environment although shop houses those are accommodating them are legal buildings. In effect, micro-enterprises operating in shop-houses evades local authorities despite locating with licensed premises. Only 8.1% of SMEs in Thailand receive governmental support to promote trading, commerce and investment. It indicates that the majority of SMEs are working very independently (DIP, 1997). Then it can be assumed that micro-enterprises operated almost 100% independently. Allowing micro-enterprises operating so independently and freely may be detrimental to the urban environment. Recognizing their environmental treat, the Vietnam government, for instance, has given

the SMEs time to clean up and obtain environmental performance certificate and license to operate in residential areas. Similar treatment when the micro-enterprises failed to relocate in specially demarcated zones.

This study attempts to examine the effectiveness of applying the existing EMMs to shop-house enterprises at the city level and identify barriers to the implementation of environmental management measures in shop-house enterprises. It will lead to identifying potential EMMs that can be applied to all stakeholders including shop-house entrepreneurs, residents, planners and district managers.

2. Methodology

2.1 Description of study area

The authors conducted this study in Bangkok, the capital city of Thailand, because there is a very considerable number of shop-houses located here. We conduct the study in four Districts of Bangkok. They were *Bangkokyay*, *Parsricharoean*, *Bangkae* and *Nongklam*. The areas located along *Petchkasem Road* on the boundary of the Bangkok Metropolitan Administration. We selected these four Districts because of their variability of the types of enterprises present (Figure 1). They offer a mix of enterprises, such as commerce, service, and manufacturing. The study areas exist along the main arterial highway of *Petchkasem Road* within industrial areas in *Samutsakorn* Province. The selected study area represents a cross-sectional profile of the city. This area is one of the centers of commercial activities in the Bangkok. In the current study, shop-house enterprises were stratified based on their types of activities.

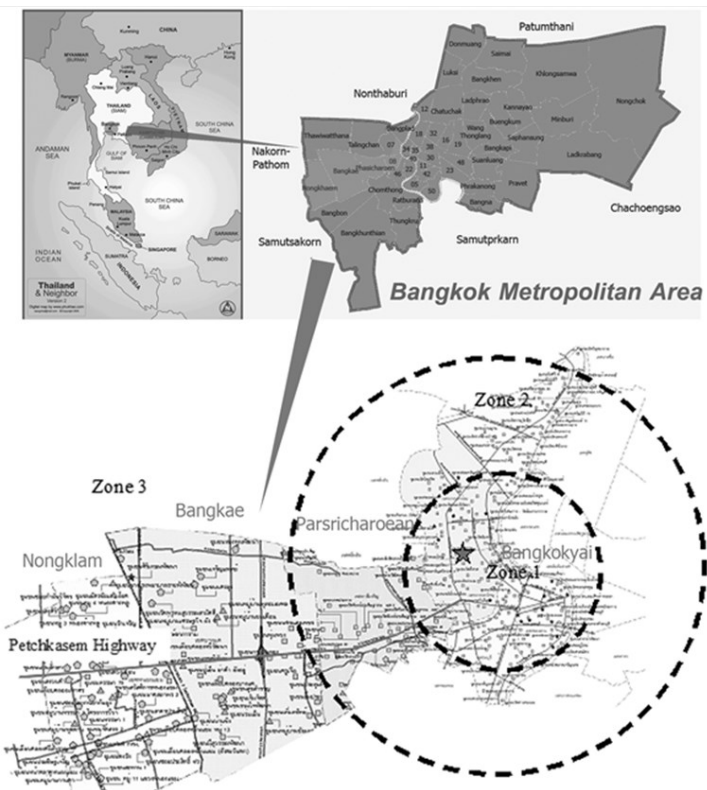


Figure 1: Study area in selected four districts of Bangkok (Bangkok Metropolitan Administration, 2006)

2.2 Data collection - a selection of respondents

Data collected in this study consists of primary data acquired from interviews, observations, and questionnaire surveys. We did a preliminary survey in 2012-13 to identify the potential respondents. Because study involved large areas, we clustered the areas by a random selection. We used the following procedure to select the groups. A preliminary survey found that there were 60 clusters in the study area. These clusters were categorized into three groups according to the nature of their business, i.e., manufacturing, producing-cum-trading, and service. A number from 1 to 60 was assigned to each cluster. We draw random numbers in proportion to the size of the three groups. From this arrangement, we selected twelve clusters of shop houses. From these twelve clusters, we selected three clusters in each of the four study districts, i.e., *Bangkokyay*, *Bangkae*, *Parsricharoen*, and *Nongklam*. For each of these twelve clusters, we determined sample sizes and identified the respondents.

Analysis was based largely on the perceptions of the three groups of stakeholders. The groups were Group 1: shop-house enterprises (245 respondents); Group 2: affected people who lived in the vicinity of shop house enterprises (245 respondents); and Group 3: relevant decision makers who enforced BMA policies (60 respondents). For the decision maker respondents (60), because of their exclusivity and rarity, the number of respondents was taken as many as possible. We calculated the sample size of first two groups of stakeholders at a-95% confidence level. Thus, the total number of respondents involved in the survey was 550.

2.3 Data analysis

The questionnaires were patterned to facilitate data collection and capture the views of different stakeholders as shown in the tree-hierarchy in Figure 2. We employ a step-wise regression analysis among the particular barriers in this analytical part.

We model the population regression by $y = \beta_1 + \beta_2 x_2 + \beta_3 x_3 + e$, where y is the population regression model and x_i is the independent variable.

We assumed that the error e is independent with constant variance (homoscedastic). We wish to estimate the regression line: $Y = a + b_1 x_1 + b_2 x_2 + \dots + b_n x_n$, where Y is the dependent variable, x_i is the independent variable, a is a constant, $b_1 \dots b_n$ is the slope of the line; n is the total number of variables: 14.

We also analyzed the respondent's perceptions on environmental and health impacts generated by shop-house enterprise.

2.4 Relevant Policies and Regulations

2.4.1 Public Health Act 1992

The Public Health Act of 1992 is on public health protection and environmental public health. The Public Health Act of 1992 regulates all activities, businesses and enterprises that create environmental and health impacts due to anthropogenic activities at household level to large industries. Notification of Department of Health is one of the three important issues regulated in the Public Health Act of 1992. It took effect in 2000 and also included the identification of health risk activities

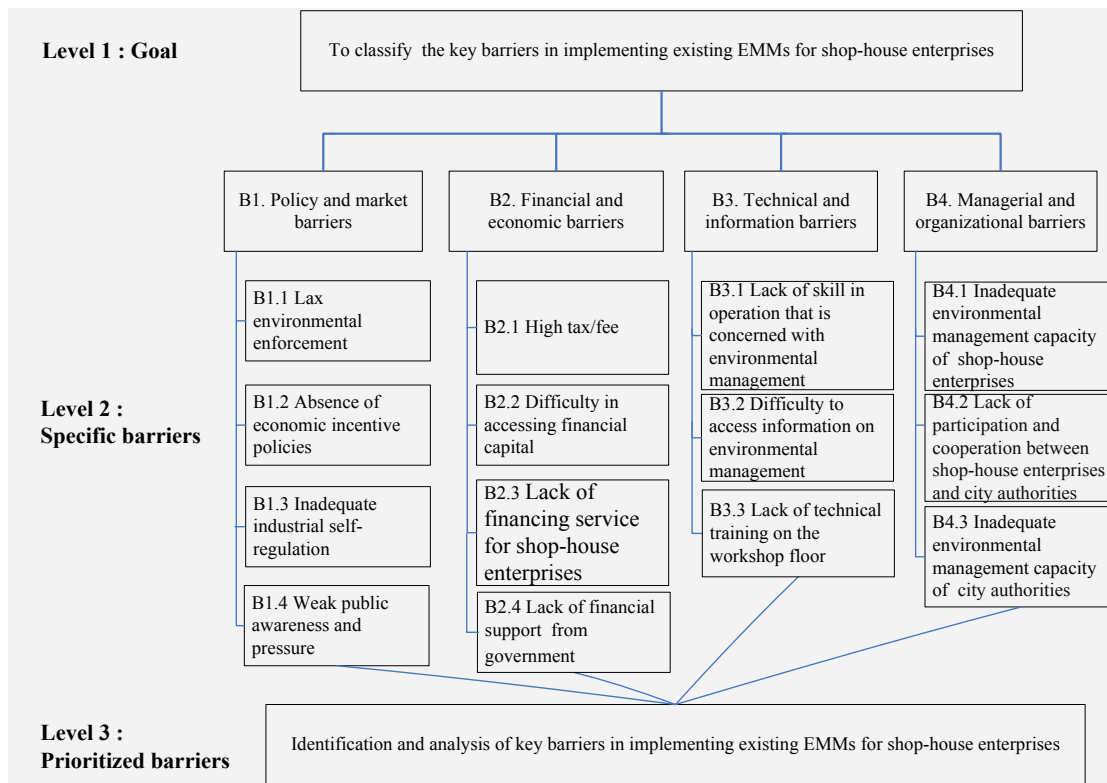


Figure 2:
Tree-
hierarchy of the key barriers to the implementation of environmental management
measures in shop-house enterprises.

or businesses as the follow up Statute of Bangkok Metropolitan in 2000. The information describes that there are 13 types of health risk activities or businesses that generate environmental impact and health risk for people.

2.4.2 Factory Act 1992

The identification of a plant, which most probably generates environmental and health impacts, is classified in Factory Act, 1992. The Act classifies three groups of companies, i.e. Group 1: the company that is engaged in the business immediately without necessary to notify the authorities. Group 2: company that is subjected to the notification requirement prior to engaging in the business and Group 3: service that is subjected to permit application prior to engaging in the business. Factory Act 1992 also regulates the location of facility, environment, description and interior of the plant, machinery, equipment, or material used. The plant workers, control of release of waste, pollutants, or other materials affecting the environment, safety in operating a company, license fee and annual fee for factory operation.

(a) Bangkok Metropolitan Administration Ordinance

Bangkok Metropolitan Administration (BMA) is a particular administration at the local level. With respect to SMEs matters, BMA has responsibilities also to control and supervise unregistered shop-house enterprises in the Bangkok Metropolitan under the Factory Act 1992. The City Regulations are typically proposed by Bangkok Governor and endorsed by BMA Council. There are two primary departments under the Permanent Secretary of BMA, who has the responsibility to control and improve environmental quality. They are the Department of

Environment and the Department of Health.

The BMA Council launched the BMA Ordinance on Health Risk Activities or Businesses under the Public Health Act, 1992. The rules and procedures for obtaining permits, licenses and fee rate are included. In the Ordinance, there are 13 types of health risk activities or businesses that are considered having potential harm to the health. The activities include farming; animal husbandry and animal products. The ordinance also covers food processing, beverage, and drinking water; drugs, pharmaceutical products, medical devices, cosmetics, and cleaning products; agriculture; metal and mineral processing; automobile and machinery. The plants producing wood and pulp processing; services; textile; rocks, soil, sand, cement, or other similar materials; petroleum, coal, and chemical substance are required getting permit. Other companies such as publishers, waste collectors, electronic devices repairs, and storage must also have licenses.

Urban environmental management practices and strategies of Bangkok Metropolitan are designed to enhance practical duty of health risk activities or businesses in Bangkok. The purposes are to control sanitation, wastewater management, and solid waste management of health risk activities or businesses; and to control workplace: ventilation, dust, soot, noise. Also, to identify the scope of permission in health risk activities or businesses; to control raw material collection and use; to do risk assessment on activities or businesses; and to control harmful gas and substance.

The above types of business that potentially create health and environmental risks are required to obtain an operational permit from the environmental and sanitary divisions at the district offices where the company located. The license is valid for one year after date of issue. The authority will penalize any business operating without a license by imprisonment not exceeding six months or fined not exceeding 10,000 baht, or both. The division will inspect the site's sanitary conditions,

possibility of environmental disturbances, pollution treatment, and worker welfare. In addition, all businesses must comply with other relevant laws and regulations such as regulations on building control and regulations on city planning. Later in 2003 and 2005 this ordinance was amended and improved to be expedient to national health and environmental policies, frameworks, strategies, and activities.

(b) *Charges, Fees, Fine and Imprisonment*

Factory Act 1998 recognizes a small company or factory type-I according to the place where product or service are carried out by manpower of 8-20 workers or machine five up to 20 horse-powers (HP). The license fee for the factory type-I is: 500 Baht for the company that uses machinery of not more than 5 HP and 1000 Baht for the facility that uses machinery of 5-20 HP. Comparatively, Public Health Act 1995 requires that any industries or enterprises must have licenses when their business covers “140 Health Risk Activities or Businesses.” The license fee of Health Risk Activities or Businesses is from 200 to 10,000 baht per year depending on the type of activities and the total number of horse-power of machines.

3. Results

The dilemma of shop-house enterprises as economic generators and environmental polluters, may lead to the need of optimum policy on ease entry and little pollution. Formulating this policy is not an easy task. In order to suppress the environmental pollution by shop-house enterprises, EMMs could be applied. In the meantime, ease entry needs identification of present barriers. To overcome the barriers to entry and for the effective implementation of environmental management measures in shop-house enterprises, we need to identify the barriers. We also need to create a preferential environment for the thriving of existing EMMs for shop house enterprises. Based on the inventory, the following barriers are identified as shown in Table 2.

Table 2 Barriers to environmental adaptation

Barriers according to Post and Altman (1994)	
Industry barriers	Organizational barriers
<ul style="list-style-type: none"> • Capital costs • Competitive pressure • Industry regulations • Technical information • Uncertainty about potential results 	<ul style="list-style-type: none"> • Employee attitude • Inadequate top management leadership • Poor communications • Past practice
Barriers according to Hillary (2004)	
External barriers	Internal barriers
<ul style="list-style-type: none"> • Cost of certification/verification • Insufficient drivers and uncertainty about market benefits • Institutional weaknesses • Lack of support and guidance 	<ul style="list-style-type: none"> • Lack of human resources • Wrong perception of Environmental Management Systems (EMSs) • Difficulties with the implementation of EMSs • Negative attitudes and unfavorable firm culture
Barriers according to Shi et al. (2008)	
External barriers	Internal barriers
<ul style="list-style-type: none"> • Policy and market barriers • Financial and economic barriers 	<ul style="list-style-type: none"> • Technical and information barriers • Managerial and organizational barriers
Barriers according to Chan (2008)	
External barriers	Internal barriers
<ul style="list-style-type: none"> • Certifiers/verifiers • Economics • Institutional weaknesses • Support and guidance 	<ul style="list-style-type: none"> • Resources • Understanding and perception • Implementation • Attitudes and company culture

There are many literatures that studied on barriers to environmental management. Post and Altman (1994) classify the barrier set to environmental adaptation into two groups: industrial and organizational barriers. Industrial barriers are related to the type of business activity that companies engaged, and these restrictions mainly affect firms operating in the most highly polluting sectors. Regulatory barriers, however, affect firms regardless of the business activity in which they are engaged, given that they originate from firms’ particular organization and standard practices. Post and Altman’s barriers classification (1994) shows some remarkable similarities with that proposed by Hillary (2004) ten years later. According to Shi et al., (2008), there are internal and external barriers in environmental management measures for shop-house enterprises. The internal barriers include technical and information and managerial and organizational aspects, and the external barriers include policy and market and financial and economic aspects.

In the case of shop-house enterprises operating in Bangkok Metropolitan, Table 3 shows the barriers to implementing environmental management measures.

Table 3 List of four possible barriers in Bangkok Metropolitan

No.	Possible Barriers	Description
B1	Policy and market barriers	
B1.1	Lax environmental enforcement – X ₁	Weak enforcement of environmental regulations due to delay in the adoption of environmental management.
B1.2	Absence of economic incentive policies – X ₂	There are no economic incentives such as tax exemptions and grants to support shop-house enterprises
B1.3	Inadequate industrial self-regulation – X ₃	Government assistance or initiatives fail to result in self-regulation at the manufacturing level.
B1.4	Weak public awareness and pressure – X ₄	Weak public awareness and insufficient community pressures on shop-house enterprises to improve their environmental performance are common problems.
B2	Financial and economic barriers	
B2.1	High tax/fee – X ₅	Higher costs to spend for tax/fee
B2.2	Difficulty in accessing financial capital – X ₆	Financing channels for shop-house enterprises are very limited in Thailand, especially for environmental management projects.
B2.3	Lack of financing service for shop-house enterprises – X ₇	Thai financing service institutions are insufficient, and most of them are more willing to serve big companies than shop-house enterprises.
B2.4	Lack of financial support from government – X ₈	There is no budget for both environmental management and economic support of shop-house enterprises
B3	Technical and informational barriers	
B3.1	Lack of skill in operation on environmental management – X ₉	Weak skill in environmental management operation from initial to finalized process
B3.2	Difficult to access information on environmental management – X ₁₀	Shop-house enterprises face difficulty in accessing and appreciating environmental management related information and Acts.
B3.3	Lack of technical training – X ₁₁	In shop-house enterprises, training programs for the employees to operate and maintain environmental management at shop floor level are insufficient.
B4	Managerial and organizational barriers	
B4.1	Inadequate environmental management capacity of shop-house enterprises – X ₁₂	Shop-house enterprises lack the necessary managerial and technical capacity to implement environmental management.
B4.2	Lack of participation and cooperation between shop-house enterprises and city authorities – X ₁₃	Weak coordination in environmental management operation between shop-house enterprises and district officers.
B4.3	Inadequate environmental management capacity of city authorities – X ₁₄	City authorities lack the necessary managerial and technical capacity to implement environmental management.

There are numerous barriers to environmental adaptation. The authors adopt these barriers to this study by considered the external and internal environmental barriers. Based on Table 3, there are 14 barriers identified. We grouped the barriers into four major categories: (1)

policy and market (2) financial and economic constraints (3) technical and informational aspects and (4) managerial and organizational barriers.

3.1 Analysis on Group 1 Respondents

We analyzed the perceptions of 245 respondents (Group 1) of the owner of shop-house enterprises against 14 variables. The analysis on 14 independent variables (X_1 to X_{14}) reveals that the most influencing factors of the implementation of existing EMMs are lax environmental enforcement (X_1) and difficulty to access information on environmental management (X_{10}). We counted the variables at significance level of 5%. Table 4 shows the regression analysis of group 1. The most influencing factor in group 1 is lax environmental enforcement (X_1) with $\beta = -0.238$, and the difficulty to access information on environmental management (X_{10}) with $\beta = -0.218$. Both contributing factors explain the satisfaction of implementation the existing environmental management measures in shop-house enterprises by 8 percent with Standard Error of the estimate = 0.647. The estimate the regression line of this group is $Y_{\text{group1}} = 3.147 - 0.185X_1 - 0.104X_{10}$.

Table 4: The regression coefficients in raw score (b) and a standardized score (Beta- β) of (Group1)

Key Barriers (Variable)	R ²	Adjusted R ²	b	Std. Error	Beta (β)	t	sig
B1.1 Lax environmental enforcement	0.040	0.036	-0.185	0.052	-0.238	-3.593*	0.000
B3.2 Difficulty to access information on environmental management	0.087	0.080	-0.104	0.029	-0.218	-3.533*	0.000

a= 3.147, Std. Error of the estimate = 0.647, *Significance at 5%

From above regression equation, b value of lax environmental enforcement (X_1) is -0.185. It explains that when the score of lax environmental enforcement decreased by 1 unit, the satisfaction in the implementation of existing environmental management measures will increase by 0.185 unit. Similarly, b value of difficulty to access information on environmental management (X_{10}) is -0.104. It shows that when the score of difficulty to access information on environmental management reduced by 1 unit, the satisfaction in the implementation of existing environmental management measures will increase with 0.104 unit.

3.2 Analysis on Group 2 Respondents

Analysis on 245 group 2 respondents on 14 independent variables reveals that the most contributing factor to the implementation of existing EMMs is lack of participation and cooperation (X_{13}). With the significance at 5%, the regression analysis of group 2 is presented in Table 5.

Table 5: Regression coefficients in raw score (b) and a standardized score (Beta- β) of Group2

Key Barriers (Variable)	R ²	Adjusted R ²	b	Std. Error	Beta (β)	t	Sig.
B4.2 lack of participation and cooperation	0.051	0.042	-0.232	0.101	-0.227	-2.302*	0.023

a= 2.997, Standard Error of the estimate = 0.716, *Significance at 5%

The most influencing factor of group is X_{13} with $\beta = -0.227$. This factor explains the achievement on the implementation of existing

environmental management measures in shop-house enterprises by 4.2 percent and Standard Error of the estimate is 0.716. The regression line is estimated as $Y_{\text{group2}} = 2.997 - 0.232X_{13}$. This equation explains that when the score of b decreases by 1 unit, the satisfaction in the implementation of existing environmental management measures will increase with 0.232 units.

3.3 Analysis on Group 3 Respondents

Group 3 respondents are decision makers of the Bangkok Metropolitan. There are 60 respondents. The analysis on Group 3 respondents on 14 independent variables shows that the most contributing factors to the implementation of existing EMMs are inadequate environmental management capacity of shop-house enterprises (X_{12}) and lack of participation and cooperation between shop-house enterprises and city authorities (X_{13}). With the significance at 5%, the regression analysis of group 3 respondents is presented in Table 6.

The most influencing factor of this group is inadequate environmental management capacity of shop-house enterprises ($\beta = -0.363$), and the second most influencing factor is a lack of participation and cooperation between shop-house enterprises and city authorities ($\beta = -0.343$). Both contributing factors explain the satisfaction in the implementation of existing environmental management measures in shop house enterprises as 23.4 percent and Standard Error of the estimate = 0.750. The estimation of the regression line is described as $Y_{\text{group3}} = 6.731 - 0.253X_{12} - 0.600X_{13}$.

From the above equation, b value of the inadequate environmental management capacity of shop-house enterprises is -0.253. It shows that when the score in inadequate environmental management capacity of shop-house enterprises decreased by 1 unit, the satisfaction in the implementation of existing environmental management measures will increase by 0.253 unit. Similarly, b value of the lack of participation and cooperation between shop-house enterprises and city authorities is -0.600. It analogously shows that when the score of lack of participation and cooperation between shop-house enterprises and city authorities decreased by 1 unit, the satisfaction in the implementation of existing environmental management measures will increase by 0.600 unit.

Table 6: Regression coefficients in raw score (b) and a standardized score (Beta- β) of the Group3

Key Barriers (Variable)	R ²	Adjusted R ²	B	Std. Error	Beta (β)	t	Sig.
B4.1 Inadequate environmental management capacity of shop-house enterprises	0.151	0.132	-0.253	0.092	-0.363	-2.746*	0.009
B4.2 lack of participation and cooperation between shop-house enterprises and city authorities	0.268	0.234	-0.600	0.231	-0.343	-2.593*	0.013

a= 6.731, Std. Error of the estimate = 0.750, *Significance at 5%

4. Discussion

Based on the perception of Group 1 respondents, the most contributing factors to the implementation of existing EMMs are lax environmental enforcement (x_1) and difficulty to access information on environmental management (x_{10}). The respondents perceived that local authorities did not carry out strict inspections and strong punishment in exercising their authoritative power in environmental management measures. As a

result, the environmental impacts are significant. In addition to that, most unregistered shop-house enterprises are neglected. The relationship between relevant authorities and the owners of shop-house enterprises is not that smooth. It makes the difficulty in accessing information on environmental management. That is why these factors could be the barriers to the implementation of environmental management measures in the operation of shop-house enterprises.

Possible coping strategies on this issue include intensifying the environmental management tools and law enforcement by the relevant authorities, public campaign for the owners and operators of the shop-house enterprise, establishment of information center for the shop-house enterprise matters in the locality for the openness and easiness of getting information. Supporting education and research in a related field is also possible because when people gained the knowledge in environmental management, they can quickly adopt the knowledge in their business or activities to improve their productivities and work environment. NEMA Uganda (2009) suggested that establishing resource center to be an easily accessible source for appealing authoritative information would bring the concept of individual responsibility in environmental and resource protection into the public domain. In the case of Bangkok Metropolitan, the environmental information centers can be provided in each district office to disseminate the environmental practices and information for the communities. The proposal can be an excellent way to eliminate the difficulties in accessing the information on environmental management.

As found in the survey, shop-house enterprises are geographically scattered. Thus, it is difficult to manage the environmental and health impacts generated by the shop-house enterprises. We suggested that relevant authorities can accommodate the possible transformation of the enterprises from non-registered to registered ones, without consequences to the enterprises, for instance, fees and lengthy procedure. The result can help the local authorities to conveniently control and monitor the environmental and health impacts and therefore improve the performance of shop-house enterprises. The authority should increase the number of district officers and enhance their capacity to monitor and supervise all shop house enterprises.

According to the perception of group 2 respondents who are the communities living the surrounding shop-house enterprises, the lack of participation and cooperation among main stockholders was considered as the most significant factor. They perceived that the local authorities and shop-house enterprises did not actively engage and work together to cope with the issues. Local people observed that local authorities did not know and understand the real problems on the site. They found that when local authorities inspected and captured illegal shop-house enterprises, the authorities then punished these illegal shop-house enterprises by closing the business or applying high fine and the enterprises. However, after quite sometimes, the illegal enterprises operate again. It is because of either the presence of a barrier to entry or the punishment that does not produce a deterrent effect to the violators. No smooth communication between shop-house enterprises and district officers would create the problems in management.

The way out of this issue is an improvement of communication and coordination between relevant authorities and shop-house enterprise owners and operators. Both parties should mutually respect and understand the respective roles of them. The authority should promote easy entry without sacrificing the adverse effects. Continuous control and inspection with sufficient tools and personnel can help to improve the situation and performance of the shop-house enterprises. At the end

of the day, environmental and health impacts of the enterprises would be minimized.

Based on the perceptions of group 3 respondents, the most influencing factors of the implementation of existing EMMs are inadequate environmental management capacity of shop-house enterprises (X_{12}) and lack of participation and cooperation between shop-house enterprises and relevant authorities (X_{13}). Respondents agreed that the number of operational staff to deal with shop-house enterprise was insufficient. There is only few staff who understood environmental management practices. This limitation hampers the communication between shop-house business and relevant authorities. As previously discussed, the capacity of the owners and operators of shop-house enterprises in managing the environmental impacts created by their company is insufficient. They can operate a business, but they failed to cope with the consequences.

This study suggests that the government should provide sufficient budget to hire more qualified operational staff. Along with this, provision of financial and promotional incentives to dedicated staff is expected to increase the motivation of employees. Collaboration among top managerial positions and experts from universities should be promoted to improve organizational capabilities and operational effectiveness in environmental management. It is necessary to organize hands-on training in environmental management for executive staff. This training needs a complement of regular upgrading of skills and exposure to new approaches and ideas.

The perception-based solution discussed in this section provides a general picture on how to cope with the adverse environmental consequences produced by the operation shop-house enterprises. Although the solution is not limited to what perceived by the stakeholders, but the authorities must be able to explore in-depth to the root of the problem. Comprehensive solution on the environmental and health impacts generated by shop-house enterprises is necessary.

5. Recommendations and conclusions

There are many possible barriers identified in the operation of shop-house enterprises in Bangkok Metropolitan. The stakeholders perceived that there are, at least, four factors that most influential to the implementation of environmental management measures towards better performance of the enterprises on environmental and health aspects. These factors are lax environmental enforcement, inadequate environmental management capacity of enterprises, inadequate industrial self-regulation, and difficulty to access information on environment management.

The overall plan to improve the performance of shop-house enterprises through Environmental Management Measures should suggest the sufficing environmental management tools and effective law enforcement. We recommend to built and intensify the communication among stakeholders. The authorities should be proactive in bridging the gaps among stakeholders for the effectiveness of environmental management measures implementation in the operation of shop-house enterprises. Improvement of quality and quantity of staff of the authorities should also become priority of the government, along with capacity building for relevant staff of the authorities.

Although this study suggests the most essential aspects to improve environmental management standards, but the authorities are recommended to attend to all fourteen variables for the

comprehensiveness of the strategies. In a synergistic manner, all stakeholders should pursue to accomplish practical environmental management measures towards the improvement of performance of shop-house enterprises for more livable and well-being of Bangkok Metropolitan communities. The results of this study are expected to be useful to the BMA and other local administrators with the similar problems. They are not only in Thailand but also in the cities of other developing countries. It is especially valid in Southeast Asia where many cities have large numbers of shop houses.

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Soft Skills Competencies of Quantity Surveying Graduates in Malaysia: Employers' Views and Expectations

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ABSTRACT

Various organizations employ Quantity Surveying (QS) graduates. The diversity of employment opportunities bring the needs of QS graduates to equip with the key competencies to be able to work effectively and efficiently with other professionals. The QS profession faces threats to its traditional roles and functions as a result of changing client needs in the construction industry advances in technology and the particular needs of a developing economy. Within the context of the current situation, the globalization is pushing QS graduates to become competitive in term of soft skills that they possess such as communication skills, problem-solving skills, leadership, and teamwork. This research adopted a survey approach, using a questionnaire as the data collection technique. 80 questionnaires were distributed to employers, or human resource (HR) managers of the organizations that had QS graduates working with them. This paper reports on the views and expectations of the employers towards the soft skills of QS graduates in Malaysia. The employers were asked to rate their views towards current QS graduates' soft skills' performance in Malaysia as well as to assess their expectations of these graduates' soft skills based on a five-point Likert scale. From the findings, a 'competency gap' between the current local university QS graduates' soft skills' performance and their expectations were identified, and discussed. This paper also presents the recommendations made by the employers towards Higher Education Institutions (HEIs) in Malaysia producing QS graduates in order to improve and prepare the graduates for their work place.

1. Introduction

A Quantity Surveyor's scope of works is diversifying in this modern day. It does not only cover works in terms of financial budget. It also expands towards the contracting document, risk allocation, the legal aspect of advisor, value engineering and management, project management and others related. However, the technical skills possessed by Qs will not go any further without the support of soft skills (Schulz, 2008). Hence, QS graduates must prepare themselves with valuable and competitive soft skills in order to get good positions within the construction market. Lacking of soft skills will be considered unmarketable (Chua, 2000). Moreover, graduates that are lacking in learning the generic competencies, i.e. soft skills in undergraduate programs are highly expected to be in the unemployment statistics (New Strait Times, 2004). Employers seem to be uninterested to employ graduates that do not have the generic competencies, such as good communication skills, leadership, and working in teams (New Straits Times, 2004). Ai-Hwa (2005) and Mahbob (2001) furthermore stated that the problem of employees' soft skills will lead to employers having to retrain these workers, and it is considered very costly. Khaled (2010) encourages graduates to acquire and upgrade their soft skills in order to face up the challenging jobs under the *1Malaysia's* theme. MOHE (2006) identified seven attributes of soft skills. The soft skills include communication skills (CS), critical thinking and problem-solving skills (CTPS), teamwork skills (TS). It also embraces lifelong learning and information management skills (LL), entrepreneurship skills (ES), ethics and

professional moral (EM) and leadership skills (LS).

The Malaysian Soft Skills Scale (My3S) program had identified two main weaknesses amongst graduates in Malaysia; i.e. poor command in English and poor communication skills (Shaharuddin, Noriah, Khaidzir & Jumali, 2010). It creates a mismatch between employers' expectations and the university's output (Quek, 2005; Khir, 2006; Malhi, 2009; Pandian, 2010 as cited in Lim, 2011). According to Shaharuddin, et al. (2010), poor communication skills in respect of mastering more than one language seems to be less globalization skills. Insufficient command of language amongst graduates will affect competency in handling the intellectual discussion in the workplace. Therefore, causing employers to criticize the graduates' communication skills and analytical skills (Roselina, 2009) in which is leading to limitation of job opportunities among graduates (Pandian, 2010).

This paper aims to report the findings from a survey conducted with QS employers within the Lembah Kelang area, Malaysia on the views and expectations of the employers towards the soft skills of QS graduates in Malaysia. From the basis of the recommendations made by the employers, a simple framework was designed on how Higher Education Institutions (HEIs) in Malaysia can work hand-in-hand with the industry. This collaboration is to bridge the gaps (i.e. between the views and expectations of employers) towards a 'better' quality of QS graduates with respect to soft skills.

2. Employability of Graduates: The Malaysian Context

Acquiring soft skills competencies becomes increasingly important and relevant for those who are providing services (Rahmah et al., 2011). Fairuzia et al., (2011) assert that the Human Resource practitioners and employers find lacking relevant soft skills competencies of graduates. Thus, causing graduates difficulty in getting employments. Hence, it justifies the need of this paper in identifying the gaps in QS graduates' soft skills. Within the context of an increased demand for skilled workers and reported skills shortages, the phenomenon of rising graduate unemployment are doubly worrying (Bello, 2011; Rahmah et al., 2011). According to Patent (2012), the demands of employers have changed. It is no longer advantageous to simply have an undergraduate degree. The graduates should also need to draw on, or cultivate, the soft skills necessary in the workplace which should have been acquired through their group work, part-time jobs, volunteer work, sports teams and other out-of-class activities (Chang, 2004; Archer and Davidson, 2008; Rahmah et al., 2011; Patent, 2012).

Since it has become increasingly important to meet the demands of employers on soft skills possessed within graduates; HEIs should work hand-in-hand with the industry in matching the demands of the industry by providing opportunities to acquire them. Technical skills are easily quantified by the level of education; soft skills however, cannot be learned through books; as they must be acquired through experience (Ruggiero, 2012). Thus, students within HEIs should look outside the classroom in order to find them, i.e. through joining extra-curricular activities either offered within the HEI or outside the campus.

Malaysia has an enormous number of graduates entering the local employment market every year. This trend shows no signs of slowing down (Sirat et al., 2012; Rahmah et al., 2011). At the same time, the 1996 financial crisis had negative effects in terms of rising unemployment (Sirat et al., 2012). Even now, Malaysia continues to face the stark reality of rising graduate unemployment in spite of significant changes in the Malaysian economy since 1996. Sirat et al. (2012) identified the context of the continuing supply of graduates against a backdrop of changing economic fortunes and graduate unemployment and employability. Policy makers, academics and industry have revisited the issue regarding the role of HEIs as a center for the development of intellectual, creative and other higher level skills versus the need to supply workers for the labor market (university as a factory). Facing criticism from both the government and private industries, universities are being accused of producing unemployable graduates (Sirat et al., 2012). HEIs should play a big role in helping graduates to possess employability skills instead of only just focusing on academic and exam oriented activities (Morsidi, 2006). HEIs should take special note that soft skills, such as communication, integrity, intellectual capacity, teamwork skills, and analytical and problem solving skills are the four top priority skills sought after by the employers when hiring new employees. Therefore, HEIs may have to re-design or adapt their curriculum to ensure that these qualities are instilled in their students, and this should be done in collaboration with the industries (Morsidi, 2006; Sirat et al., 2012).

The term employability has gained prominence of late because of the changing world of work. According to Saterfield and McLarty (1995), employability skills are the skills required to acquire and retain a job, including job-specific skills, academic skills and a range of attitudes and habits. It can be seen through the graduates' soft skills such as, communication, problem solving and management skills. Moreover,

Hillage and Pollard (1999) highlighted that employability is “(a) the ability to gain initial employment, (b) the ability to maintain employment and make ‘transitions’ between jobs and roles within the same organization to meet new job requirements, and (c) the ability to obtain new employment if required, to be independent in the labor market by being willing and able to manage employment transitions between and within organizations”. Hence, in order for graduates to attain employability, graduates need to acquire a certain job-specific skill and a range of soft skills. With respect to this research, the paper will only look into the issues of employability with respect to the soft skills to be attained by graduates.

3. Soft Skills: Definitions

There are many interpretations on soft skills by creating diverse terms such as ‘employability skills’, ‘generic competencies’ and ‘transferable skills’ but it carry an equal meaning on that. Agency Training (1990) clearly defined “transferable skills are the generic capabilities which allow people to succeed in a wide range of different tasks and jobs”. Yassin *et al.*, (2008) mentioned that generic skills are also known as soft skills, key skills, common skills, essential skills, employability skills, basic skills, competencies skills, and transferable skills. Hence, in this case, it can be concluded that soft skills are also means of generic skills. A study conducted by Bennett et al., (1999) pointed out the debate on the employability skills mostly involved the generic ability of any range of contexts either in educational level or at the workplace. Therefore, employers expect the graduates to master and understand the essential of generic skills in working space (Harvey et al., 1997). Kate (2007) later on, referred ‘soft skills’ as “a cluster of personal qualities, habits, attitudes and social graces that make someone a good employee and a compatible co-worker”. In addition, soft skills are considered the personal adaptation through life of learning environment that will be possessed by practices. Soft skills can also be defined and argued in many informative ways as well. Within the context of the Malaysian industry, soft skills are defined as the generic skills in which included the wide interpersonal skills and teamwork (Malaysian Soft Skill Scale, 2010). A study from the QS industry defined soft skills as a behavioral skill (Derus et al., 2009), meta-competencies includes versatile and adaptable, pro-active and positive thinking, able to communicate effectively, high self-esteem, highly creative and innovative with problem solving ability, able to work in team, high ethical and moral value lifelong learning outlook (Said *et al.*, 2008), transferable or softer skills (Perera et al., 2010), good attributes and interpersonal skills (Zakaria et al., 2006), personal and interpersonal skills (RICS, 1998), relationships (Nkado, 2000). Therefore, notwithstanding the diversify definitions of soft skills/employability skills as highlighted above, within the context of this research, soft skills are defined as:

“a cluster of qualities, habits, attitudes and social graces that can enrich a good perspective employment and fit into any market jobs; which includes amongst all; effective communication, pro-active and positive thinking, teamwork, good attributes and interpersonal skills”

4. Types of Soft Skills

There are various types of soft skills that have been constructed by researchers and institutions (Malaysian Soft Skill Scale, 2010; Perera et al., 2010; Derus et al., 2009; Yassin et al., 2008; Said et al., 2008; Kate, 2007; Zakaria et al., 2006; Nkado, 2000; Bennett et al., 1999; RICS, 1998 and Harvey et al., 1997). Basically, the types of soft skills that are usually used are communication skill, interpersonal skill, lifelong skill, problem solving ability and teamwork (Devadason and

Subramaniam, 2010). In addition, Vathsala (2010) categorized soft skills into many subjects such as oral communication, writing, reading, basic arithmetic, problem solving, creative and innovative thinking, learning skills, decision making, responsibility/dependability, positive attitude towards work, working as a team member, punctuality, self-confidence, ability to work without supervision and adaptability. Crebert et al., (2004) suggested communication skills, problem solving, analysis capabilities and teamwork skills as the types of soft skills. Davies (1999) previously pointed out the identification of soft skills include interpersonal skills, leadership competencies, language ability, good commercial awareness and problem solving skills. However, Bill (2004) highlighted that the type of soft skills that employer are really looking forward from graduates are: (a) working attitudes, (b) communications, (c) information gathering, (d) human-factor skills, and, (e) analytical and problem solving skills. Lorenz (2007) then further refined the types of soft skills according to the most common soft skills that people are normally interrelated with, as follows:

- Strong work ethic
- Positive attitude
- Good communication skills
- Time management skills
- Problem solving skills
- Acting as team player/teamwork
- Self confidence
- Ability to accept and learn from criticism
- Flexibility/Adaptability
- Working well under pressure

Within the Malaysian of Higher Education context, the Ministry of Higher Education (2006) classified seven traits of soft skills specifically to be embedded and assessed by HEIs as follows: communication skills (CS), critical thinking and problem solving skills (CTPS), teamwork skills (TS), lifelong learning and information management skills (LL), entrepreneurship skills (ES), ethics and professional moral (EM) and leadership skills (LS). Notwithstanding, the diversify types of soft skills available. Since the scope of research is in the Malaysia context, how the HEIs and the industry can work hand-in-hand to improve the level of graduates' soft skills needs to understand. This research narrows down the types of soft skills in accordance with the seven traits of soft skills as classified by MoHE (2006), as shown in Table 1.

5. Quantity Surveying: An Overview

The role of quantity surveyors have existed since the ancient Egyptian civilization where they dedicated to carry out estimates and costing for their aesthetic structure and building at that time. A quantity surveyor offers a distinct service in the built environment, and would like their professional status and services to be known and upheld in society (Bennett, 1991). According to Hassan et al., (1996), within the context of a QS, the professionalism aspects are amongst others; i) able to make decision independently, ii) committed to the public interest, and iii) observe the code of ethics and achievement of high level of expertise.

Khairuddin (2002) categorized the traditional job scope of Quantity Surveyors in Malaysia's construction industry as follows:

- Provide estimates during the initial stages of the process of construction procurement for the project initiators;
- Prepare the Bill of Quantities from architectural, engineering and other specialist drawings
- Describing the material, workmanship and the quantities

required

- Analyze tender documents; prepare and analyses cost data and perform contract administration including evaluate interim payments to contractors, assess variations and claims and handle contract account.

Table 1: Types of Soft Skills (MoHE, 2006)

Types of Soft Skills	Descriptions
Communication Skills (CS)	<ul style="list-style-type: none"> • Ability of graduates to communicate fluently in Bahasa Malaysia and English within any work place or range of condition • Graduates are expected to be able present their thought and information confidently either in written or speaking • Good listener and responder and the ability to use technology during presentation.
Critical Thinking And Problem Solving Skills (CTPS)	<ul style="list-style-type: none"> • The skills for graduates "to think critically, logically, creatively and analytically" • Involved in analyzing problems and making judgments, contributing new ideas by expressing their "out-of-the box" thought. • Focused on their task and can adopting in new community as well as environment
Teamwork Skills (TS)	<ul style="list-style-type: none"> • Graduates' skills to work with different approaches of people within variety of cultural background to archive common goals • Graduates must have a good relationship with others, understand scope of works been given, take a charge of leader in group productively and responsible towards team mates.
Lifelong Learning and Information Management Skills (LL)	<ul style="list-style-type: none"> • Graduates to be able self-learnt independently in the area of skills and knowledge. • Graduates to possess the ability to "manage relevant information from a variety of sources", creating and opening new ideas from the varied learning conditions and having a good passion towards knowledge.
Entrepreneurship Skills (ES)	<ul style="list-style-type: none"> • Graduates to create news idea for business opportunities and work related while facing risk awareness. • Graduates expected to explore business plans broadly and able to work independently which lead to self-employment
Professional Ethics and Moral (EM)	<ul style="list-style-type: none"> • Graduates to adapt with economic, cultural and social impact in their decision makings. • Graduates must be responsible and show a good attributes in working place or any other environment.
Leadership Skills (LS)	<ul style="list-style-type: none"> • The ability to show and manage the teams in various activities. • Graduates are to be able to understand the concept of leadership, ability to lead projects, take turns as "arbitrator" if conflict happened between team members and have skills to lead members in ethical and professional ways

Today's competitive and ever changing construction business landscape have significantly caused changes to the quantity surveying profession (Cartlidge, 2011); as well as having to deal with other parties within the industry. There are some major reasons that brought changes to the quantity surveying practice (Kumaraswamy & Morris, 2002; Fellows, Liu, & Fong, 2003; Cartlidge, 2011; Wong & Fan, 2013):

- The rise in the usa of information technology in the construction industry cause traditional practice becomes less relevant.
- The increment of project under public private partnership expands the need of construction professional in post construction management.
- The emergence of the private sector as a main client with higher requirement and demand compared to the public sector.
- The effect of globalization catalyzing competition in procuring project and profit.

Therefore, not only Qs are required to remain up to date with the changes in the industry and prepare to deviate from the traditional

practice to remain relevant (Frei & Mbachu, 2009). They are also expected to meet with employers' demands on the level of soft skills possessed in order to compete for employment and stay competent within the market.

6. Expected/Essential Soft Skills of Graduate: An Overview

Over the past decade, reports abound of mismatch between the expectations of employers and that of university outputs, as well as cases of local university graduates lacking in generic competencies such as communication of skills, problem solving skills and inter-personal skills (Quek, 2005; Juhdi, Yunus & Abu Samah, 2006; Khir, 2006; Malhi, 2009; Pandian, 2010). The top most lacking soft skills as identified by Gurcharan Singh and Garib Singh (2008) was Problem solving and Adaptability skills; followed by Interpersonal and Team skills, Personal organization and Time management skills, English language proficiency, Information, communication and technology skills, Leadership skills, and lastly Communication skills. Later on, Agus et al., (2011) highlighted that the wide gaps between the expectations of employers and the soft skills possessed by the graduates were (a) decision-making and Problem solving skills (17.3%), (b) thinking (17.3%), (c) communication and interpersonal skills (16.9%), and iv) ethical and values (16.4%). The result from their study shows that problem solving and adaptability/decision-making skills are the most lacking from graduates in Malaysia.

Quantity surveyors work alongside other parties within the construction field, in particular with clients; they have to possess a certain set of skills to deliver the project to the client with satisfaction (AIQS, 1998). These skills do not only include job-specific skills, but also 'appropriate' soft skills. With respect to soft skills, in the context of the Malaysian QS profession, Rohana (2001) highlighted that the soft skills' expectations of QS graduates lies highly on the areas of communication skills (both good spoken and written command in English), commitment and have the initiative to work, and learn; as well as mentally and physically prepared for works. Since this research focuses on soft skills of QS graduates, this section describes the types of soft skills that previous research have identified to be essential for a QS graduate (refer to Table 2).

Table 2 shows 7 types of soft skills that QS graduates need to possess for their employability. With respect to this scope of research, these types of soft skills we then categorized these types of soft skills following the classification by MoHE (2006). Among 7 soft skills identified, the three authors agreed that personal and interpersonal skills as well as synthesis and critical thinking are important. The rest were equally important, but nevertheless, only RICS (2009) thought that the business skills/ entrepreneurship skills is important for a graduate QS.

7. Graduates' Soft Skills

It has been argued that existing undergraduate programs are not producing graduates who possess the kind of professional and lifelong learning skills that they need to be successful in their careers (de la Harpe et al., 2000). It is said that the Higher Education (HE) system has failed to closely match the needs of the current labor market (United Nations, 2005). This mismatch between the kind of education being provided and the demands of the labor market has been cited many times in the literature (e.g., Egulu, 2004). HEIs are expected to produce a competent workforce for industries but it can be argued that a

university's purpose must not be defined solely by the expectations of employers, but also by the aspirations of the nation.

Table 2: Types of Soft Skills
(Adapted from RICS, 2009; Said, Shafei and Omran, 2008; AIQS, 1998)

Author/ Source of Reference	Types of Soft Skills						
	Self- De- velop- ment	Leader- ship/ Manage- ment skills/ Team- work	Com- munica- tion	Person- al & Inter- persona l Skills	Info. & Tech. Com- puter Litera- cy	Busi- ness/ Skills/ Entre- preneur ship	Synthe- sis/ Critical think- ing
MoHE	EM*	TS*&LS*	CS*	EM*	LL*	ES*	CTPS*
RICS (2009)				●	●	●	●
Said, Shafei and Omran (2008)	●	●	●	●			●
AIQS (1998)	●	●	●	●	●		●
Total	2	2	2	3	2	1	3

* Cross reference with Table 1

8. Roles of Higher Learning Institutions (HEIs) In Improving

The task of producing graduates who are prepared for the many challenges of the real world cannot be left only to HEIs but is the responsibility of the entire continuum of the education system, including the primary, secondary, and post-secondary education stages (Sirat et al., 2012). All education institutions must together discharge the role of developing individuals who contribute to their society. Since it has been increasingly argued, the quality of HE should not only be measured in terms of the employment rate of graduates but should also be measured by the extent to which higher education has addressed all of its purposes (Sirat et al., 2012).

HEIs have the aim of producing fully functional individuals who not only serve in the workforce but must also be actively functioning members in their respective communities. When HEIs are confined to meeting the demands of employers, this neglects the important role of universities in nurturing the characteristics that help graduates to function across all aspects of life after they graduate. In other words, individuals must not only be geared towards serving the work sector, but must also develop the skills that allow them to benefit their family, community and the nation (Dan, 1999). HEIs are expected to train the future workforce and assist in the creation and dissemination of knowledge. Therefore, the study by Chua (2004) had resulted that the course content and curriculum in HEI education must be balanced, up-to-date and meets the needs of the local profession and industry.

Given the many challenges in life that graduates must deal with, it is very important that HEI is concerned with promoting comprehensive excellence amongst university graduates. Amongst the important part of life is the development of characteristics that epitomize the philosophy of a university and the aspirations of a nation, rather than simply the production of graduates who have the ability to secure employment after completing their studies (Sirat et al., 2012). HEI must prepare graduates for all aspects of the outside world: employment, local issues and global problems. Thus, the HE curriculum must prepare graduates to play adequate roles in discourse on issues such as nuclear energy, climate

change and globalization, and to not only fit the needs of the industrial sector. Nevertheless, within the context of the Malaysian HEIs' QS graduates, the industry should be able to give their upmost commitment to work hand-in-hand with HEIs towards improving the level of soft skills possessed by QS graduates in Malaysia.

9. Research Methodology

This research aims to investigate the views and expectations of Quantity Surveying employers towards the soft skills possessed by QS graduates in Malaysia using a set of questionnaire sent out to 80 respondents, consisting of employers from different construction organizations.

10. Discussion and Findings

Out of the 80 sets of questionnaires distributed, only 35 sets of questionnaires were completed and returned by the respondents. This section discusses on the findings of this study in accordance to the questionnaire distributed:

10.1 Current Malaysian QS Graduates' Soft Skills: Employers' Views

Majority of the respondents had chosen technical skills as the top priority skill required in a QS graduate in Malaysia in contrast with soft skills. However, QS graduates nowadays are expected to not only excel in academic but at the same time be equipped with soft skills (Ismail *et al.*, 2011; Archer and Davidson, 2008; Chang, 2004). The Malaysian employers seem to have a low impression towards the performance of communication skills possessed by local university QS graduates in contrast with the QS graduates from abroad (Rahmah *et al.*, 2011; Archer and Davidson, 2008; Chang, 2004). This is due to many possible reasons, i.e. the environmental influences that surround the graduates from abroad which push them to communicate in English as their daily routine; either within the surroundings of the university, or whenever they are outside of the university. This is in contrast with the local university graduates; whereby they tend to use Bahasa Malaysia as their medium of communication; and teaching instruction.

Table 3 shows the employers' views on the rank of soft skills possessed by local QS graduates. It can be seen that the top three soft skills possessed by local QS graduates viewed by the employers, i.e. the respondents are i) teamwork skills; ii) professional ethics and moral, as well as iii) leadership skills. This is perhaps due to the trend of Malaysian HEIs emphasizing on group work assignments and projects, making them used to working in teams. Having good professional ethics and moral might be due to our culture and the moral inculcated within our society. However, the employers viewed that the local university QS graduates were very bad on their communication and language skills; i.e. ranked as no 8, as well as lacking on the critical thinking, problem solving and decision-making skills. This might be due to our current traditional-teaching centered which does not really encourage active thinking and problem solving skills causing the graduates to be dependent instead of independent.

10.2 Employers' Expectations Towards QS Graduates' Soft Skills In Malaysia

Employers agree that QS graduates need both technical and soft skills because technical skills are the proficiency of graduates to understand the activities, process or even procedure; and at the same time soft skills play an exclusive ability to adapt with different working place in regard

to different perceptions as well as to occupy themselves with employers' demand on competitiveness of this industry. (Odusami & ASCE, 2002). Zakaria *et al.*, (2006) highlighted that employers expect certain areas for the QS graduates to be looked upon such as construction contact, more period of practical training for graduates, project management, commitment, creativity, self-motivation, good communication including presentation, writing skills and negotiation skills. With respect to this research, the findings show that the respondents were in the belief that graduates must not only equip themselves with knowledge but skills (soft skills) in dealing with people. This is because of when QSs will be working alongside other parties in particular with client; they need to have a certain set of skills to deliver the project to the client with satisfaction (AIQS, 1998).

Table 3: Employers' Views on Soft Skills Possessed by Local University QS Graduates

Rank	Local University QS Graduates
1	Teamwork Skills
2	Professional Ethics and Moral
3	Leadership Skills
4	Working well under Pressure
5	Capability to work Independently
6	Self Confidence
7	Time Management Skills
8	Communication and Language Skills
9	Lifelong Learning & Information Management Skills
10	Critical Thinking, Problem Solving & Decision Making

Table 4 shows the five most important soft skills that employers expect QS graduates to possess are as follows:

- critical thinking, problem solving and decision making,
- communication and languages skills,
- capability to work independently,
- Professional ethics and moral
- Self-confidence.

These findings are in line with the findings from Ranjit (2009). Whereby we highlighted the communication skills, creativity, analytical thinking and problem solving skills that graduates must possess. The skills are necessary to compete with other outside graduates. Employers view these skills as essential because of the nature of the QS profession which is challenging and require a high level of problem solving skills to tackle any problem that related to construction project and indirectly they expected QS graduates to be able to contribute to the growth of their company.

Table 4 also shows a comparison between the soft skills viewed possessed by QS graduates as compared to the soft skills that employers expect graduates to possess. From Table 4, it can be seen that the top 3 soft skills gaps are on the level of i) critical thinking, problem solving and decision making skills possessed by QS graduates, ii) communication and language skills, as well as iii) capability to work independently.

These three soft skills require attention and needs to be improved by QS graduates to meet to employers' needs and demands. The gap between the views and expectations of the employers are perhaps due to the way the traditional way the graduates are educated within their HEIs; whereas the expectations of the employers come from the changes that are happening within the industry and market demands. In order to remain at the competitive edge of the industry, these are the essential soft skills to be possessed by QS graduates.

Table 4: Comparison between the soft skills viewed possessed by QS graduates as compared to the soft skills that employers expect QS graduates to possess

Rank	Employers' Views towards soft skills possessed by Local University QS Graduates'	Employers' expectations towards soft skills to be possessed by Local University QS Graduates'	Remarks
1	Teamwork Skills	Critical thinking, problem solving and decision making	Needs attention, current soft skills possessed by students ranked at no. 10
2	Professional Ethics and Moral	Communication and languages skills	Needs attention, current soft skills possessed by students ranked at no.8
3	Leadership Skills	Capability to work independently	Needs attention, current soft skills possessed by students ranked at no. 5
4	Working well under Pressure	Professional ethics and moral	Ok. Employers currently view that graduates have good professional ethics and moral, i.e. no. 2
5	Capability to work Independently	Self-confidence	Needs improvement. Current self-confidence of graduates are ranked as no. 5
6	Self Confidence	Teamwork Skills	Ok. At the moment viewed as no. 1 soft skills possessed by graduates
7	Time Management Skills	Leadership Skills	Ok. Status better than expectation
8	Communication and Language Skills	Working well under Pressure	Ok. Status better than expectation
9	Lifelong Learning & Information Management Skills	Time Management Skills	Ok. Status better than expectation
10	Critical Thinking, Problem Solving & Decision Making	Lifelong Learning & Information Management Skills	Ok. Status better than expectation

10.3 Recommendations To Higher Learning (HE) Institutions To Improve Qs Soft Skills

From the Malaysian education's perspective, many changes as well as strategies been done in order to improve and to meet employers demand on graduates' soft skills competencies. Moreover, a study by Rohana (2001) has acknowledged that the HEIs in Malaysia have redrawn their strategy and policy to meet the demand for graduates of high quality and professionalism. Since then, Chua (2004) had

emphasized that the course content and curriculum in HEI education to be balanced, up-to-date and meets the needs of the local profession and industry. For example, Said et al., (2008) highlighted that the Board of Quantity Surveyors Malaysia (BQSM) as a team with Ministry of Higher Education (MOHE) having on the good track to produce the "Criteria and Standard for Educational Programs In the field of Quantity Surveying" comprising the required knowledge, skills and attributes to be used in public university in order to educate future Malaysian QS graduates.

Based on the findings as discussed in the previous section, the top three soft skills that employers believe most essential are lacking within the current QS graduates; i.e. (a) critical thinking, problem solving and decision making skills possessed by QS graduates, (b) communication and language skills, as well as iii) capability to work independently.

Some of the recommendations given by the respondents to the HEI in order to increase the level of the three mentioned soft skills are as shown in Table 5:

Table 5: Recommendations to HEIs to increase the level of essential soft skills to be possessed by QS graduates

Essential Soft Skills for Improvement	Recommendations by Employers
Critical thinking, problem solving and decision making skills	<ul style="list-style-type: none"> To include real-life case studies as assignments To increase presentation-based learning among HEIs students Encourage students to talk more, rather than having a traditional teaching environment whereby the lecturers do most of the talking.
Communication and language skills	<ul style="list-style-type: none"> Conduct assignments which require students to deal with outsiders so that students are exposed to the real working communication, i.e. the way to communicate with clients, contractors as well as other project consultants. Increase the number of presentations – include question & answer sessions to encourage students to defend their works
Capability to work independently	<ul style="list-style-type: none"> to have a combination of both group-work assignments as well as individual assignments – to reduce free riders to encourage more research work

11. Conclusion

Huge changes in the country development have changed the employers' expectation towards the university graduates. This research found that most employers in quantity surveying organizations are much interested on the QS graduates who are equipped with: (a) having high level of critical thinking, problem solving and decision-making, (b) fluent communication and language skills, and, (c) capable to work independently. Employers also believe that professional ethics and moral as well as good self-confidence need to be seriously looked in order to perform QS tasks. Generally Malaysian HEIs main objective is educating QS students with sufficient knowledge either in technical skills (i.e. measurement, contractual aspect, project management etc.) or soft skills aspects (i.e. communication skills, self-confidence, teamwork skills etc.). Hence, appropriate solutions need to take into account in order to close the gaps on the current performance of QS graduates' soft skills and the employers' expectations.

The employers highlighted several steps or ideas in order to improve QS graduates' soft skills, i.e. in order to improve communication skills, mostly employers agreed that Malaysian HEIs should increase the numbers of presentations to be conducted during lectures (others see Table 5). Nevertheless, in order to improve QS graduates' soft skills competencies, everyone, i.e. Malaysian HEIs and QS practitioners should sit together in coming up with recommendations or strategies to overcome these weaknesses. This research however, acknowledges that one of the limitations is by having a small set of respondents. The researcher feels that there should be other similar research conducted to contribute significant information and knowledge regarding QS soft skills because of the nature of the QSs scope of work nowadays; i.e. becoming more complex due to the rapid development in technology; and other; but to a larger sample set.

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Climate Change Awareness among the High School Students: Case Study from a Climate Vulnerable Country

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ABSTRACT

Bangladesh is one the worst sufferers of climate change. Climate change awareness creation is pivotal to adaptation and mitigation strategies. Effective dissemination of knowledge among the citizens during high school years is crucial to that end. In Bangladesh, secondary school students follow common curricula which include entries on climate change. This paper investigates the role of the diverse demographic profiles and inherent scholastic background of students on their *informedness*. The research is based on responses from secondary schools students in Chittagong, Bangladesh. Based on their understanding of climate change, we have constructed the Climate Awareness Index (CAI). Then the relative roles of demographic determinants of the awareness have been compared using the CAI. The quality of schools, and grade, major and merit position of students have affected the CAI values. Besides, the study concluded that the religion, gender, parental education, occupation and income, etc. could affect students' climate change *informedness* in Bangladesh.

1. Introduction

Climate change (CC), hitherto considered by many as a myth (Chivers, 2012; Carter 2007), is now a hard-felt reality (IPCC, 2013). Countries like Bangladesh have started facing the impacts of CC in the forms of temporal shifts in recurrent climatic events such as excessive rainfall, elevated summer temperature, changes in tidal regimes and heights etc. (IPCC, 2007). CC is considered as the most expansive global environmental (McCright, 2010), economic (Stern, 2007), and political (Giddens, 2009) problem facing humanity right now. Consequently, it has become the cornerstone of policy making throughout the world (Weber and Peters, 2009) and the coffee-table-discussion-topic among the masses now-a-days. Informed mass awareness on the causes, consequences and mitigation as well as adaptation strategies to CC is important to confront this largely human-induced phenomenon (Bohle et al., 1994).

Knowledge on CC, perceived as a part of formal environmental education, helps the development of a sense of responsibility through the creation of informed awareness. Such awareness is necessary to guide students' behaviour towards concerted ameliorative actions (McMillan et al., 2004; Kuhlemeier et al., 1999; O'connor et al., 1999). Consequently, youth environmental education had already been emphasized by the world policy makers (UNCED, 1992). Paragraph no. 25.9d of agenda 21 of UNCED states:

'For advancing the role of youth and actively involving them in the protection of the environment... governments, according to their strategies, should take a measure to ensure access of education for all youth... which incorporates the

concepts of environmental awareness and sustainable development throughout the curricula'.

In fact, widely disseminated information about environmental degradation i.e. climate change impacts, vulnerability, etc. has already increased the interest among the young students worldwide (Pekel and Ozay, 2005). Moreover, the school students, who are the future voting citizens, should be motivated towards an environment-friendly lifestyle by inculcating informed awareness in them so that they can influence adoption of better climate policy by choosing pro-environment leadership (Boyes et al., 1993). In order to ensure such intensive appreciation of CC by new generation, we need to build their awareness through a well-designed effective primary and secondary school curricula which addresses the issue of CC adequately (Kılınç et al., 2011; Bangay and Blum, 2010). However, knowledge addressing CC is often found perplexed since CC itself is a very complex and abstract concept with varied school of thoughts (Boyes and Stanisstreet, 1992). Besides, sporadic and excessive media coverage along with the over-excitement of pressure groups make the messages related to CC complicated to the students (Boyes et al., 1993). Furthermore, some studies suggest that the association between cognitive knowledge about CC and its behavioural implications i.e. adopting mitigative and adaptive personal lifestyle is not linear (Dijkstra and Goedhart, 2012; Pe'er et al., 2007). Considerable development towards the role of secondary curriculum in shaping awareness among students is well evident (Malandraki et al., 2011; Shepardson et al., 2011). However, in the absence of proper instrumentation to measure the students' awareness on CC, it is very difficult to assess the effectiveness of such curricular inclusions for which we need a representative climate change awareness

index (CAI) which has been constructed in this research. Besides, we need to identify the factors that may shape the CC awareness among the growing generations to design more effective contents and mode of their delivery. A number of studies have been conducted in different parts of the world. Individual's demographic characteristics such as age, gender, educational level, occupation, parents' educations and occupations etc. have been identified as influential factors alongside the sources of information on climate science (O'Connor et al., 1999; Berger, 1997; Sampei and Aoyagi-usui, 2009). Ozden et al. (2008) evaluated the relationship between environmental awareness and a number of socio-demographic factors i.e. gender, academic major, grade, income level of family, father's job and education, mother's job etc. Pe'er et al. (2007) found the influence of students' study major and mothers' education level on their environmental awareness. A study on secondary school students from five European countries reported a significant relationship between their CC knowledge and pro-environmental attitudes and highlighted the influence of gender, age and higher grade on students' CC knowledge (Dijkstra and Goedhart, 2012). Perception of CC among the Greek secondary school students are reported to be influenced by their education level, gender or previous participation (Liarakou et al., 2011). Similar outcome has been drawn by Kılınç et al. (2008) on Turkish high school students. It is, therefore, necessary to evaluate the role of these demographic factors on the comprehension of curricular information in order to understand the education-awareness climax better.

Bangladesh – one of the top ranked countries in the Global Climate Risk Index (Kreft and Eckstein, 2014) - is frequently cited to be ravaged by CC impacts (Ayers, et al., 2014) despite the fact that she is an insignificant or virtually zero contributor to greenhouse gas emissions (Reynolds et al., 2010; Ali, 1999). Her population has one of the highest densities (1,050 people per km²) in the world (BBS, 2012) and one of the youngest with 51.8 percent aged under 24 and 33 percent aged under 14 (U.S. Census Bureau, 2013) unfortunately with a low literacy rate of 51.8 percent (Ali, 1999) only. Considering the populous secondary level age group, secondary education could undoubtedly be the primary route to educate the population towards climate awareness. We believe that a successful dissemination of knowledge at the high school level is critical to ensure lifelong pro-environment behaviour among future Bangladeshi citizens. Unfortunately, when Bangladesh is in the process of implementing many CC adaptation and mitigation schemes, learning outcomes from the curricula and school and surrounding environment focusing CC and the role of different socio-demographic influential factors on Bangladeshi students have not been focused in previous researches. Therefore, in this study, along with the development of Climate Awareness Index (CAI) to be used as a general estimate of the level of awareness, we have focused on the demographic factors to see how they shape the level of *informedness* of secondary school students who has been exposed to similar curricular contents on CC.

2. Methodology

2.1 Sampling procedure

The study was aimed to analyze the CC awareness among the secondary (grade VI-X) level students of Chittagong, the second largest, often names as an industrial hub and the port city of Bangladesh. Chittagong is the abode to people from all the nooks of the country with mix of demographic profiles representative of the country. Moreover, Chittagong is the coastal city, and it is exposed to CC associated disasters *i.e.* sea level rise, cyclone, tidal surge, heavy rain, etc. (Karim

and Mimura, 2008).

The age range of the students was between 10 to 16 years. Stratified sampling method was used for selecting the students, and a structured questionnaire was used for collecting data from them. The schools in the city were stratified into three categories based on their administrative structures *viz.* the government schools, semi- government/autonomous schools and private schools. Further, based on their overall performances in Junior School Certificate (JSC) (Schooling year 8) and Secondary School Certificate (SSC) (Schooling year 10) examinations, each group of schools were divided into three tiers - Tier-1 (top 33.3%), Tier-2 (middle 33.3%) and Tier-3 (bottom 33.3%). Then from each category and tier, we randomly selected two schools, and a total of 18 schools were selected for conducting the survey.

The total number of respondents was 270 (male and female respondents to be 143 and 127 respectively). Three (3) students have been selected from each grade of the specified classes based on their result so that they represent the top, medium and low merit levels and ensure the representation of study majors *viz.* science, commerce and arts. The selection of the students has been done by teachers at the respective schools according to our instructions.

2.2 Questionnaire survey

A structured questionnaire was prepared with several sections to conduct the survey. The first section was on the demographic details of the respondents where some basic questions *viz.* name, merit position, age, class etc., family details of the students *i.e.* educational background of both parents and their occupation, family income were inquired. We have divided the educational background of the parents into three sections - below or equal to Higher Secondary Certificate (HSC) (Schooling year 12), Undergraduate and Post-graduate. Occupations of the parents have been divided into five categories - Businessmen, Service holder, Academic, Housewife (in case of the mother) and Others. The monthly income level of the family have been divided into four sections *viz.*, Below or equal to BDT 6,000 (lower) (USD 1 = BDT 77); BDT 6,000-15,000 (lower middle); BDT 15,000-35,000 (middle) and more than BDT 35,000 (higher). We also have asked about their religious belief to find whether there is any co-relation between religion and CAI. The experience from our reconnaissance survey gave us an indication on the level of difficulty that the respondents may face in understanding the CC issue. We started the questionnaire with very basic questions followed gradually by complicated ones. The questions included open-ended, multiple choice, and ranking questions.

The appropriateness of the open-ended questions *e.g.* major effects of CC, ways to combat such effects etc., have been checked afterwards to ensure the inclusion of only the right answers. Some international organizations such as IPCC, World Bank, ADB, USDA, WHO, UNDP, WMO, IUCN, etc. are exclusively working on different CC related development projects in Bangladesh. We considered that the knowledge about the relatedness of these organizations with CC related work is also indicative of their awareness.

2.3 Constructing the Climate Change Awareness Index (CAI)

After collection of the data, the responses have been ranked on a scale of -5 to +5 based on the merit of the answers. Next to ranking the options, we have given weights to the questions on the basis of their significance. Table 1 lists the weightage given to each question and the maximum score it can yield. The product of ranks and the relevant weightage of

the questions or propositions yielded the score for each question. The sum of scores from all the questions for each student gave the CC awareness score of the respective student. CAI for the respective students has been calculated by expressing each student's climate change awareness score as the percentage of the maximum possible total score for the questionnaire as shown in equation below.

$$CAI (\%) = \frac{\sum_{i=1}^n R_i \times W_i}{\sum_{i=1}^n R_m \times W_i} \times 100$$

In the equation, CAI is climate change awareness index for a particular respondent, n denotes the number of questions considered for the index construction, R_i is the rank obtained from the i -th question, R_m is the maximum rank that can be obtained from the i -th question and W_i is the weight of i -th question.

Table 1: Individual weight of questions and subsequent maximum scores

Questions	Weight	Max. Score
Have you heard of the term "climate change"/"global warming"/"Greenhouse Effect"?	10	50
How often do you talk to your friends, family, and partners about things that relates to climate change?	4	20
How would you describe your knowledge on the likely causes of climate change?	8	40
Can you name three major effects of climate change?	8	40
What do you think are the effects of climate change on Bangladesh?	8	40
What is the most effective way to combat climate change effects?	8	40
To what extent do you know about IPCC's activities on climate change?	5	25
To what extent do you know about World Bank's activities on climate change?	2	10
To what extent do you know about ADB's activities on climate change?	2	10
To what extent do you know about USDA's activities on climate change?	2	10
To what extent do you know about WHO's activities on climate change?	2	10
To what extent do you know about WMO's activities on climate change?	2	10
To what extent do you know about IUCN's activities on climate change?	2	10
To what extent do you know about UNDP's activities on climate change?	2	10
How much do you know about "climate fund" that our policymakers are concerned of and interested to?	4	20
Did you already involve yourself in any kind of climate change related activity?	5	25
Do you wish to involve yourself in any kind of climate change related activity in future?	5	25
Proposition (Level of Agreement)		
The impact of climate change will be more adverse for the developing world than the developed world	5	25
The developed countries around the world are responsible for the climate change effects	5	25
Human being is responsible for climate change	10	50
The effects of climate change are already being felt in Bangladesh	8	40
I have a responsibility to act against climate change	4	20
The government has a responsibility to undertake steps to reduce CO ₂ emissions	6	30
Total		595

In the end, we have investigated the relationship of CAI values with different demographic factors to see how the demographics of students are related to their CC awareness. We have used SPSS (v 21.0) for these analysis.

3. Results and Discussions

Our results showed apparent variation in the mean CAI scores between male and female students based on the tier of their school (Figure 1-above). The variation was significant ($P < 0.05$) for male students between Tier-1 and Tier-2 schools and female students between Tier-2 and Tier-3 schools. Surprisingly, based on the merit position in respective classes, the middle third male students showed significantly higher ($P < 0.05$) awareness than the top thirds, while for the female students, the awareness level in the middle third students was significantly lower ($P < 0.05$) than top thirds (Figure 1-below). This is an interesting observation which indicates an opportunity for further research. Such significant difference in CAI between Tier-1 and Tier-3 schools may have been caused by the diverged care and attention from the teachers and authorities.

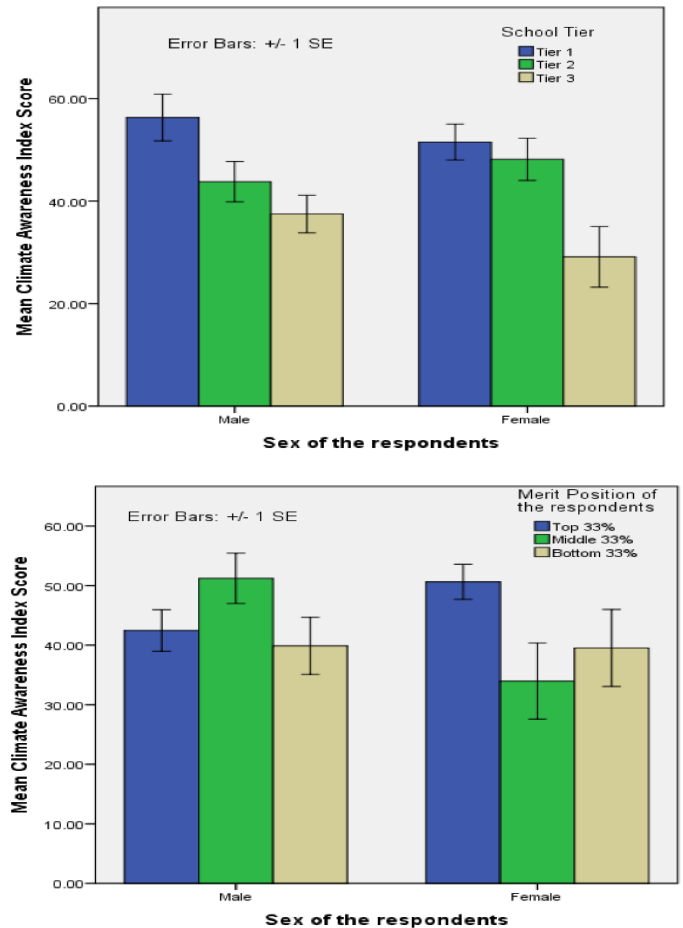


Figure 1: Mean CAI scores- in male and female students with respect to the school tiers (above) their merit position in the respective classes (below)

Looking closely, there are some top quality boys' schools that uplifted the score level of the male students. The lower score of female students from Tier-3 schools (Figure 1), situated mostly in the underdeveloped area of the city, may have been driven by their economic condition. In lower income families, daughters are bound to spend their time in contributing to their daily household activities like cooking, washing etc. rather than studying and attaining knowledge through different media. However, collectively the female students were found to be more knowledgeable about CC as they are more conscious about their study and current issues. The fact is consistent with the result drawn by

Erdogan et al. (2009) and Ozden (2008) in Turkey, Dijkstra & Goedhart (2011 and 2012) in EU countries, Yu et al. (2013) in China, McCright (2010) in USA, Gifford & Comeau (2011) in Canada. However, our results differed from the conclusion drawn by Ibidun and Gbadegesin (2005) for indigenous African community. Moreover, CAI showed dependence on students' merit and difference among male and female respondents due to varied access and exposure to the information sources on CC by different levels of schools in terms of merit uniformly.

3.1 Mean CAI of different types and tiers of schools

Among the three different types of schools, students of Tier-1 public schools showed significantly higher ($P < 0.05$) mean CAI in comparison with others (Figure 2 above). Tier-2 and Tier-3 school students had almost similar mean CAI irrespective of the types of schools. In case of semi government schools, the schools of Tier-1, to our surprise, showed lower mean CAI than the schools of Tier-2 while the Tier-3 schools students scored significantly lower ($P < 0.05$) mean CAI score as expected. In case of private schools, however, significant differences ($P < 0.05$) in mean CAI was observed between Tier-2 and Tier-3. Huge reduction in awareness level in the bottom thirds of these schools entailed a clear gap in the quality of education among such type of schools.

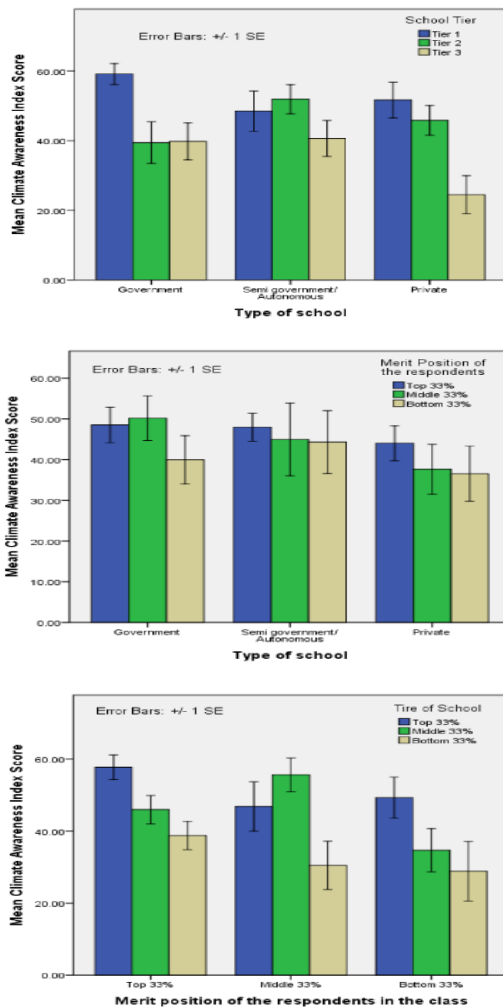


Figure 2: Mean CAI scores for types of schools with respect to their tiers (above) types of school with respect to the students' merit position (middle) student's merit position with respect to the school tiers (below).

When we compared different types of schools on the basis of merit position of students, we could not find any abnormal results and we confirmed the gradual reduction in mean CAI value from top to bottom third students except for the government schools (Figure 2-middle). It was clearly seen that the students of the private schools scored the lowest in terms of mean CAI among all the categories. A clear trend in CAI is observed when we tried to depict the relationship between tiers of the schools with students' individual merit positions in the classes (Figure 2-below). Irrespective of the students' merit position, the CAI scores of top third schools were found significantly higher ($P < 0.05$) than the bottom third schools. The top third students of the top third schools scored the highest, and the bottom third students of the bottom third schools scored the lowest in the awareness index.

According to Bangladesh standard, top third government schools comprised some good quality students as they intake students through a rigorous admission test which explains the highest CAI scores from those schools. Again, in our study we saw that the private schools exhibited the lowest CAI among all the categories. In fact, the private schools are the costliest options of secondary level in this country providing quality education to fewer students than the government or semi government schools. They have a diverse set of extra curricula that is designed for particular communities in the city or suburban area. Therefore, it is expected that the students from private schools get more intensive care from the school authorities and teachers. Knowledge level of the students of some private schools run by charity in a less developed area within the city could have affected the overall scores badly. Further investigation in this regard is needed to find out the reasons.

3.2 Students' CAI for different grades and study majors

The grade of the students is one of the most important factors influencing the knowledge level of the students. The maturity level of the students to understand and grasp the depth of the content in their text about CC increases with their grades. As we can see from Figure 3a, the respondents attained increasing awareness as we proceeded from lower to higher grades. It indicates the efficacy of curriculum in terms of gradual inclusion of advanced contents on CC into the curricula with grades. However, the maximum mean CAI for grades IX and X students was around 55% that meant that the content is less than adequate on CC in the high school curriculum of Bangladesh. The use of the same text books in grades IX and X explained the unchanged CAI between these two grades. However, for Sixth to Tenth grade students, interestingly, the female respondents are seen to know more about CC in comparison with their male counterparts. Interestingly, significant improvement in CAI are seen only between sixth and seventh grade, which is indicative of lower efficacy of the curriculum in this context. The CAI shows irregular values among different study majors which starts from ninth grade and includes three majors. Science students were expected to know more about CC due to the possible productive climatic content within their text books i.e. secondary Physics and Biology. Expectedly, the mean CAI of the science students was significantly higher ($P < 0.05$) than the other two majors (Figure 3-above). Breakdown of the scores within male and female students (Figure 3-middle) produced almost similar CAI scores between science and commerce male students. Erdogan et al. (2009) on Turkish schools and Chu et al. (2006) on Korean school, Dijkstra and Goedhart (2012) on European schools, and Liarakou et al. (2011) on Greek school found similar results. The significant ($P < 0.05$) difference in CAI was observed between male and female students of commerce major which demands further study.

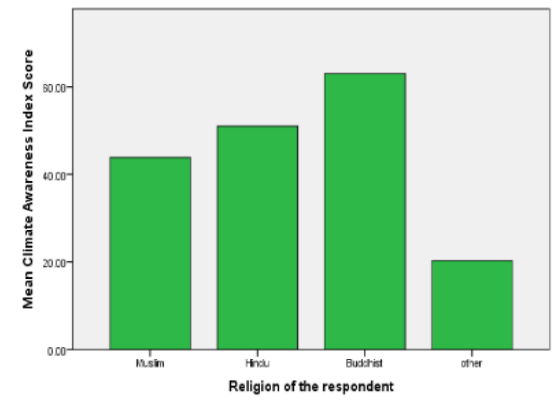
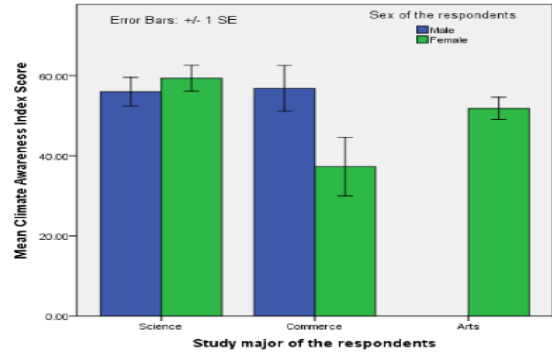


Figure 3: CAI scores of students focusing their - grades / class with respect to their gender (above) study majors with respect to their gender (middle) religion (below)

3.3 Parental education and CAI score

Families, particularly parents are one of the primary institutions to disseminate knowledge and awareness among their offspring. Well-educated and conscious parents are expected to be more aware about CC related issues (Pe'er et al., 2007). In our study we found a declining trend in the level of knowledge with the merit position of the schools in the board which undermined the influence of the fathers' educational background. Children with top third schools have the highest level of knowledge on CC (Figure 4). However, mothers' education level appears to be an important demographic feature which significantly impacts the awareness level. Knowledge level of children of post-graduate mothers further consolidated the claim (Figure 4b). Significant differences in the perception between the top and bottom level schools were seen for fathers and mothers without any education.

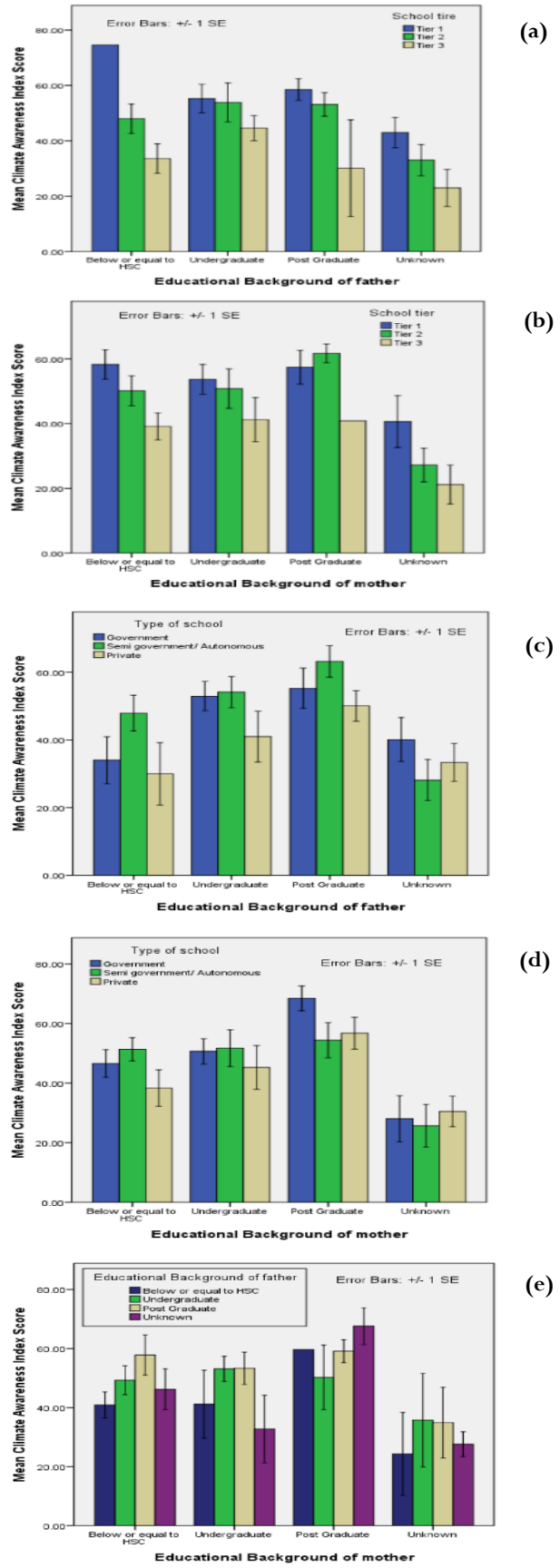


Figure 4. Mean CAI scores of the students focusing their parent's* educational background with respect to: (a)&(b) the tiers of schools; (c)&(d) the type of schools; and (e) each other [*&(a) &(c) focus on fathers' educational background; (b) &(d) focus on mothers' educational background].

CAI was higher among students having both parents with post-graduate education. The CAI score increases clearly for government and semi-government/ autonomous schools with the higher educational level of father (Figure 4c) and mother (Figure 4d). However, students from semi government/autonomous schools scored the highest with post-graduate fathers while students from government schools scored the highest with post-graduate mothers. Looking into the influence of overall parental education on children's perception, Figure 4e shows that in almost every cases where any of the parents are of below or equal to the HSC, the children know comparatively less than the children of parents with undergraduate or postgraduate degree. Hence, we conclude that parent's education influence the CC awareness level.

3.4 Parental occupation and family income Vs. CAI score

Children of service holder mothers, and businessman or service holder fathers exhibited higher CAI (Figure 5a). CAI for the students with housewife mother was consistently lower irrespective of their fathers' occupations. CAI value significantly ($P < 0.05$) differed for service holders and academic mothers. The children of academic parents were more conscious about CC. We could see that the children of working mothers, particularly as service holder or academic, know significantly more compared to the children of housewife mothers.

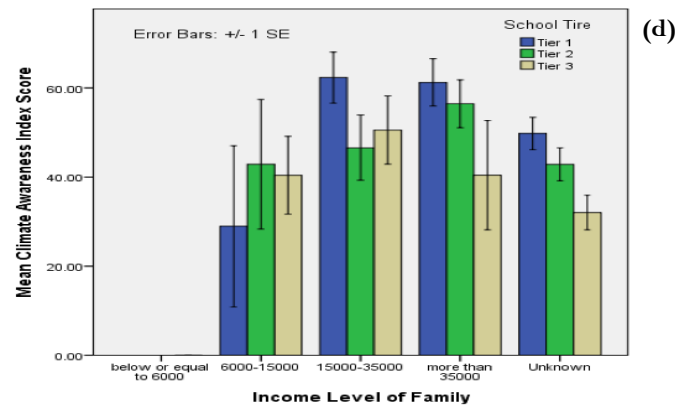
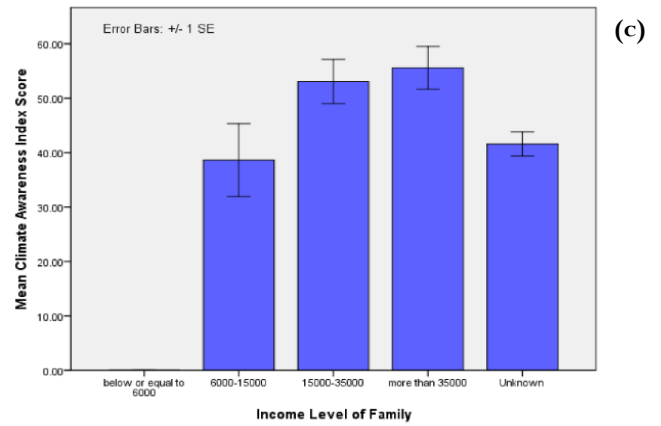
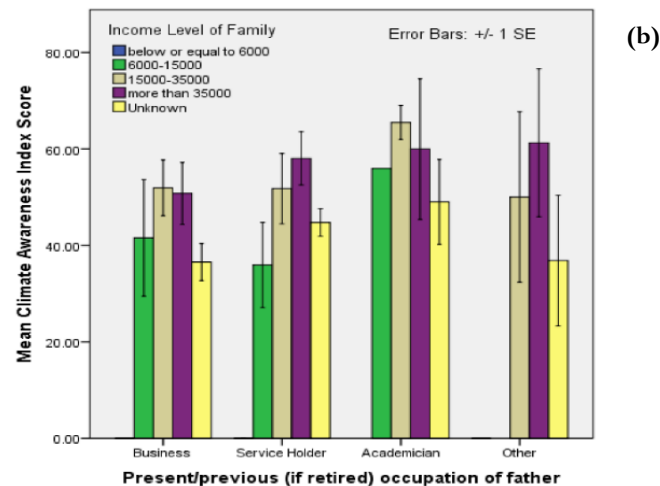
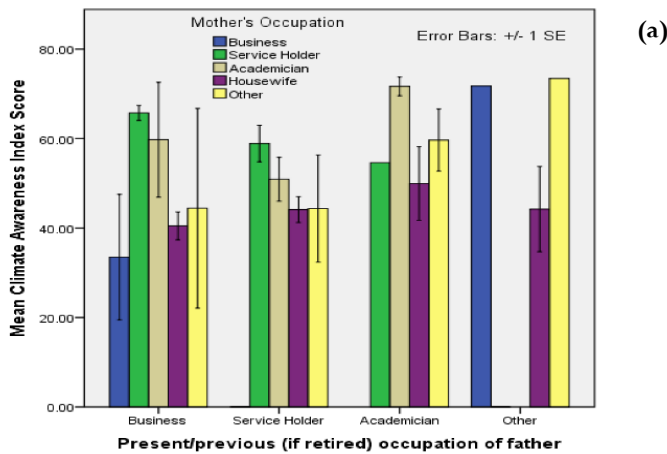


Figure 5: Mean CAI score of students focusing: (a) their fathers' occupation with respect to their mothers' (b) fathers' occupation with respect to the family income level; (c) the income level of the family (d) family income level with respect to the school tiers.

Mother's educational background seemed to be more influential to the knowledge of their children on CC than that of the father's. In Bangladesh, only 9.8% women are economically active against 66.0% men (BBS, 2012). Most of the mothers work as a housewife after their marriage. Interestingly, the perceptions of children with housewife mother were found to be consistently lower. Ozden (2008) found the similar result for Turkey. The matter needs further investigation. The mean CAI score for the children with academic parents was the highest since such parents are expected to discuss this kind of burning issue with their children.

The children from families with below or equal to BDT 6,000 income group were unable to score in the CAI scale. For any occupation of father, students of lower-middle income family (monthly income 6,000-15,000) acquired a lower perception score (Figure 5b). In this study, the students with fathers whose income levels are within the range of BDT 15,000 - 35,000 and academic by profession are seen to score the highest in the CAI scale followed by students with academic father with income more than BDT 35,000. Collectively, the CAI index score for children of parents with the income level of BDT 6,000-15,000 are significantly lower than that of the children of parents with income more than BDT 15,000 (Figure 5c).

Figure 5d showed the CAI of students depends on their parent's income. It was interesting to see that, for family income below or equal to BDT 6000, the students were found to know nothing about CC. Alike the

previous case, the bottom third students in the classes whose families fell within the lower middle income group (income range BDT 6,000-15,000), knew significantly less about CC compared to the others. This score, individually, responsible for the lower mean of CAI value representing the lower-middle income group.

Occupation and income of the parents also influence the children's perception of CC. In this study, lower income family (income below or equal to BDT 6,000) failed to score in CAI scale. In those families, students may need to think about economic contribution to the family. Again, parents cannot pay much attention to their children. These might be the possible reasons behind the minimal score by lower income family. On the contrary, upon economic solvency, parents can afford to provide good quality schooling, create a better learning environment at home and adopt technologies e.g. different reference books, desktop or laptop computer with internet facilities, DVDs, etc. to teach their children which enable them to learn more about CC related issues which is evident in case of middle and higher middle income families. The result shows consistency with the outcome shown by Ozden (2008) where rich students have more positive attitude towards environmental issues than poor and average ones. Therefore, lower middle income group needs to be addressed properly while designing a program to teach them about CC as they scored significantly lower than the middle and higher income group. The abrupt downfall of bottom third students of lower middle income group needs further research to explain.

3.5 CAI and religion

Diversity in traditional, religious and spiritual approaches and various philosophical directions lead variation in views, motivations and attitudes towards environmental protection (Cooper, 1998). For some religious group preservation of nature comes first (Schreiner, 2005). Figure-3c compared the CAI among the students of two major religions. About 89.5% of Bangladeshi people are Muslims followed by 8.5% Hindus (BBS, 2012). Our survey population also resembles the religion of the population of Bangladesh where 88.15% respondents were Muslims and 10.37% of the respondents were Hindus. Hindu students, as we could observe, showed higher mean CAI than their Muslim peers. Buddhists comprised insignificant percent of the respondents and therefore, though their awareness level seemed to be the highest, we opted not to comment on this observation.

The Hindus, being minority population in terms of percentage, face more challenges in the local and national level competitions and thus they tend to be more aware of their studies and surroundings. Several studies (Flynn, et al., 1994; Kellstedt, 20008; Bord et al, 1998) in the USA showed that racial minorities are more fearful of the risks of CC. They tend to know more about the CC issue as they are disproportionately exposed to climatic hazards (Mohai and Bryant, 1998). Our findings further consolidate previous findings. However, only this study is not enough to draw a conclusion about the higher awareness level of Hindus in the environmental education sector. Further in-depth research is needed in this regard.

4. Conclusion

Knowledge of CC may play a significant role in shaping the pro-environment attitudes of the school students and may empower them combatting its adverse effect on the region and the country. Although CC has already been included as a topic into the high school curricula in the recent past in Bangladesh, the quality of the instruction is varied and unknown. We interviewed junior secondary and secondary level

students from a number of schools in Chittagong City as a representative sample of secondary school students for the whole country and studied their level of knowledge along with the influence of socio-demographic conditions on their perception of CC. A weight based Climate Change Awareness index (CAI) has been constructed as an indicator of the level of awareness of a student in CC related issues. Later, we have investigated the bearings of different demographic factors on the CAI values of the students. The survey results indicated that the socio-economic variables including the quality and type of schools; genders; religion; grade, major and merit position of the students; mother's education and occupation; family income, etc. act as influential factors of students' outlook on CC and related issues. Even with the widespread media coverage of the issues, students lack in proper and decent interpretation of global and local CC. The present level of misconception and varied idea demands prodigious care and specially designed program focusing the students from family, school, society and nation. The study recommends that the contents on CC in the curricula should be revised by including contents that are decent, recent and interestingly presented. This research identified the probable target groups who can get addressed based on our results. A need for segmented, targeted communication approach for the youngsters wherein media and message schemes are involved are suggested. Bangladesh is a small country with relatively uniform demographic distribution having similar curricula and same textbook for all high school students who face the same public exams. Therefore, we can reasonably consider our findings to be applicable for all high school level students in the country. The socio-economic variables used in this study were selected based on extensive literature review and data availability; however, more socio-economic variables could be included in this research but it could complicate the findings. Nonetheless, the outcome of the study may serve as a baseline in the measurement of the level of awareness in order to compare the efficacy of the current curriculum and future revisions to it. Also our results will assist the development of a more effective strategy for information dissemination to improve the perception level of the high school students. It is expected that this study will encourage further researches on the perception level of students on CC.

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Ostrom's Design Principles in Residential Public Open Space Governance: Conceptual Framework and Literature Review

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ABSTRACT

Various measures were undertaken to internalize the state-owned common pool resource (CPR) based public open space's (POS) externalities which arisen from the perennial commons' dilemmas, yet, to date, not a single adaptive governance strategy has been discovered. Thus, a review of trans-disciplinary analytic perspectives is required, which thereof, highlights the objective of the paper i.e., to propose Ostrom's common-property-based self-organizing eight design principles by examining how can they be adaptably applied in governing the residential commons, POS (particularly landed property) in the Malaysian context. Two study areas: states of Sabah and Selangor, of different institutional POS governance, were a priori fleshed out. Succinctly, Ostrom's principles are basic, insightful, well-defined, organized, and widely-applicable, which have enabled us to consent that there is certainly a void for both states to adapt her oeuvre as a dynamic panacea in POS governance. This paper infers that Ostrom's principles are a means to improve the status quo of POS' quality (as POS rejuvenation) which postulates stakeholders to reckon it as a new paradigm in the urban design and planning perspective.

1. Introduction

Contemporary public open space (POS) is no longer fixed as a square terminology, instead it now connotes in a wide-spectrum of definitions, features, significances and functions which are colligated with sustainable development and quality of life (Chiesura, 2004; Ling et al., 2014a). Despite the panoptic researches that emphasize on both significances and conservation measures of the common-pool-resources-based (CPR) POS, rampant governance (management/ provision and consumption) issues that involve various predicaments and negative externalities which subsequently induce meagre POS quality, are still ensuing to date (Webster, 2007; Foster, 2011). Thence, this phenomenon has created an impetus to many scholars that continuous studies pertaining to POS rejuvenation and quality improvement are still necessitated to bridge the lacuna, especially in applying the common-property regime theory in POS governance, of which yielded many successful outcomes yet remarkably few researches were done (see, Colding et al., 2013; Ho & Gao, 2013), via institutional mechanism (property-rights analytic perspectives) complemented with contractual arrangement. This heuristic paper, thus, highlights an objective based on two present study areas in Malaysia (i.e., states of Sabah and Selangor as depicted in figures 1 and 2 below), especially on the state-owned (local government)

governance in neighborhood residential public open space (focusing solely on landed-property, exclusive of the gated/ gated and guarded properties): to illuminate insight of Ostrom's collective action by purporting her common-property-based self-organizing eight design principles in governing such residential commons, POS (conceptual framework construction). However, before initiating such attempt, we provided a brief discourse on the two-state's current institutions issues in POS governance which thereby delivering a firm and valid basis why such Ostrom's work that requires institutional change is necessary. Therefore, through this study, it elucidates several main doubts as follows; (i) what are Ostrom's eight design principles and (ii) how should her oeuvre employ and execute in local POS environment.

2. Contemporary Urban Commons resources, POS Concepts and CPR Issues

Throughout the plethora of studies on idiosyncratically multidimensional open spaces, it can diversely be interpreted contingent upon the circumstances. However, in general, open spaces are necessarily set apart as areas reserved for the public as public purpose to carry out their recreational activities and as places to meet and socialize, in which such definition is considerably abiding by the two study areas' laws/

¹This research has not insofar been implemented in any part of Malaysia although it was scantily mentioned (See, Chan, 2008; Ling et al., 2014b); thus, this study can be earmarked as references or benchmarks not only in new commons but also in other environments like fisheries, agriculture and forestry which are also endangered.

(Musole, 2009). Based on the analogy above, we contextualize the notion into the local POS governance setting i.e., the two study areas. Sabah's planning and land system is primarily governed by district and local plans under Town and Country Planning Ordinance Cap 141, TCPO i.e., mandatory provision of 10% POS if the subdivision of land is more than one acre. Whilst, Local Government Ordinance (LGO) is concerning local government's duty on POS maintenance and management. Lastly, Sabah Land Ordinance Cap 68, SLO is pertaining to granting a title deed and without title on the Country Lease (CL)/ Town Lease (TL) POS and Native Title (NT) POS, respectively of which the former is adhered to owners' terms & covenants i.e., transfer it to local government after the fulfilment of development & 18-month maintenance duty. The alignment of separable property-rights particularly on POS consumption and provision are summarized and tabulated as follows in which only the landownership and management regime that held under the state property (local government) is hitherto emphasized in this paper (refer to Table 1 below).

However, as for the present state of Selangor's POS planning governance, it is institutionally contrasting from Sabah. The most discrete difference is that the POS, after surrendered to state government for land development (subdivision), will not be granted any ownership/ title i.e., remained as State-owned land and gazetted as POS in which the rights of management and maintenance shall be vested in local authority. For a more comprehensive view of property-rights distribution on Selangor's POS governance (refer to Table 2).

Table 1: *A de jure overview of diverse property rights and regimes positions of Sabah's POS governance.*

Types of POS	CL & TL POS	CL & TL POS (Prior to title issuance)(As interim)	CL & TL POS	Surrendered NT POS (Without Title)
POS Status	Un-transferred Title	Un-transferred Title	Transferred Title	Needless Title Transfer
	Un-handed over Site Still under the temporary owner's covenant: minimum 18 months)	Handed over Site: standards are fulfilled & local government is satisfied ("Bare" Trustee)	Handed over Site	Needless site Handing Over
Land ownership	Private/Common property: developer/ owners	State property: Local government	State property: Local government	State property: State land (State Authority)
Management regime (including monitoring, maintaining etc.)	Private /Common Property: (Developer/ Co-landowner(s))	State property: Local Government/ Local government + Common property-residents (registered)*	State property: Local Government/Local government + Common property- residents (registered)*	State property: Local government (vested in)
Positions Bundle of rights:	Claimant	Claimant	Claimant	Claimant
Access	X	X	X	X
Withdrawal/Using	X	X	X	X
Management	X	X	X	X
Alienation and Exclusion	None	None	None	None
Public access right	Yes	Yes	Yes	Yes

**Only certain districts adopt such regime on some POS (optional). The residents who volunteer to form a committee via registration to assist the local council's in POS management i.e., to monitor and ensure good safety, security, cleanliness, physical conditions of the POS surroundings. E.g., in the district of Kota Kinabalu, Sabah, approximately, fifty committees were formed to oversee more than 100 over tamans or POS which most of them remain inactive (see, Ling et al., 2014b).*

Source: Adapted from Schlager & Ostrom (1996), and Ling et al., (2014b).

⁴Development plans (e.g., local plans) and 10% POS provision under the TCPA, National Land Code (NLC): surrender and re-alienation or "serah balik dan berimilik semula", gazetting purpose, Local Government Act (LGA)1976: local council's duties and rights on POS etc.

Table 2: A de jure overview of property rights and regimes positions of Selangor's POS governance.

Property-rights structure	Surrendered POS
Land ownership	State property: State land
Management regime (including monitoring, maintaining etc)	State property: Local government (vested in)
Positions	Claimant
Bundle of rights:	
Access	X
Withdrawal/ using	X
Management	X
Alienation and Exclusion	None
Public access and withdrawal rights	Yes

Source: Adapted from Schlager & Ostrom (1996) and Colding et al., (2013).

Based on the tables 1 and 2 above, there is at least one similarity between both states, i.e., the POS is ultimately held under state government and governed by the local government that afterward viewed as state-property in property-rights regimes context (see, Hanna et al., 1996). Thereof, a centralized POS planning governance i.e., government-owned park, is still preferred as the “only” way to preserve such green public infrastructure, but ironically, such perception is turned out fictitious and unsustainable (Ostrom, 2008) as myriad POS dilemmas e.g., overexploitation or Hardinian’s classic tragedy and shirking (under-provision/ mismanagement) have sprung up. Therefore, it entails that the current state-property regime is indeed inefficient then reasonably perceived as property-rights tragedy/ failure: misallocation of rights (Musole, 2009), or more precisely, as maladaptive state regime⁵.

Albeit both Selangor’s and Sabah’s rights issues differ, still they have triggered stakeholders (developers, local government, landowners and users) to behave opportunistically or self-interestedly that lead to generally identical POS plights. Following are some arisen externalities/ nuisances that inclusive of Hardinian’s trap, illegal usage conversion (misuse/ overuse): car-park, squatters’ dwelling, storage for containers, house building (condominium), commercial purpose: shop lots, cleanliness, safety and security issues, poor landscape, poor maintenance (bad condition and aesthetic), and vandalism/graffiti: poor quality of play facilities & amenities, underused, disused: desolated/idle park (unmanaged like a *no-man’s-land*), dangerous park: loitering and crimes issues, etc. (See the papers by Ling et al., 2014b about Sabah’s property rights structure on POS governance associated with social dilemmas; See also Marzukhi & Abdul Karim, 2012). Thus, irrespective of the minuscule institutional variances of both states, individual state-governed property-rights structure failures and similar POS dilemmas have evidently emerged. This likewise conceives that the current POS’ planning institutions are questionable; henceforth, there is a need to call

⁵De jure state regime is de facto turned into open-access (unmanaged/ ungoverned) resource regime (e.g., paper park) which becomes “classic sites for tragedy” or prone to quality/ quantity degradation due to positive transaction costs in rights enforcement and surveillance as it is ‘open’ to bribing, rent-seeking (political lobbying) environmental insensitive: emphasizing on economic rather than social environmental aspects, fiscal crises: insufficient resources/ budgets that leads underinvestment or shirking, and red tape issues (Musole, 2009).

⁶The terminology of collective-action: action taken by a group in pursuit of members’, perceived shared interests and common property: an identifiable community is vested in rights or de facto formed to own and manage the resource (Ostrom, 1990). Many leading scholars from diverse areas, in different types of commons, strongly affirm that this is a more viable, efficient, robust, stable, equitable and resilient initiative in solving governance issue (provision and appropriation) comparatively to the state and market solutions. Via this regime, it also alters the goods typology from CPR to entrepreneurial club good theory (non-rivalrous & excludable) (See, Buchanan, 1965) which it is evidentially more efficiently long-lasting or better quality (Webster, 2007).

⁷Such thoroughness and successfulness of massive case studies (see the book of “Governing the Commons”) which made her became the first Nobel Laureate woman ever in Economic and most vitally, her work is plausibly relevant in our setting, we hence choose this long-familiar Ostrom’s extensive craft.

for a diversification in planning system. *Planning with property-rights* as a solution (Webster, 2007) via institutional design: property rights re-engineering (Webster, 2005) are thence required. Therefore, a seminal underpinning which too needs institutional change, by Nobel Laureate Ostrom on common-property-based governing the commons (Ostrom, 1990) is employed and discoursed in the next section.

4. Common-property-based Self-Organization: Ostrom’s Eight Design Principles

Formerly, two conventional approaches were advocated i.e., coercive state (socialism/centralization) or market (privatization) to mitigate or deter the CPR’s dilemmas (Sarker & Itoh, 2001). Nonetheless, none of them is considered sustainable i.e., many failures (e.g., subject to corruption, enforcement and holdout problems) and with only some successes, till Ostrom’s groundbreaking institutional decentralization, (more precisely, devolution) metaphor (self-governance) that based on collective-action concept under common-property regime⁶ (bottom-up approach) as a third alternative surfaces (See, Ostrom, 1990). In her view, the former solutions (state/ ‘top down’ & market) do more harm than good especially in resource governance, but this does not inevitably contend the latter is an “optimal”/ “one-size-fits-all” cure-all for coping with all types of social dilemmas in lieu; she stresses on adaptive governance/ diagnostic approach that no single institution can forever be successful. There is no automatic association between types of regimes and successful resource preservation as each regime has its respective problems and limitations, or put it differently, it is indispensable for the institutions and enforcement mechanism to adapt and evolve over time especially in diverse and rapidly-changing social ecological system (SES). E.g., especially in terms of heterogeneity of users’ or biophysical characteristics, Dietz et al., (2003) posited that, “no single type of property regime works efficiently, fairly and sustainably in relation to all CPR (common-pool resource)”, but it is possible to “identify design principles associated with robust institutions that have successfully governed CPR for generations.” Clearly, Ostrom did not, however, impel her work as a prescriptive blueprint or model, instead; it is merely a general checklist or framework that her humble intention was not to extrapolate to other commons usages especially the larger (global/ knowledge) commons albeit in some recent studies, it proved some successes in it. Prior to the underlying eight design principles (characteristics/conditions) formation (Ostrom, 1990, see figure 3 below) which embedded with interconnected three-level working rules (constitutional-choice, collective-choice and operational rules on resource provisioning and utilization), a large number of studies were performed on the homogeneous (traditional) CPR governance. These roughly involved thousands of empirical cases on local or regional small-scale commons: irrigations, fisheries, pasture, forestry etc. which were mostly based in developing countries i.e., Africa, China, Philippines etc⁷. Such vast number of empirical endeavors had consequently sparked Ostrom to discover that by conforming to these core criteria/ “critical/common success factors”, the self-organizing system is likely to be successful as the resources will be durable (Wilson et al., 2013; even statistically-proven as well by Cox et al., 2010).

1. Clearly defined boundaries
Individuals or households who have rights to withdraw resource units from the CPR must be clearly defined, as must the boundaries of the CPR itself.
 2. Congruence between appropriation and provision rules and local conditions
Appropriation rules restricting time, place, technology, and/or quantity of resource units are related to local conditions and to provision rules requiring labor, material, and/or money.
 3. Collective-choice arrangements
Most individuals affected by the operational rules can participate in modifying the operational rules.
 4. Monitoring
Monitors, who actively audit CPR conditions and appropriator behavior, are accountable to the appropriators or are the appropriators.
 5. Graduated sanctions
Appropriators who violate operational rules are likely to be assessed graduated sanctions (depending on the seriousness and context of the offense) by other appropriators, by officials accountable to these appropriators, or by both.
 6. Conflict-resolution mechanisms
Appropriators and their officials have rapid access to low-cost local arenas to resolve conflicts among appropriators or between appropriators and officials.
 7. Minimal recognition of rights to organize
The rights of appropriators to devise their own institutions are not challenged by external governmental authorities.
- For CPRs that are parts of larger systems:*
8. Nested enterprises
Appropriation, provision, monitoring, enforcement, conflict resolution, and governance activities are organized in multiple layers of nested enterprises.

Figure 3: Design principles illustrated by long-enduring CPR institutions (Ostrom, 1990); See also Ostrom, 1999 for a detailed discussion on each principle).

In spite of the rigorous methodology in the principles establishment, they are, however, criticized for being incomplete, too simplistic/general e.g., imprecision or hiatus in terms of community and resource properties descriptions: size and heterogeneity. Thus, this may be a contributing reason resulting in resources deterioration or failures of collective action⁸ which thereby calls for some adaptations and improvements (Cox et al., 2010). These can be hinged on some leading scholars' works on design principles i.e., by admitting/adapting other germane variables in determining successfulness of self-organization (See, Wade, 1988; Stevenson, 1991; Pinkerton and Weinstein, 1995; Baland and Plateau, 1996; Mckean, 2000; See also, Agrawal, 2001). There are several key variables that shall hence be taken into consideration in order to evaluate the self-organization/governance structure outcome not only its feasibility but also successfulness (see its social performance measures e.g., efficiency and equity, ecological performance measures: overharvested, resilience, sustainability, and externalities to other SESs, see, Ostrom, 2007). It is in fact a form of costs and benefits analysis. Before one enforces such self-governance system or the set of principles in that particular case, several exogenous factors must be examined i.e., to ascertain whether the current situation with the complexity of sets of intervening factors allow the collective action to be executed successfully. This can be performed by adopting a widely-applied framework (multitier conceptual map) named institutional analysis and development (IAD) (refer to Figure 4) which lays out a platform to systematically coordinate a "diagnostic and prescriptive inquiry" (Ostrom, 2005). It first distinguishes explanatory variables that may affect on individuals' incentives and behavior in a particular collective action; it then analyses the effects by contemplating how the variables (*factors*) determine individuals' own available choices/behavior and their interactions (*actions/interactions situations*) in the collective action (*outcome*) (see, Ho & Gao, 2013; Van Laerhoven & Barnes, 2014). In next paragraph, besides describing the determinants, we provide some brief explanations on how exactly or potentially they may advantageously and vice versa influence the outcome of the self-

governance system which is useful in later part of principles conceptualization.

Firstly, the **attributes of community** e.g., *group size*- transaction costs increase with group size in which it is difficult/unlikely to achieve an agreement due to communication/monitoring barriers, so some of them may free-ride (Olson, 1965). This also negatively affects the trust and reciprocity of community (less cooperation) but this condition sometimes, received positive feedback such as yielding additional resources (financially) (Ho & Gao, 2013). However, conversely, a small size community is not necessarily better. *Heterogeneity of community*- e.g., issue of cultural belief system, information/knowledge and experience (asymmetric issues), the more heterogeneous the groups, the less likelihood of them to form the system, so, homogeneity facilitates collaborations i.e., lesser conflict. However, some posited heterogeneity is not influential while some responded otherwise i.e., beneficial effect such as more endowment contributed and unpredictable results that may also contribute an urge to collaborate. *Mutual trust and leadership of community*- generally, both of these elements that involve trust/social capital/social ties as well as leaders who act as hubs to organize and lead their people, should exist as they positively ease cooperation among the community. **Resource's characteristics:** smaller size, spatial distribution (low mobility, location, shape), high predictability of production (location & quantity), clear boundary definition, high dependency on resource affect positively the collective action i.e., higher likelihood of self-governance initiation as lower cost of monitoring and maintaining. In other words, it has higher incentive/benefits and interest to monitor and manage such resource.

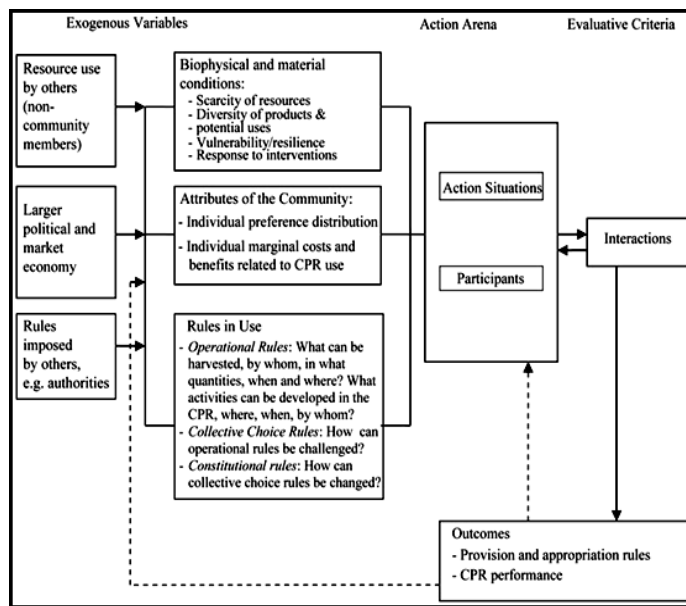


Figure 4: Basic (first-tier) version of IAD framework within an SES (Ostrom, 2005).

Governance/rules features: institutions and property-rights (tenure) system that shape the *clarity (definition)/completeness, suitability, security/legality, complexity, heterogeneity* of the three working rules should be clearly, suitably devised i.e., it should be feasible/practical, simple and clear as well as securely/legally recognized. This is important as they in turn affect community's incentive and (transaction) costs in

⁸Threats of collective action can be arisen in varied forms and one of the them is blueprint thinking (See Ostrom, 1999 for more threat explanation).

(rights/duties) enforcement e.g., complex (unclear) and mal-adaptive institution induces community to have higher tendency to behave opportunistically by underinvesting and overusing the resources. Next, another issue of whether or not to give an autonomy to community in which two-result are expected i.e., external/government intervention can corrode the local initiatives values but simultaneously, it is favorable in terms of rendering supportive services/assistance that can lower or share the costs/burden of community e.g., sanctioning, monitoring and conflict solution mechanism. Other than these variables, there are in fact, other relevant variables that may be imperative in some studies (see, Ostrom, 1999; Agrawal, 2001; Ostrom, 2007; Van Laerhoven, 2010 for more details and elaborated explanations). (See figures 4 and 5 for *basic* and *complex* versions of an overview interrelationship between the categories of exogenous factors, interactions, and outcomes via the IAD framework within SESs).

taking relevant factors together with the understanding of IAD framework/concept into account, in particular towards quality preservation of POS in two institutionally different states, namely Selangor and Sabah. A brief and general comparison in terms of application strategies is also presented.

5. Contextualization of Ostrom's Common-property regime: Eight Self-governing design-principles in Sabah's and Selangor's Residential Commons, POS

5.1 First Principle: 'Well-defined boundaries'

What is governed, and who should govern it? What rights should they have? (This is the "rule of the game" (as a first step) that can only be implemented after the institutional change- property-rights re-distribution (from state to community) (Requires the assistance (recognition) of governments-see principle 7th).

In Sabah, regardless of CL, TL or surrendered NT POS, as for the physical (spatial) boundary definition, ideally, it is clear and less challenging as it is tangible and immovable property where its usage, location, size/area, shape are precisely predetermined during the land subdivision process unlike some invisible or high mobility commons, they have undetermined boundary e.g., fisheries, air, irrigation, water etc. For example, a playground with an area of 1.2 acre and located within, say, Eden park. Generally for both CL and NT POS, the residents who live within the park or "Taman" should be granted the rights to govern the spaces. Normally, one "Taman" consists of one or two POS or sometimes more than this. Many POS may lead to more committees as it can ease the burden by sharing the management duty (nested enterprise). Among the residents, via voting or other mechanisms, a contract forms in which it clearly lists out each of their full rights and duties in appropriation and provisions. Note that, it should be clear, as complete as possible, legal and easily understood otherwise it stymies the enforcement. From here, some of residents will be elected as committee members (as leaders) on behalf of other residents in order to run the management (maintenance) and exclusion rights (proprietorship is formed, see Schlager & Ostrom, 1996 and for more committee/association formation, see Homeowners Association, HOA concept and its formation procedures under Nelson's HOA model) (Nelson, 2002). The committee must promptly render management while the users are informed to follow the instructions of using the POS as well as the penalty if the rules were broken. As for the ownership right, Ostrom did not mention who must own the POS, we propose a hybrid regime i.e., ownership is preferably held under the state or lands and surveys department while the management is in the hand of the residents. This regime can also render successful POS as the exclusion and management are the keys in governing the park (Colding et al., 2013) (see Table 3 below that depicts how the proposed property-rights structure in Sabah state should be).

Regardless of Sabah's property-rights structure diversity whether the temporary 18 months of private (developer) or local government management, the idea of this paper is to transform the current pure private and local government-managed POS to residents (common-property) regime only or with the assistance and intervention of government. However, we still prefer the latter because it needs some probation since such implementation is considered new if it is taken place. In other words, people must be given some trial period in order to be more "familiar" and comfortable with it. If the result is desirable then probably, government can consider to slowly relinquish upon its

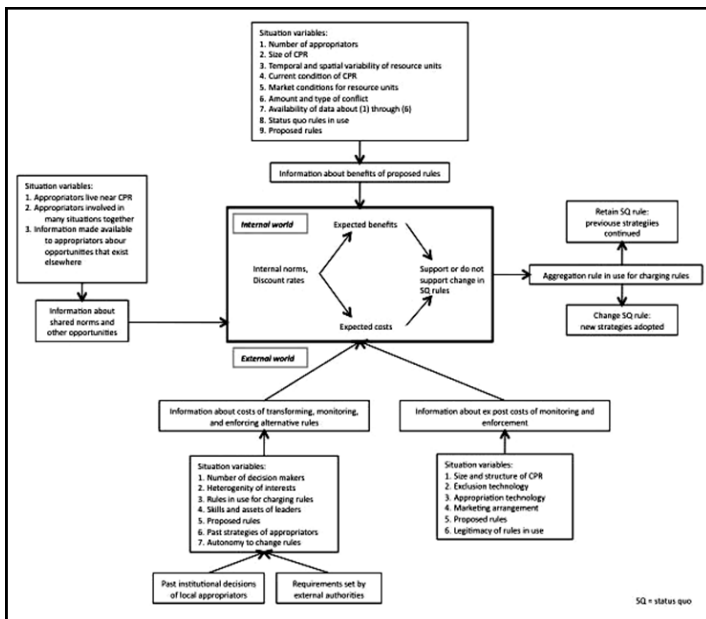


Figure 5: Complex (multiple tiers) version of IAD framework within an SES (Ostrom, 2007).

In short, despite the well-grounded critiques on the theoretical rigidity and "too general" or simplistic issues, these do not render them trivial, neither preclude the scholars from research nor diminish the number of studies with respect to the design principles; instead, this has driven more studies to be pursued in a posterior for addressing the gap and scrutinizing the relevancy of, especially scantily-researched, new (urban) commons resources (Foster, 2011; Wilson et al., 2013). By virtue of that, we are optimistic with the preceding Ostrom's core principles application issues. Firstly, it is understood easily as it is rather clear and well-aligned, and secondly, the generality issue causes them to be more generalizable. In our opinion, it thereof facilitates us to adapt others' scholarly works to complete it especially after understanding on how can other pertinent variables/principles be adapted into Ostrom's current work with the aid of IAD framework above. Thirdly, it is considered a fundamental paradigm and due to its generality issue, it broadens its applications i.e. we believe it is more flexible as it can be applicable to other types of commons (from conventional to contemporary commons). We, therefore, believe that, it suffices to serve as a worthwhile cornerstone which complemented with some adaptations, especially in this preliminary paper. In the following section, we examine how can Ostrom's eight core principles be equitably and sustainably adapted in current residential commons governance by

duty to the committee. Also, both the POS of CL and NT must be gazetted under the SLO so that the space will remain as such. In some cases, under the present institution whereby the POS or *taman* are already/currently co-managed by the registered residents (see table 1 above), so, in order to contextualize Ostrom's principles, perhaps a re-definition of members in the committee is required (depending on the circumstances since the duty and right will not be the same as the former).

However, the requisite procedure is similar to the above explanation in which some rights and duties modifications (additions) should be imposed on them like exclusion right and more management duties should be assigned to the committee. Based on the current institution, since a rather similar concept of self-organization has been practiced in some *tamans* where in Kota Kinabalu district alone, about 50 committees were registered to co-manage the 100 over *taman* or POS, so, it may not hypothetically sound too difficult/rigid compared to Selangor state for the officials to agree further or adapt some necessary modifications. However, having the above criteria does not equivalent to higher successfulness of self-organization as this still needs further affirmation from the governments: Lands and Surveys Department and local government and community as well especially with respect to their acceptability level. On the issue of types of good, by employing such approach, instead of CPR in public domain, it turns into a 'club' or toll good in club (community) realm which is proven more efficient.

In short, a contract (cooperation) should be formed between the government and committee (see interdependency theory whereby governments may involve/assist in the 4th, 5th & 6th principles since the 7th & 8th principles empower them) i.e., subject to sanction if there is breach of terms and conditions. While in Selangor, same explanation of Sabah applies here, except the types of institutions and organizations parts. The ownership is retained as a state property by the Director General of Department of Lands and Mines (DDGLM)/district land office which must be gazetted as well under the NLC. A contract between the government and local residents is also needed to be formed. Same explanation and analogy of property rights structure of Sabah apply here i.e., since Selangor's institution is not as diverse as Sabah's, where it has only one situation, more straightforward i.e., all the surrendered POS are gazetted state-owned and managed by council (vested in), so, the management regime should be shifted to residents (common-property) regime in which two key points emphasized (i) exclusion on the non-members/outsider is necessary and (ii) the management right must either be held by the residents alone or with some intervention of governments in some parts of their duties (See, table 3 below). From the institution and political point of view, such institutional change attempt may presumably be more difficult compared to Sabah but it still can be executed for the sake of betterment.

5.2 *Second Principle: 'Congruence with the local condition and proportional equivalence between benefits and costs'*

With little addition: Appropriate rules in local POS context (considers also the heterogeneity of communities and spatial distribution) as well as the cost and benefits of rules must be proportionate.

In Sabah, each POS has its own different characteristics i.e., even between the '*Taman*' or within the '*Taman*' or between the districts' '*taman*'. Kota Kinabalu's POS operational rules cannot be 100% adopted in Tawau district, especially the spatial and community differences in each POS. Instead, if possible, the rules must adaptably devised, e.g.,

NT POS (normally used as a passive park- bird watching or jogging), the rules must differ from the CL POS (active or semi-active use-playground & basketball court). Size of POS is ranging from at least 0.1-1.5 or 2 acres (relatively small) which it should be easier to be managed but some of the POS are not properly located e.g., on the hill slope/hidden place and scattered and irregularly shaped so, incentive to manage will be low. As for group size, it varies whereby some are large and small depending on the size of the provided POS. Another issue is heterogeneity, it is indeed heterogeneous pertaining to race, trust, and background (mostly are *bumiputra*, foreigners, Malay and Chinese) and knowledge (some are experience and knowledgeable in the collective system due to current Sabah's institution-asymmetry issues) which can be difficult for collaboration.

However, like in some Sabah's areas, family or ancestral/ '*kampong*' land (mostly NT and few CL lands) are noticed. Normally the residents are siblings or relatives so, homogeneity is spotted which is good for mutual trust building. In addition, as for "kampong" area, leader/ '*ketua kampong*' is normally elected (leadership factor can be seen and may be preferable). Anyhow, the above discussion only shows the basic or prima facie information, so more studies are needed especially on the status quo of heterogeneous local community and spatial dimensions, knowing that some issues here in fact hamper the system. So, probably economics theory is postulated i.e., giving incentives-based means (tax rebate) to encourage collaboration whilst penalty and coercion-based mechanism on rule breakers. Centralization of POS distribution is also underlined so that it is more economical for community to use and manage it. This part is important as it determines later parts of action or interaction/cooperativeness of community (i.e., monitoring, sanctioning mechanism). As for the benefits or product of POS, ideally, it has more indirect/intangible (unpriced/non-pecuniary) economic values. It is typically used for leisure activity whereby the residents can gain better health, social cohesion, and, economically, the nearby properties' price will increase if the POS' quality is well preserved.

This may not, however, be attractive as they are quite subtle but this has at least indicated some productivity and predictability of POS (note that only if it is properly governed) plus with such benefits, it may somehow trigger the residents to have fairly high dependency on it (higher motivations). We suggest that both NT and CL POS would motivate/incentivize the residents to effectively manage and use if the fees can be imposed i.e., not just a pure exclusion on the outsiders but the idea of commercializing by imposing use fees on e.g., basketball court, to generate some income to the park is worthily to be regarded (note that: only if the POS condition is inviting then the outsiders will be willing to pay for the purpose of consumption). Thus, this may also encourage a positive competition among parks of which residents may attempt to yield better quality of POS to attract more outsiders for more income generation (See, Webster, 2007). As for Selangor, some similar explanations/strategies (methodologies) of Sabah applies here, that each POS is unique so it must be uniquely governed, especially the heterogeneity, distribution issues pertaining to spatial (some hidden location, too small and irregularly shaped) and social aspects (different races with varied customs and cultural belief systems). In this state, heterogeneity is spotted as well but it is quite different from Sabah (mostly POS are surrounded by the natives) while in Selangor, mostly are Malay, Chinese and Indian, so rules must be devised accordingly. Moreover, the use/provision rules of Shah Alam city cannot exactly be applied in Petaling Jaya city even though both of them located in Selangor as the features of POS/ and community are dissimilar, so, the governance rules should be dynamically different.

5.3 **Third principle: ‘Collective-Choice Arrangements’**

Participation of local residents in operational rules devising is permitted

Both Sabah and Selangor states should allow the local residents (users) to take part in operational rules devising. E.g., all the residents within the POS/ ‘taman’ are called to attend a meeting once a month to discuss any adaptive changes that have to be made pertaining to the operational rules. They can voice out their ideas, suggestions, dissatisfactions, perceptions, needs about the current rules such as amount of the fees payable for maintenance (each year may differ), POS monitoring methods, ways of using and management of POS: equipment or facilities alteration etc. The committee should take note of the requests and make some necessary revision and improvements depending on the criticality of the arisen issues e.g., majority of residents (90%) oppose the current management fees for being too expensive. Instead of blanketing the issue, probably fees reduction or better management should be contributed so that the users may not feel dissatisfied. In this stage, public officials need not be directly involved as they may not understand the real issues emerged and what are the real needs in that particular POS.

5.4 **Fourth Principle: ‘Monitoring’**

Monitoring the users’ behavior and POS condition (With assistance of the government)

Both Sabah and Selangor states require a monitoring system not only on POS condition but also the users’ appropriating behavior. Monitoring can be done in many ways: hiring guards to take turns for monitoring, installing surveillance cameras (CCTV), and so on. CCTV may be too expensive and technically, this is not so feasible and useful. At this stage, it would be better to have internal or indirect-mutual monitoring, as this method is more cost-saving. Formal monitoring duties can easily be assigned to those who can have better monitoring position e.g., residents who live nearby the POS (few meters away from houses). They can also observe the current condition/quality of POS. Hiring private guards to carry out monitoring (rotational basis, only if the financial resource allows), especially mid-night hours- patrolling around the POS. This can be patronized/shared by the local government who can sometimes or routinely do inspections and surveillance on POS conditions e.g., collaborating with police department to strengthen the policing activity. This is useful and important as such reciprocity (mutual monitoring in teams/among the peers) can attenuate the incentive of other users to shirk/overuse/ free-ride (Carpenter, Bowles, and Gintis, 2006).

5.5 **Fifth Principle: ‘Graduated sanctions’**

Sanctions according to the severity of violation (With assistance of the government)

Whether in Sabah or Selangor states, negative externalities or social costs should be internalized or reduced by firmly penalizing the violators but of course, it should be sanctioned accordingly to the gravity of violation. This must impartially be executed i.e., no favoritism involved so that everyone may feel convinced and fair, e.g., first-time rule breaker (light vandalism) should be fined via payment/contribution of extra fees to the committee for maintenance purpose. Warning or persuasion is another option. For more serious cases, paying an increased fine, asked to be directly involved in management e.g., they

are obliged to clean and furnish the park and involved in the monitoring task for few months. Publicly announce who are the violators can be one of the options, but must carefully be handled. Such act causes them to feel ashamed- psychologically affected, but will set as a good lesson/ example to others. Exclusion may not be appropriate as this may cause underused/disused POS, resulting in poor quality. Probably, some assistance can be provided by the government whereby the committee can actually consult the council on the suitability of sanctions or the council may also involve in sanctioning or punishing with the permission of committee (like extra tax imposition/fine) particularly on the more serious violators as certain degree of coercive punishment (*Leviathan* concept) can actually maintain the cooperation between the users, see, Pigou Tax idea, Pigou, 1920) to attenuate the free-rider, shirker, or misuser.

5.6 **Sixth Principle: ‘Conflict-resolution Mechanism’**

Low cost and rapid access to conflict-solving mechanism (With assistance of the government)

Conflict among residents is inevitable in both states so, a means to resolve such dispute must be rendered. It is better to solve the issue earlier whenever it is still ‘solvable’. Do not wait or ignore it albeit it seems trivial as this can become very ‘costly’ later on which detrimentally affects users’ relationship/interactions and subsequently the whole self-governance system turns into a failure. Normally, the differences/conflicts in POS are due to the changing of POS’ condition/ quality e.g., landscaping or vandalism, management fees issues that caused poor quality of POS as well as dissatisfactions of other users. Via some negotiation, mediation, public hearings, public meetings, and forums (discussion among neighbors), it is hoped that those conflicts can be solved. Residents can hear out the root of the problems and propose some potential solutions. Do not litigate the cases, as this is costly and time-consuming. Focus more attention on the critical conflict issues e.g., more than half of the residents disagree with the current POS maintenance methods and fees. Sometimes if it goes more severe, the local government as a third party can render a better platform (intervention) as they have their own experts within the department to resolve it (as mediator/negotiator).

5.7 **Seventh Principle: ‘Minimal Recognition of Rights to Organize’**

With slight modification that governments are involved in recognizing the communities who will be organizing the POS. (The recognition of the government via registration- for more secure tenure)

Related to the 1st principle above, the rights of the POS residents to constitute own team and devise their own rules should not be challenged/contested by any party. Thus, we think it would be better if it is recognized by the State authority and local authority (constitutional rules) i.e., assure legality of such collective choice say, via registration process. In Sabah, if the self-organization is acknowledged by the government (Lands and Surveys Department and Kota Kinabalu City Hall, in which the rules do not contravene with the urban plans or state laws: SLO, TCPO, & LGO, the rights should be formally/ de jure and clearly stipulated within them or in another set of documents, stating that the self-organizing is set aside (registered) on that particular POS. In fact, this has partly satisfied the current Sabah’s institution that some communities who volunteer to manage the POS, they are registered thereby granted partial rights of management by the council. While as for Selangor, Sabah’s explanation is quite applicable herein except the

organizations and institutions parts: cooperation between local authority and residents; in Selangor, it can be recognized under NLC, TCPA, and LGA e.g., by DDGLM and Shah Alam city council.

5.8 Eighth Principle: ‘Nested Enterprise’

For larger/more complex SES or CPR, polycentric governance is needed (Not only vertical linkage, hierarchical version is applied as well)

As for Kota Kinabalu, Sabah, roughly around 400 residential POS are solely under the governance of Kota Kinabalu City Hall (KKCH, big center). Thereby, this number is considered large, nesting governance/ devolution is necessary like subsidiarity principle: delegation of power to the most local level who has a better position in governing the POS. In this sense, probably each ‘taman’ becomes a sub-center that governed by the committee or if within one ‘taman’ there are sometimes having five POS, then probably two/three centers (committees) are needed instead of one center only. The burden (e.g., cost of monitoring and maintain) of five POS that initially shouldered by one center/ committee, is now shared by another three centers/committees. Cooperation between the centers/inter-communities and ‘taman’ is encouraged as well. This principle is related to principle 1 above i.e., once the boundaries are clearly defined, then a multi-level of nested enterprise can be noticed and vice versa. In short, before such nesting takes place, it hinges on complexity and size of SES i.e., the larger and more complex the SES, the more likely the nesting takes place. However, say in Shah Alam, Selangor, 1,656.13 hectares of land are used for open space and recreation under the governance of Shah Alam City Council (SACC). Same analogy of Sabah is applied here, whereby multi-level governance is required as the area of POS above is considerably large. Meaning that, SACC should delegate the governance down to the scale of one ‘taman’ managed by one committee or if within one ‘taman’, there are many or too large area of POS, so perhaps two or three committees can be formed so that, the POS’ quality is manageable.

Succinctly, in view of the above conceptual discussion pertinent to both states’ institutional, community, organizational and spatial structures on POS governance, generally, they can dynamically employ Ostrom’s robust principles. Connoting that, by adopting some purported approaches (e.g., government intervention and contract existence) in principles adaptation, do, however, showcase that Ostrom’s principles are, at the very least, theoretically coherent and capable of success.

Based on the Table 3 below, there are two key elements in order to bestow successful CPR-based POS; (i) exclusion right must be exercised i.e., the space becomes public closed access (members only) and (ii) the management right must either be held by the residents alone or with the help of government (e.g., in conflict resolution and monitoring principles or redevelopment of POS). By exercising such rights, the position changes from the original claimant to proprietor.

Table 3: Proposed Ostrom’s Collective Action-based Property-rights structure on both states pertaining to POS Governance

Property-Rights Structure	Surrendered POS
Land ownership	State property: State land (Gazetted)
Management regime	Common property only: Committee (residents of the park only)/ Common property + State property: Committee of residents + State (local authority) (shall be vested in)**
Positions: Bundle of rights:	Proprietors
Access	x
Withdrawal/ using	x
Management	x
Exclusion	x
Alienation	None
Public access and withdrawal rights	Yes if membership/ permission is granted (as this is now public-closed access)

**Optional (assisting in e.g., sanctioning, monitoring, conflict-resolutions mechanism & maintenance/management operations) (This option is more preferable at this point of time). Certain interventions are vital to lower the costs/ ease the burden of communities’ interactions and action. Source: Adapted from Schlager & Ostrom (1996).

6. Conclusion

Besides demonstrating both states’ institutional discrepancy that ensued in POS governance tragedy, which demands Ostrom’s institutional solution (as POS revitalization), the cardinal questions on what and how are Ostrom’s common-property-based eight core principles applied and implemented in two-state’s current residential commons governance are foremost answered conceptually. It is found that the interwoven principles are indeed basic, insightful, well-defined, organized, broadly applicable, and useful (as a potential place to begin an investigation) which can only be employed as a framework not the prescriptive model.

In other words, by exclusively adopting Ostrom’s work may not amply suffice, ergo, interdisciplinary views are needed. Few adaptive modifications and considerations such as involvement of contractual arrangement, government’s interventions and additions of some components/variables (especially pertaining to institutional, POS spatial and community’s features) are vital.

Since this preliminary analysis merely suffices to demonstrate its conceptual relevancy which provides strategies and approaches in succeeding the self-governance system, but such breakthrough (platform) adequately contributes some policy implications. First, it sheds light on the CPR-based POS’ dilemmas that Ostrom’s collective action can be deemed a future paradigm to supersede the current state-owned regime in supplying a better POS quality. Each principle imparts understanding and information into domains for betterment in current POS policy initiatives so that the collective action can be achieved. We believe this essence is locally respectable as it has been inspired and currently practiced⁹ e.g., State of Sabah in particular, due to its current institutional arrangement on committee formation, is actually rather related to the proposed Ostrom’s collective action framework. Additionally, the aforementioned spatial (POS) features of SES are also seemed feasible. Nevertheless, as for future directions, further

⁹Such concept is neither unprecedented nor spic-and-span as it has widely been accepted and practiced in different kinds like ‘toll road’ and ‘Management Corporation’ (MC) concepts. Now, this view should thereof be extended to residential POS domain (see the argument in Lee and Webster, 2006).

investigations that involve more in-depth IAD (See, Ostrom et al., 1994) i.e., multi-tier (see the figure 5 above) of SES on inter-related meta variables examination, via some methodologies are expected. Field research like questionnaire surveys and in-depth interviews on residents and public officials, respectively are too anticipated to address some posed questions e.g., what are the current stumbling blocks that stymie the collective action system? and what are the possible avenues to encourage its implementation? These are significant in exploring the level of likelihood i.e., the present readiness, acceptance (incentives/willingness), as well as issues, considerations, and restrictions particularly pertaining to the governance (rule) system (e.g., property-rights system) as well as properties of local community (e.g. trust). Therefore, much a posteriori demonstrations on the likelihood of successful self-governance are necessitated so that this canon or premise that heading towards “stateless” society can viably (with low transaction costs) be translated into pragmatic steps for this exercise to be of real value to policymakers.

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The Relationship between Socio-Demographic Characteristics and Snorkeling Satisfaction in Pulau Payar Marine Park, Kedah

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ABSTRACT

Due to its popularity and lucrative business opportunity, snorkeling has become the predominant activity in many marine parks. Continuous growth in the number of tourists and mass tourism has resulted in uncontrolled number of tourists, sometimes to pass over the carrying capacity of the site. Due to the lack of control and enforcement, many tour boat operators are seen bringing snorkelers to small fragile sites at the same timeframe. Such situation has resulted in reduced quality of tourist experience and satisfaction level as they need to cram in with others at the designated snorkeling areas. This study analyzes the influence of tourist demographic profile on the satisfaction level with snorkeling experience in the Pulau Payar Marine Park, a small coral island in Malaysia. A total of 259 snorkelers answered the survey that forms the basis of this paper. The results tested using t-tests and ANOVA, show significant differences between satisfaction level and respondents' socio-demographic characteristics. Findings of the study indicated that only origin and education level positively associated with visitor satisfaction. Several issues, such as limiting the numbers of boats to be allowed at the site and facilities management such as toilets, changing rooms and solid waste management were among issues need to be considered by the Marine Park Department, in order to protect the island and its sustainability. This study highlights the importance of site management, in environmentally sensitive areas, for marine park managers and tour operators toward developing strategic marketing mixes for the different market segments.

1. Introduction

Malaysia had recorded a remarkable achievement in tourism when the sector performed above expectations in 2013, with tourist receipts of RM65.44 billion exceeding the initial target of RM65 billion. Meanwhile, tourist arrivals grew by 2.7% to 25.7 million arrivals compared to 25.0 million arrivals in 2012 (Abd. Rahim & Ramli, 2014). Apart from other tourism attractions in Malaysia, Malaysia is indeed blessed with idyllic islands that shelter various marine lives and coral reefs. Realizing these natural resources may contribute to the economic potential, Malaysian government initiates in promoting marine tourism activities such as snorkeling and diving during Malaysia Domestic Tourism Fair 2009. The lucrative and profit-making business derived from the snorkeling has led the activity to be highly promoted among the tourists to the Malaysia's marine parks. Research done by Hasnan and Ibrahim (2012) in Pulau Payar revealed that snorkeling is the most participated activity at the park (79.2 %).

Tourism, however has a double sword effect. Concerted efforts and promotions to visit Marine Parks in Malaysia had boost tourism economic and recreational activities (such as diving and snorkeling) in island destinations. However, as the popularity of snorkeling and diving increases, it becomes even more important to maintain a balance between the use and conservation of marine resources. In addition, the level of tourism development at the marine parks is very encouraging.

As marine parks in Malaysia do not restrict the number of tourist arrivals to the parks, such regarded values such as interaction with the nature are threaten and resulted in the environmental impacts. For instance, much of the corals in Pulau Payar deteriorate due to the overwhelming presence of tourists, as the travel operators allowed between 600 and 700 tourists on the island at one time (Kaur, n.d). Such situation reduces the quality of Marine Park's ecosystem and thus, affecting visitor satisfaction.

In managing a tourism destination, maximizing tourist satisfaction is crucial to encourage repeat visitation. Understanding visitor satisfaction allows managers and service providers to provide facilities and services that match with visitor expectations while at the same time, ensuring that visitors are satisfied with the experience they perceived. In the context of national parks and marine park settings, visitors are oftentimes looking for recreational opportunities and experience that suit their preferences. Thus, a sound understanding of the factors influencing visitor satisfaction would assist marine park managers to develop useful strategies to maximize both profitability and visitor satisfaction. The concept of satisfaction has been the focus in a number of studies in the national parks and marine parks (Hanim, Salleh, & Othman, 2010; Moscardo, 2001; Njeri, 2013; Tonge & Moore, 2007). Research conducted by Topelko (2007) in Koh Chang National Park, Thailand revealed that snorkelers were dissatisfied with some

environmental aspects include variety of fish and corals, service conditions (number of boats and snorkelers, safety information, variety of snorkeling trips available). Only 23 % were satisfied with the overall snorkeling trip at the park. A research carried out by Salleh et al., (2012) on Tioman Island Marine Park indicate that although tourists were satisfied with all environmental service quality offered at the marine park, their satisfaction level were relatively low due to their high expectation as compared to what they had experience during their earlier visits.

Based on the previous empirical studies, major influencing factors that related to the satisfaction with snorkeling experience include quality of natural environment (Coghlan, 2012; Moscardo, 2001), abundance of reef fish (Lim, 1997; Moscardo, 2001), size of coral (Moscardo, 2001; Moscardo & Saltzer, 2005; Topelko, 2007), interaction with wildlife (Banyai, 2012), quality of service and staffs (Coghlan, 2012), information on marine environment (Lim, 1997), weather (Moscardo, 2001) and finally, socio-demographic characteristics such as origin (Shahrivar, 2012; Spinks, Lawley, & Richins, 2005), education level, gender and age (Shahrivar, 2012). Of these influencing factors, visitor characteristics are commonly used as a basis for segmenting the market and developing marketing strategies. It is crucial for tourism managers to understand the relationship between socio-demographic characteristics and satisfaction. There is a wide range of socio-demographic variables and other factors that produce a significant and consistent relationship with visitor satisfaction (Perovic, Stanovic, Moric, & Pekovic, 2012; Weiler & Ham, 2004). This study analyzes the influence of socio-demographic characteristics and satisfaction with snorkeling experience. This paper adds to the body of knowledge on visitor satisfaction with snorkeling experience by reviewing the previous research on satisfaction with marine experience in marine park setting.

2. Individual Visitor Characteristics

Among other factors influencing satisfaction, variables of individual visitor characteristics have been found to influence visitor satisfaction in a destination. According to Weiler and Ham (2004), past travel experience and socio-demographic profiles such as nationality, age, gender, income and education level are highly associated indifference with satisfaction levels. Huh (2002) on the other hand, argued that significant difference only occurred between satisfaction and gender, by explaining that females expressed higher satisfaction level than males. There was no significance difference of satisfaction with age, nationality, education level and total household income. Despite of such arguments, many studies (Nowacki, 2013; Perovic et al., 2012; Spinks et al., 2005; Yu & Goulden, 2006) have proven these characteristics do influence visitor satisfaction in tourist destination. The concept between different cultural background or nationality and its influence on satisfaction is quite simple. For instance, visitors from Middle East might have different expectations compared to those from Australia. Different cultural background leads to different expectations and satisfaction levels. Spinks et al., (2005) in his findings also explained significant differences between visitor characteristics (age, gender and country of origin) and visitor satisfaction. Although these variables seem unimportant, slight changes on the variables might affect tourist satisfaction level. Based on the literature review, some theoretical rationales have been formed to predict which socio-demographic characteristics associate with visitor satisfaction in relation to this paper. The primary variables of visitor socio-demographic characteristics are age, gender, past travel experience, country of origin, tourist's wage and education level. We proposed the six following hypotheses:

2.1 Age and Gender

Njeri (2013) revealed that there is a significant difference between age group and visitor satisfaction to Ol Pejeta Conservancy (OPC) in Laikipia, Kenya. He indicated that age group between 18-25 years old recorded the least satisfaction level than other age groups. Results on satisfaction level vary accordingly to the type of study conducted by the researchers. In a study of visitor satisfaction to the Sunshine Coast attraction, female respondents perceived higher satisfaction level compared to male respondents (Spinks et al., 2005). As suggested by Perovic et al., (2012), visitor satisfaction does not influence by gender. Likewise, findings by Weiler and Ham (2004) revealed that age, gender and income do not vary significantly with visitor satisfaction. On the basis of the previous findings, this paper hypothesizes that visitor satisfaction with snorkeling experience does not vary significantly by gender.

Hypothesis 1: There will be a significant difference in satisfaction level between male and female visitors.

Hypothesis 2: There will be a significant difference in satisfaction level between visitors of different age groups.

2.2 Past travel experience

Previous travel experience is a pervasive individual attribute that can influence tourist's consumption process including post-purchase evaluation of satisfaction. The concept is relatively simple. For instance, the way visitors store their memories of the past experiences (visits) and perceptions, and integrate these responses with the current situation indicates that the satisfaction would be influenced by the cognition of previous experiences. Visitors may learn to expect a certain standard of performance of the said product, which if not fulfill or receive, might result in a disconfirmation and dissatisfaction (Ryan, 1995). Previous study by Pierce and Moscardo (1998) revealed that satisfied tourists tend to be repeat visitors, indicating that previous experience of an attraction led to increased visitor satisfaction. Contradict to the research by Moscardo (2001) revealed that visitors who have visited Great Barrier Reef before reported lower satisfaction level. Thus, a hypothesis is proposed to examine the relationship between these two variables.

Hypothesis 3: There will be a difference in satisfaction level between visitors based on the number of visits to Pulau Payar Marine Park (PPMP) as satisfaction level increasing with the number of visits to the park.

2.3 Origin

Most of the studies have attempted to analyze differences in destination images derived from the cultural factors. Differences in cultural background, social class, attitudes and behavior may influence tourist perception and satisfaction. A study conducted by Yu and Goulden (2006) identified that there is no significant different in overall satisfaction in terms of country of origin. However, their findings contradicted with the findings by Spinks et al., (2005) which recorded positive relationship between visitor satisfaction and origin. Another research by Topelko on visitor satisfaction with snorkeling environment and experience in Koh Chang Marine Park, Thailand indicated that Non-Thai snorkelers are more satisfied compared to Thai snorkelers. Thus, a hypothesis is proposed to examine the relationship between these two variables.

Hypothesis 4: There is a difference in satisfaction level between visitors of different origins, with local visitor experience more satisfaction than foreign visitor.

2.4 Wage

Different social class of an individual can also influence his or her expectations and perceptions. For example, tourists with higher income level and from higher socio-economic groups are likely to have higher expectations while visiting a tourist destination (Kozak & Rimmington, 2000). They might consider their vacation to be luxury consumption, thus, the service or quality that they expected should be worth with the amount they paid. Perovic et al., (2012) found positive and significant relationship between the level of income and tourist satisfaction in Montenegro. However, Weiler and Ham (2004) reported no significant relationship between income and satisfaction level among visitors to Panama Canal Watershed. Based on this argument, a hypothesis is formulated to examine its relationship in this paper.

Hypothesis 5: The tourist's wage is positively associated with visitor satisfaction

2.5 Education level

Despite social class, education level is also important to tourist satisfaction. As an individual has higher education level, he or she might have higher expectations of the purchased products. For example, a degree holder who has knowledge about marine lives might have a different expectation from those who does not have insight of marine lives. According to Kozak and Rimmington (2000), different education background influence tourist expectations and satisfaction level. Thus, this study proposed a hypothesis as below:

Hypothesis 6: There is a significant difference between the level of education and visitor satisfaction with snorkeling experience

3. Methodology

3.1 Sample Size

This study is a quantitative research involving snorkelers to Pulau Payar Marine Park (PPMP) as the targeted respondents. Sampling technique of this study uses convenience sampling and sampling size is determined based on tourist arrivals to Pulau Payar in year 2012. Based on simplified formula for the proportion formulated by Yamane in Israel (2009), to calculate the sample size, this study employs the formula as below:

$$n = \frac{N}{1 + N(e)^2}$$

n : sample size; N : population size. Population size is based on tourist arrivals to PPMP in year 2012 (refer to Table 1), e : 5% margin of error (0.05), where e is the range in which the true value of the population estimated to be.

Table 1: Tourist Arrivals to Pulau Payar Marine Park (PPMP) 2012

Year	Category of tourist		Total
	Local	International	
2012	38, 294 (32%)	80, 402 (68%)	118, 696

By assuming a 95% confidence of level and $P=0.5$, the number of respondents are 400.

3.2 Data Collection Technique

We used a self-administered questionnaire for this study and questionnaire was adapted from Moscardo and Saltzer (2005), Topelko (2007) and Yeh (2008). The survey instrument consists of socio-demographic profiles (gender, age, country of origin), visit characteristics, importance of and satisfaction level of their snorkeling experience, using closed questions. Open-ended questions were used to examine the most and least enjoyable experience. For both importance and satisfaction segments, 7-Likert scales are used ranged from 'not important at all' to 'extremely important' and 'strongly disagree' to 'strongly agree'. A pilot study on 30 respondents was conducted on October 2013, to test and to refine the questions before proper survey was conducted. According to Pallant (2005), the most ideal Cronbach alpha coefficient of a scale should be above 0.7. In the current study, Cronbach alpha coefficient was 0.912, thus, reliable for the sample size.

The real survey was conducted on December 2013. Since the trip to Pulau Payar is a one-day trip and no visitor is allowed to stay overnight at the island, three enumerators were appointed to help the researcher to conduct the survey. Enumerators were chosen among tourism students who are pursuing Master degree and they were given a simple briefing on how to conduct the survey. The survey started during or after lunch hour to give ample time for the potential respondents first to enjoy their snorkeling activity. The enumerators (including researcher) were placed into three different areas; (1) Coral Pontoon area, (2) the Marine Park Centre area and (3) the beach area, to avoid surveying the same respondents.

For the real survey, the questionnaire forms were prepared in Malay, English and Mandarin version. The questionnaires were distributed on-site to the snorkelers encountered in the Marine Park. Respondents were approached via face-to-face and being asked if they would like to participate in the questionnaire survey. The participation of the survey was on voluntarily basis and objectives of the study were explained before a set of questionnaire was handed to them. Although there were several questionnaire sets in Mandarin version, there were some Chinese that have difficulties to understand the language since it is different from their native language. To overcome this matter, the researcher asked for a local tour guide to distribute and explain each of the questions to the respondents. The duration to answer all questions in the questionnaire took about 10-15 minutes, and enumerators are required to be close to the respondents if they needed assistance in answering any of the questions.

3.3 Data Analysis Technique

An evaluation of the relationship between socio-demographic characteristics and snorkeling satisfaction is done on the following elements:

- *Respondents' profile*
- *T-test.* Independent samples t-test is employed to compare the mean scores between gender and satisfaction. This test is conducted to test if there is a significant difference in the mean score of satisfaction for both male and female.
- *ANOVA.* One-way analysis of variance (ANOVA) is also employed in this research to compare the mean scores of more than two groups which in this study would be age group, origin, income, education level and past travel experience

4. Results

Out of 400 questionnaires distributed, only 259 questionnaires were completed with 67 % response rate. Looking at the frequency of visits to the marine park, the majority of the respondents are first-timers (81.1 %) while 49 respondents had visited the park twice (9.7 %) and more than three times (9.3 %). Visitors to Pulau Payar Marine Park were divided by gender with male made up 58.6 % (142 respondents) while female contributed 43.2 % (112 respondents) of the total respondents. The range of age of the respondents was from 20 years old until 64 years old. Snorkelers aged between 20-29 years old made up 48.6 % of the total respondents while the oldest age group recorded the lowest percentage (7.7 %) of the total respondents. The remaining respondents (112 respondents) were snorkelers aged between 30 years old until 49 years old with 43.6 %. With regards to individual wage, the majority of the respondents have modest incomes which lower than RM 5,000 (45.2 %). Those who received income between 'RM 5,001-RM 10,000' and 'RM 10,001-RM 25,000' constitute 13.1 % (34 respondents) and 10.4 % (27 respondents) respectively. Only ten respondents (3.9 %) generated more than RM 25,000 per month.

Table 1: Socio-demographic profile of respondents

Respondents	Profile	Frequency	Percentage (%)
Gender	Male	147	56.8
	Female	112	43.2
Age	20-29	126	48.6
	30-39	76	29.3
	40-49	37	14.3
	50 and above	20	7.7
Past travel experience	Yes (first-time visitor)	210	81.1
	2 times	25	9.7
	> 3 times	24	9.3
Income	< RM 3,000	60	23.2
	RM 3,000 -5,000	57	22.0
	RM 5,001-10,000	34	13.1
	RM 10,001-25,000	27	10.4
	> RM 25,000	10	3.9
Origin	Malaysia	146	56.4
	Asia	66	25.5
	Europe	15	5.8
	North America	9	3.5
	Australia	23	8.9
Education level	High school	55	21.2
	Certificate/diploma	55	21.2
	Degree holder	131	50.6
	Others	18	6.9

Local visitors made up the highest respondents engaging in snorkeling activity in Pulau Payar Marine Park (56.4 % or 146 respondents) while the other 43.7 % (113 respondents) are international visitors from Asia (25.5%), Europe (5.8%), North America (3.5%) and Australia (8.9%). Generally, 71.8 % or 185 respondents of the respondents are highly

educated and received tertiary education.

4.1 The Relationship between Socio-Demographic Characteristics and Visitor Satisfaction

(a) Age

Hypothesis 1: There will be a difference in satisfaction level between visitors of different age groups.

Table 2 Mean satisfaction for age group

Age group	N	Mean	Std. Deviation
20-29	126	4.94	1.530
30-39	76	4.80	1.395
40-49	37	5.03	1.500
50 and above	20	4.50	1.732
Total	259	4.88	1.501

Table 3 ANOVA test for difference between different age group and satisfaction with snorkelling experience

	Sum of Squares	Mean Square	F	Sig.
Between Groups	4.691	1.564	.691	.558
Within Groups	574.584	2.262		
Total	579.275			

As shown in Table 2, the most satisfied age group were '40-49' who also had the lowest standard deviation (mean = 5.03, SD = 1.5) while the oldest age group recorded the least mean satisfaction and with a slightly higher standard deviation than other age groups (mean = 4.5, SD = 1.73). Age group 20-29 became the largest surveyed group since most of them visit the marine park with their friends and colleagues.

A one-way between-groups analysis of variance was conducted to identify the influence of age on visitor satisfaction with snorkeling experience. Respondents were divided into four groups according to their age (Group 1: 20-29; Group 2: 30-39; Group 3: 40-49; Group 4: 50 and above).

The result appears to be similar a study carried out by Musa (2002) on diver satisfaction indicating that age groups do not positively associated with visitor satisfaction. The result of a one-way ANOVA in Table 3 partially did not support the propose hypothesis as there is no significance difference in satisfaction between visitors of different age groups. The actual difference in mean scores between the groups was quite small. The effect size, calculated using eta squared was 0.008, which in Cohen's (1988) term would be considered as a small effect.

(b) Gender

Hypothesis 2: There will be a significant difference in satisfaction level between male and female visitors.

Table 4 T-test for difference in satisfaction between gender

Gender	N	* Mean	Standard deviation
Male	147	4.99	1.404
Female	112	4.74	1.616

t = 1.314 (Sig. = 0.071, p > 0.05) Sig. (2-tailed) = 0.190.

Mean scores are based on a 1-7 scale, with categories 1= strongly disagree, 2 = disagree, 3 = somewhat disagree, 4 = neither agree nor disagree, 5= somewhat agree, 6= agree and 7= strongly agree. Answers given in response to the statement "On a scale of 1-7, I feel satisfied with the whole snorkeling trip".

Table 4 shows that the result does not support hypothesis 3. A t-test indicated that the value of sig.(2-tailed) is higher than 0.05. Thus, there is not a statistically significant difference in satisfaction level between males and females snorkelers. Contrary to the other studies (Musa, 2002; Spinks et al., 2005; Yeh, 2008) that have reported higher satisfaction level for different gender, no such differences emerged in this study.

(c) Past travel experience

Hypothesis 3: There will be a difference in satisfaction level between visitors based on the number of visits to Pulau Payar Marine Park (PPMP) as satisfaction level increasing with the number of visits to the park.

Table 5 Mean satisfaction for number of visit to PPMP

Number of visit	N	Mean	Std. Deviation
First visit	210	4.89	1.521
Second visit	25	5.00	1.581
> 3 times	24	4.71	1.268
Total	259	4.88	1.501

Table 6 ANOVA test for difference between number of visits and snorkeling satisfaction

	Sum of Squares	Mean Square	F	Sig.
Between Groups	1.073	.536	.237	.790
Within Groups	578.202	2.267		
Total	579.275			

Based on Table 5, most of the respondents were first-time visitors with mean satisfaction of. 4.89. However, those who visited the Marine Park for the second time appeared to be most satisfied with highest mean satisfaction (mean = 5.00). A one way ANOVA revealed no significant difference in mean satisfaction based on the number of visits to Pulau Payar Marine Park, thus, indicating that previous experience did not significantly change the level of snorkeling satisfaction. Satisfaction was high, regardless of the number of visits, as indicated in Table 5. However, satisfaction appears to decrease after the third visit. Result of this hypothesis is similar to the findings by Musa (2002) and Spinks et al. (2005).

(d) Origin

Hypothesis 4: There is a difference in satisfaction level between visitors of different origins.

Table 7 Mean satisfaction for different origin groups

Type of origin	N	Mean	Std. Deviation
Malaysia	146	5.01	1.441
Asia	66	4.83	1.527
Europe	15	5.20	1.082
North America	9	5.11	1.364
Australia	23	3.91	1.807
Total	259	4.88	1.501

*Mean scores are based on a 1-7 scale, with the categories 1= 'strongly disagree', 2 = 'disagree', 3 = 'somewhat disagree', 4 = 'neither agree nor disagree', 5 = 'somewhat agree', 6 = 'agree' and 7= strongly agree'. Answers given in response to the statement "I feel satisfied with the whole snorkeling trip"

Table 8 ANOVA test for difference between visitors of different origin and satisfaction with snorkeling experience

	Sum of Squares	Mean Square	F	Sig.
Between Groups	26.029	6.507	2.976	.020
Within Groups	553.247	2.187		
Total	579.275			

Based on Table 7, mean satisfaction for visitors from Europe is the highest than other origin groups and had the lowest standard deviation (mean = 5.20, SD = 1.082), followed by North America with 5.11 mean score and 1.364 standard deviation. The largest group surveyed was visitors from Malaysia with slightly higher mean satisfaction which is 5.01. Australians constituted the lowest mean score but highest standard deviation with 3.91 and 1.807 respectively. A one-way ANOVA was conducted to examine whether the different of visitor origin significantly associated with the level of snorkeling satisfaction. As indicated in Table 3, the result supports hypothesis 4 that different types of visitor origin influence their satisfaction level. An analysis of one-way ANOVA indicated that Sig. value is less than .05 (p < .05; p = .020), then there is a significant difference between visitors of different origin and their satisfaction with snorkeling experience. This study is similar to what had been done by Moscardo (2001) and Spinks et.al (2005) indicating that visitor's origin positively associated with satisfaction level. Each visitor with different cultural background has their own expectations and satisfaction level. Despite reaching statistical significance, actual difference in mean scores between the groups was a small effect. Based on the eta squared, the effect size was .04. Post-hoc comparisons using Tukey test indicated that the mean score for visitors from Malaysia (mean = 5.01, SD = 1.44) was significantly different from visitors from Australia (mean = 3.91, SD = 1.807).

(e) *Wage*

Hypothesis 5: The tourist's wage is positively associated with visitor satisfaction

Table 9 Mean satisfaction for different income group

Income group	N	Mean	Std. Deviation
< RM 3,000	60	5.03	1.518
RM 3,000 - RM 5,000	57	5.00	1.323
RM 5,001 - RM 10,000	34	4.53	1.522
RM 10,001 - RM 25,000	27	4.62	1.359
> RM 25,000	10	4.10	1.912
Total	187 *	4.82	1.472

Table 10 ANOVA test for difference between different income group and satisfaction with snorkeling experience

	Sum of Squares	Mean Square	F	Sig.
Between Groups	13.719	3.430	1.603	.175
Within Groups	389.458	2.140		
Total	403.176			

Table 10 shows that the results does not support hypothesis 5 that tourist's income is not statistically associated with snorkeling satisfaction. An analysis of one-way ANOVA revealed that Sig. value is more than .05 ($p < .05$; $p = .175$), indicating no significant difference between income of tourist and visitor satisfaction with snorkeling experience.

(f) *Education level*

Hypothesis 6: There is a significant difference between the level of education and visitor satisfaction with snorkeling experience

Table 11 Mean satisfaction for the level of education

Education level	N	Mean	Std. Deviation
Secondary	55	5.27	1.407
Certificate/ diploma	55	5.05	1.283
Degree	131	4.76	1.559
Others	18	4.00	1.609
Total	259	4.88	1.501

Based on Table 11, mean satisfaction is the highest at 'Secondary' group (mean =5.34, SD = 1.386) while 'Others' group indicated the lowest mean satisfaction with mean= 4.00 and SD = 1.609. Others were those pursue higher degree level such Master and Doctorate. Results from Table 12 indicate that hypothesis 5 is accepted where there is a

significant difference between education level and visitor satisfaction with snorkeling experience ($p < .05$; $p = .009$). The actual difference between the groups showed a medium effect as the effect size, as calculated using eta squared, was 0.05. Post-hoc comparisons using Tukey test indicated that the mean scores for Group 2: Secondary (mean = 5.27, SD = 1.407) was significant different from Group 5: Others (mean = 4.00, SD = 1.609).

Table 12 ANOVA test for difference between level of education and satisfaction with snorkeling experience

	Sum of Squares	Mean Square	F	Sig.
Between Groups	25.922	8.641	3.966	.009
Within Groups	533.353	2.179		
Total	579.275			

5. Discussion and Conclusion

This study sought to tackle on the question of 'How do socio-demographic characteristics associated with the snorkeling satisfaction?'. By looking at the socio-demographic profile of respondents, there was variation in the sample with respect to age, gender, education level, respondents' wage and country of origin. This study shows that the individual characteristic of origin and education level had a significant relationship with snorkeling satisfaction in Pulau Payar Marine Park. Based on Table 7, total mean satisfaction with snorkeling experience is 4.88 which recorded that all respondents are somewhat agree that they were satisfied with their whole snorkeling trip in Pulau Payar Marine Park (PPMP). With Europeans constituted the highest mean score ($M = 5.20$), it means that they agreed that they did feel satisfy during their snorkeling trip. Malaysians also constitute a positive reaction as their mean score approaching 'somewhat agree' in satisfaction with snorkeling experience in Pulau Payar. However, satisfaction level with Australians contradicted at mean score 3.91 which explained they were dissatisfied with snorkeling experience at the Marine Park. Result of the analysis is consistent with other study conducted on snorkelers in the marine settings (Topelko, 2007). With regards to education level, there is significant different in satisfaction level with snorkeling experience. Respondents with 'Secondary' educational background reported highest satisfaction mean ($M = 5.27$, $p = .009$) compared to other group of respondents.

In practical terms, the finding of a significant difference between different origins and satisfaction supports the need for tourism operators and marine park managers to continue to market to this important segment, and further develop strategies to encourage repeat visitation to Pulau Payar Marine Park. With international visitors only comprising 42 % of the sample, there appears to be an opportunity for increased market growth from this segment. In addition, findings from the survey indicated several matters that lead to dissatisfaction with snorkeling experience in the tiny island. Among others are cleanliness of the toilets, crowdedness, no clean water and unsatisfactory food package. The number of toilets or changing rooms provided are not sufficient to cater the increased of tourists as they need to long queue to get change. No fresh water were provided, beach dirtiness and bad maintenance of the basic infrastructures (no key locks on the toilet or changing rooms) indirectly affecting snorkeling satisfaction in Pulau Payar. Suggestions

have been raised up by the visitors to limit the number of boats and visitors to the park in the future and increased the marine park fee to provide good maintenance to the public facilities (toilets, pedestrian pathways and interpretive signs) and preserving natural environment. Since this paper only focuses on the influence of individual visitor characteristics on satisfaction, an analysis regarding factors of satisfactory snorkeling experience is not being discussed.

Looking at the relationship between individual visitor characteristics and satisfaction with snorkeling experience, a major finding from this paper is that satisfaction level is statistically related to only three of the five variables (country of origin, wage and education level). In particular, an analysis of trip characteristics (past travel experience and group type, group size) and satisfaction level with snorkeling experience has not yet been studied. An empirical study should be done to see whether these variables influence visitor satisfaction, particularly, in the context of snorkeling experience. This study assists the management of tourist attractions especially the marine park management to different mix of marketing for different demographic and geographic segments in their market. However, tourism marketing should be regarded in a sustainable manner to ensure longevity of the natural resources. Otherwise, the rich source of marine lives in marine parks in Malaysia might be loose its golden eggs.

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Environmental Design Consideration for Courtyards in Residential Buildings in Hot-humid Climates: A Review

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ABSTRACT

This paper discusses environmental design considerations for courtyards in residential buildings in hot-humid climates through a literature review by contrasting with those in hot-dry climates. The main focus of discussion is on shading and ventilation effects of courtyards. The results of the analysis revealed that the form and orientation of a courtyard were less significant in its environmental design considerations for the hot-humid climates. Although these factors were reported to be the most important design considerations in the case of hot-dry climates. Meanwhile, natural ventilation has been commonly utilized in wooden-structured traditional buildings in hot-humid climates. However, most of the urban houses in Southeast Asian regions are becoming heavy-weight brick-walled buildings nowadays. It could be seen that the required environmental effects of a courtyard and its design considerations in the case of high thermal mass buildings in hot-humid climates are still uncertain and need to be investigated further.

1. Introduction

Koch-Nielsen (2002) defined a courtyard building as a building that has an internal space opened to the sky. Edwards et al. (2006) highlighted that the courtyard design had been used since the Neolithic settlements and was extensively used from China to Morocco. One of the primary roles of courtyard spaces is to protect the occupants from the harsh outdoor conditions and provide environmental functions such as natural lighting and ventilation (Hyde, 2000). The courtyard form was generally influenced by the climatic conditions of the region. For instance, in China, the size of the courtyard reduced from northern (cold climates) to southern regions (warm climates) (Knapp, 1999). The northern region has larger and shallower courtyards to receive more solar radiation, whereas the southern region adopts smaller and deeper courtyards to prevent the solar heat gain.

In general, the size and design of the courtyard's enclosure make a significant impact on its performance (Hyde, 2000). Hyde (2000) highlighted that the courtyard can be divided into three major types which are: 1) Fully enclosed courtyard, 2) Semi-enclosed courtyard and 3) Semi-open courtyard. Figure 1 shows an illustration of all the three types of courtyard. Each courtyard has its characteristic and the appropriate function. For instance, a fully enclosed courtyard is suitable for elongated buildings, because the natural lighting, ventilation and also comfortable spaces could be introduced to the core of the buildings through the courtyards. In addition, the environmental performance of

courtyards can be optimized by considering the building shape and the heat gain control devices. Proper building and courtyard designs in consideration of the local climatic conditions would enable indoor spaces to be thermally comfortable.

The previous studies on courtyard houses are still limited, but some of them focused on the environmental functions of courtyards. See, for examples, Kubota et al. (2014); Almhafdy et al. (2013); Sadafi et al. (2011); Dili et al. (2010); Jamaludin et al. (2014); Muhaisen (2006); Meir et al. (1995); and Berkovic et al. (2012). In addition, several studies examined the effects of courtyard form on indoor thermal environments. See Muhaisen (2006); Cantón et al. (2014) and Ratti et al. (2003). Whereas ventilation effects of the courtyards were analyzed in some studies such as Jamaludin et al. (2014); Sharples and Bensalem (2001); Rajapaksha et al. (2003); Tablada et al. (2005). Several studies developed passive strategies by courtyards, for examples, Dili et al. (2010); Givoni (1994); Littlefield (2012), and energy assessment was carried out by, for example, Canton et al. (2014). However, most of the above studies were conducted in hot-dry climates and moderate climates, and there are few studies that discuss environmental considerations for courtyard houses in hot-humid climatic conditions. In addition, less attention is paid to relatively narrow and deeper courtyard design than those for extensive yards.

This paper discusses environmental design considerations for courtyards in residential buildings in hot-humid climates through a literature review

by contrasting with those in hot-dry climates. The discussion contains the future prospects on design consideration for courtyard houses of high thermal mass structures.

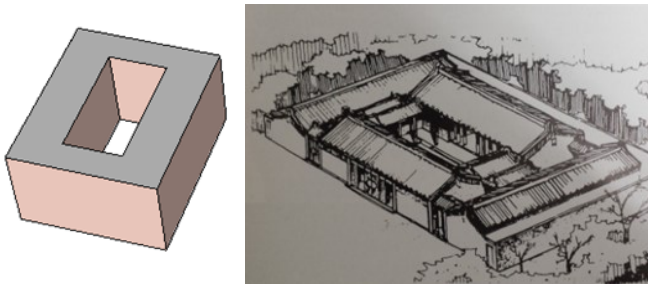


Figure 1a Fully enclosed Courtyard

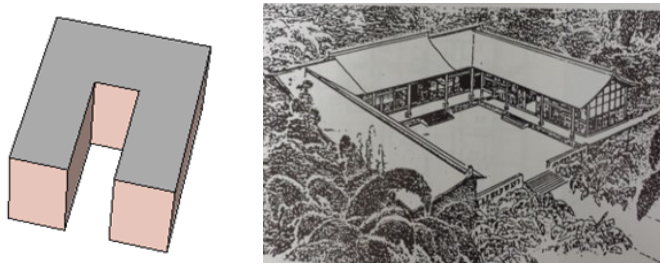


Figure 1b Semi enclosed Courtyard

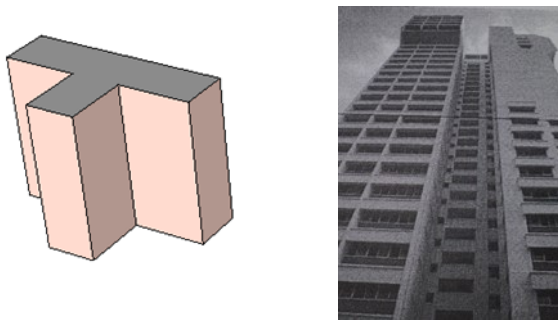


Figure 1c Semi open Courtyard

Source: Knapp (1999) and Hyde (2000)

2. Environmental Design Considerations for Courtyards in Hot Climates

For hot climates, the most important environmental design considerations for courtyards in residential buildings are considered to be shading and ventilation effects. Shading effects of courtyards are commonly determined by the building orientations, height, and their exposure to the sky (Meir et al., 1995). On the other hand, the ventilation effects by courtyards mainly depend on the outdoor wind conditions or the indoor temperature difference for the stack effects (Koch-Nielsen, 2002; Givoni, 1994).

2.1 Shading effects

The absorption of solar radiation on the building and courtyard surfaces could raise their temperature and adjacent air layers, thus resulting in an increase of air temperature in the surrounding areas (Muhaisen, 2006).

Therefore, consideration of shading might be necessary to reduce the direct solar radiation or heat gain (Hyde, 2000). There are several types of shading techniques that are normally used for courtyard buildings such as Figure 2 shows typical shading approaches for courtyard buildings.

Many studies show that the orientation of courtyard plays an important role for its shading effects such as in Muhaisen (2006), Meir et al. (1995), Berkovic et al. (2012) and Cantón et al. (2014). A courtyard has the internal surface that has the most exposure to the sun when its elongated orientation agrees with the east-west axis. Whereas it would be the least exposure when the orientation is directed to the north-south axis. In addition, when the courtyard has a deeper form, it could provide more shaded areas, hence reduces the heat absorption in the courtyard. However, a tall courtyard building may cause an adverse impact on its air flow, unless it is carefully designed (Littlefield, 2012). Table 1 shows the shading application and its related effects on the thermal conditions as reported in the previous studies.

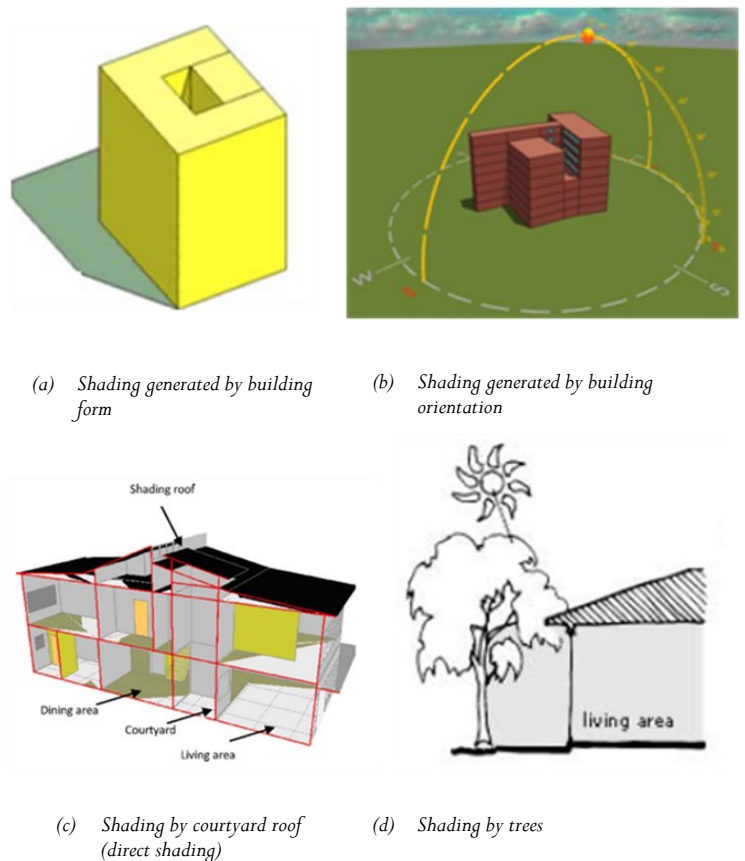


Figure 2 Typical shading approaches for courtyard buildings

Source: Muhaisen, 2006; Almhafdy et al., 2013; Sadafi et al., 2011; Missaka, 2014, <http://cblueprints.com/2014/02/08/how-to-design-an-energy-efficient-home/> retrieved on 4 August 2014.

Most studies in hot-dry regions found shading effects by courtyard orientations. For example, Meir et al. (1995) carried out a field measurement in two semi-enclosed attached courtyards in Negev, Israel. In the same region, Berkovic et al. (2012) conducted a simulation study on an emptied courtyard. The study concluded that North to South orientation of courtyard could obtain the highest shading effect. In contrast, there were a few studies in hot-humid climates that considered shading effects by building orientations. Muhaisen (2006) carried out the shading simulations, including both hot-dry and hot-humid climates and

suggested that for hot-humid regions, the most suitable orientation of courtyards was on the northeast to southwest axis. However, based on a study carried out by Almhafdy et al. (2013), the orientation effect could only be reduced for about 2% for the air temperature of courtyards in hot-humid climates. The courtyard orientation for hot-humid climates is suggested to be dependent on wind directions (Koch-Nielsen, 2002; Jamaludin et al., 2014; Givoni, 1994). It shows that, the effect of solar radiation in a hot-dry climate has greater impacts as compared to in a hot-humid climate.

Table 1 Shading means for courtyards

Climate	Shading means	Effects	Methods	Ref.
Hot-dry	Courtyard orientation	<ul style="list-style-type: none"> Courtyard facing south provides more shading percentage (30-70%) during summer. North and south orientation provide the highest amount of shade. Hot-dry: Optimum shading when courtyard in northeast-southwest or north-south direction (approximate of 60% shade area) 	<ul style="list-style-type: none"> Semi-open courtyard facing south direction Courtyard axially elongated to north-south direction Courtyard axially elongated to north-south or northeast-southwest direction. 	<ul style="list-style-type: none"> Meir et al., 1995. Berkovic et al., 2012. Muhaisen, 2006.
	Courtyard roof	<ul style="list-style-type: none"> Significantly lower courtyard temperature (3°C below maximum outdoor temperature) Reduce 18-21% of indoor energy consumption based on the respective case models. 	<ul style="list-style-type: none"> Adjustable courtyard roof Fabric canopy roof 	<ul style="list-style-type: none"> Al-Hemiddi et al., 2001. Canton et al., 2014
	Courtyard galleries	<ul style="list-style-type: none"> Application of the galleries provides the best thermal comfort during peak hour (PMV: 0.5-1.0) 	<ul style="list-style-type: none"> Application of galleries along the courtyard perimeter 	<ul style="list-style-type: none"> Berkovic et al., 2012.
Hot-humid	Courtyard Orientation	<ul style="list-style-type: none"> Hot-humid: Optimum shading when courtyard in northeast-southwest direction (approximate of 65% shaded area) Lower air temperature than outdoor in north and south direction (2% lower) 	<ul style="list-style-type: none"> Courtyard axially elongated to northeast-southwest direction Semi-open courtyard facing north or south. 	<ul style="list-style-type: none"> Muhaisen, 2006. Almhafdy et al., 2013.
	Courtyard roof	<ul style="list-style-type: none"> Reduce courtyard heat gain during peak hour (13:00) approximately 85%. Improve thermal condition in the adjacent of courtyard zone. 	<ul style="list-style-type: none"> Raised courtyard roof with 500 mm height 	<ul style="list-style-type: none"> Sadafi et al., 2011.
	Courtyard verandah	<ul style="list-style-type: none"> Lower air temperature by 1.5 °C compared with maximum outdoor (Synchronizing with upper courtyard temperature). 	<ul style="list-style-type: none"> Shade the areas that adjacent to indoor opening. 	<ul style="list-style-type: none"> Dili et al., 2010.
	Canopy of trees	<ul style="list-style-type: none"> Lower indoor mean temperature of the adjacent room with higher relative humidity. 	<ul style="list-style-type: none"> Canopy of trees adjacent to the window. 	<ul style="list-style-type: none"> Jamaludin et al., 2014.

Although there are several other shading techniques for the hot-dry climate such as by courtyard roofs or courtyard galleries, they could be considered as secondary protections because the effects of solar radiation are more dominant to the whole buildings. Therefore, the solar radiation's protection by building orientations plays a significant role in providing the most shading effects and becomes the main priority to be considered during the design phase in the hot-dry climate (Givoni, 1994).

Meanwhile, in the hot-humid climates, a direct shading means seems preferable. The reason is, the shading effects provided by the building orientation have small effects on the courtyard thermal condition in comparison to the courtyard with a covered roof. For instance, Sadafi et al. (2011) examined the thermal effects of courtyards in terraced houses in Malaysia's hot humid climate. They concluded that the indoor temperature was significantly reduced when the courtyard had a raised covered roof that prevented heat gained from a direct solar radiation. The similar results were presented in the studies of Dili et al. (2010) and Jamaludin et al. (2014) with the applications of courtyard's verandah and the canopy of trees. The direct shading methods by using shading devices provide better-horizontal protections from the high altitude of sunlight in the hot-humid climate.

2.2 Ventilation effects

Ventilation in a courtyard is generated by stack and wind effects. Due to the stack effects, the warmed air rise and discharged to the atmosphere during the daytime and the dense cool outdoor air sinks into the courtyard during the night time (Koch-Nielsen, 2002). As for the wind effects, the air flow is generated based on the pressure conditions (i.e. positive or negative pressure) of the building surfaces. A positive pressure causes the air flow moving into the courtyard while the negative pressure creates an air suction outward from the courtyard (Sharples and Bensalem, 2001). Figure 3 shows the illustration of ventilation effects in courtyard buildings.

Continuously ventilated condition is essential in a hot-humid region, where it could remove the heat and humidity from the building for achieving comfort (Koch-Nielsen, 2002). The design of the building is suggested to promote maximum air movement with less internal obstruction. The traditional wooden house is one of the examples, which has a raised timber floor with multiple window openings on the building's façade to achieve the necessary cross ventilation condition. The strategy is contrary to the ventilation approach for the hot-dry region. In the hot-dry region, the outdoor air during the daytime is dry and warm with some occurrence of gusty winds. Therefore, buildings in hot-dry climate are suggested to be designed with fewer openings on the external wall or closed during the daytime (Koenigsberger et al., 1973). In many cases, they would utilize the night ventilation which is much more suitable with their climatic condition (Koenigsberger et al., 1973; Givoni, 1994). Table 2 shows several contributions of literature on ventilation means by courtyards in hot-humid climates.

The study by Rajapaksha et al. (2003) in a high thermal mass house with courtyard in Sri Lanka found that, the courtyard would increase cross ventilation flow assisted by the stack effects during the daytime. The combination of these two effects with the optimum ACH of 1.5-2 is proven to achieve the thermal comfort. The result of the airflow pattern was similar with that by Sharples and Bensalem (2001). They found an

upward flow (negative pressure effect) in the courtyard is better at providing higher indoor air velocity than the inward flow (positive pressure) in the courtyard. Figure 4 shows the results of air flow field for both of the studies. In addition, the studies by Tablada et al. (2005) found that the courtyard width to height (w/h) ratio would also affect the indoor air flow rate.

Table 2 Ventilation means by courtyards in hot-humid climates

Ventilation types	Effects	Ref.
Cross ventilation	<ul style="list-style-type: none"> Reduced the temperature in the courtyard up to 2°C below the outdoor maximum compared to non-ventilated courtyard (0.7 °C) during the daytime ventilation. Better indoor thermal modification when courtyard acts as air funnel. Optimum ACH is between 1.5-2 ACH when thermal modification is 1°C below ambient level 	Rajakpaksha et al., 2003.
	<ul style="list-style-type: none"> Better air flow coefficient was found when the courtyard had negative suction effects. The external wind flow direction of 45° through the building opening provides higher indoor air flow compared to the normal direction (0°). 	Sharples and Bensalem, 2001.
	<ul style="list-style-type: none"> Large courtyard ratio (width to height) resulted in better flow for indoor Indoor airspeed is more important than the courtyard protection from solar radiation. Cross ventilation performed better compared to single sided ventilation in providing higher ventilation rate in the building 	Tablada et al., 2005
	<ul style="list-style-type: none"> Cross ventilation with low heat absorption material in courtyard would create cool air flow into the adjacent room Continuous ventilation helps to controls humidity level in the buildings 	Dili et al., 2010.
	<ul style="list-style-type: none"> Night ventilation was superior to the others, i.e., full day, daytime and no ventilation. Mean temperature always below 30 °C compares to the others. 	Jamaludin et al., 2014.
Night ventilation	<ul style="list-style-type: none"> Night ventilation was superior to the others, i.e., full day, daytime and no ventilation. Mean temperature always below 30 °C compares to the others. 	Jamaludin et al., 2014.

The larger ratio would contribute to a better-indoor air flow even for a single sided ventilation. In their further simulation with consideration of the cross ventilation condition, they revealed that relatively higher indoor air flow rate was obtained compared to the single sided ventilation.

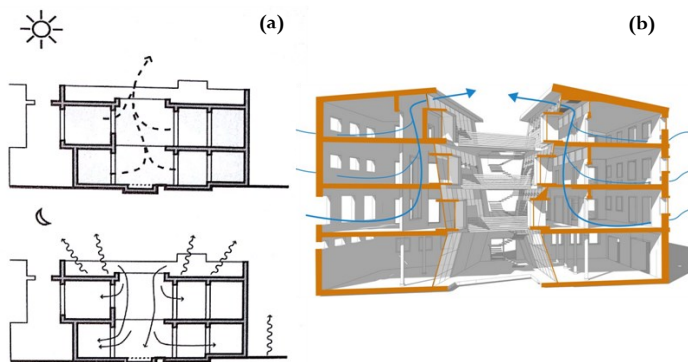


Figure 3 (a) Stack effects during daytime and night-time ventilation (b) wind effects. Source: Koch-Nielsen, 2002; Hopwood, (n.d). <http://archinect.com/people/project/48814386/palazzo-della-routonda/49282061-> retrieved on 4 August 2014.

This situation shows that the combination of cross ventilation with upward flow throughout the courtyard and the appropriate courtyard width to height ratio are important to achieve the necessary indoor air flow condition. However, most of the airflow study of the courtyard building was focused on increasing the indoor air flow rate, but less included on the effects of the building thermal condition. Therefore, the actual relationship between the increasing of air flow rate and the indoor thermal condition could not be fully determined. In the works of Dili et al. (2010) and Jamaludin et al. (2014), they highlighted that securing only cool air flow into the indoor spaces could provide a better indoor thermal condition. This condition could be achieved by the application of cross ventilation with low heat absorption material in courtyard or

utilizing the night ventilation strategy. A cooler courtyard floor help to remove the heat from the incoming air to the building during the daytime, while utilizing night ventilation could induce cooler outdoor air into the building during the night-time. This shows that the consideration of the thermal condition of the incoming air is also important to ensure that the increasing of air flow rate is consistent with the reduction of building thermal condition.

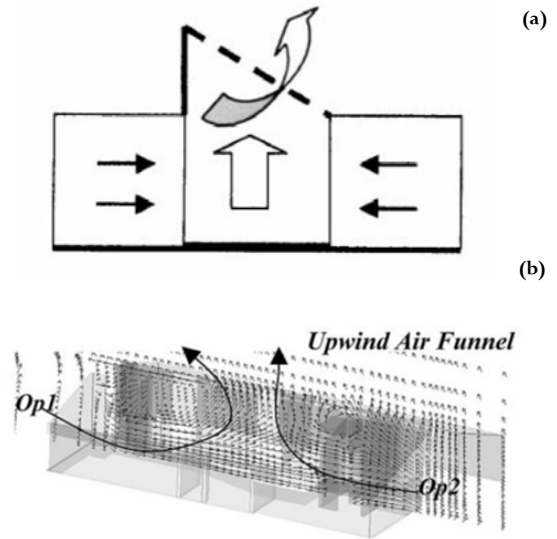


Figure 4 Upward air flow caused by cross-ventilation in (a) Wind tunnel study on courtyard model (b) CFD study on detached courtyard house in Sri Lanka. Source: Sharples and Bensalem, 2001; Rajapaksha et al., 2003

3. Environmental Considerations for Courtyard in Hot-humid Climates

It is apparent that the shading effect of a courtyard is largely determined by its form and orientation, particularly in the case of hot-dry climates. This is because in a dry climate, the direct solar radiation is much more intense than that of sky radiation. In contrast, in a hot-humid climate, the vapor content in the air is high and therefore the solar radiation is largely diffused in the air (Koch-Nielsen, 2002). Thus, the sky radiation, which comes from all directions, largely affect the heat gain for the courtyard spaces. It is anticipated that the form and orientation of a courtyard are less important in its environmental design considerations for the hot-humid climates. Therefore, in the case of hot-humid climates, exposure rate to the sky or direct shading should be more or similarly important determinant of the shading effects of a courtyard. In fact, controlling the sky exposure seems to be much more appropriate rather than a fully covered courtyard.

The reason is, besides providing shade to the courtyard, this technique creates an opening on the courtyard roof and allowing the air circulations within the courtyard areas. Thus, the courtyard area could be shaded and in the same time providing air circulation for indoor spaces during the daytime or night-time.

One of the methods to measure the exposure rate of the courtyard is by a sky view factor. Kubota, et al. (2014) investigated the cooling effects of courtyards in traditional Chinese shop houses in Malaysia and revealed that there was a relationship between sky view factor and air temperatures measured in the courtyards. Figure 5 shows the relationship that obtained from the study based on the four courtyards.

The graph shows a decrease in the sky view factor would decrease the air temperature in the courtyard. However, it is seen that more samples are required to clarify the above point.

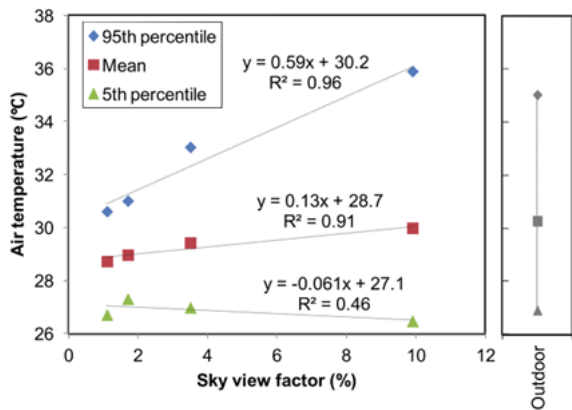


Figure 5 The relationship of a sky view factor and air temperature.
Source: Kubota et al. (2014).

In hot-dry climates, the most important design consideration is not ventilation but shading effects. Courtyards are commonly seen in traditional buildings in this region for providing shade to the enclosed spaces, while for the ventilation strategies, night ventilation or an evaporative cooling is more appropriate. The high temperature ranges between daytime and night-time provides advantages in this climate to utilize a thick thermal mass structure and the night-time ventilation strategies. A thick thermal mass structure could provide thermal lag effects during the daytime, while during the night-time, cool outdoor air helps to remove the heat and cool the building structure efficiently.

In hot-humid climates, ventilation is quite important to achieve indoor thermal comfort. Thus, traditional houses normally adapt large openings to secure massive natural ventilation through cross ventilation. In order to do so, light-weight material is normally used for building construction (Givoni, 1994). However, most of the urban houses in hot-humid Southeast Asian regions are becoming heavy-weight brick-walled buildings. In addition, several studies showed that the daytime ventilation is not preferable even in hot-humid climates, especially when the building is of heavy-weight materials such as in the works of Kubota et al. (2009). In the study, they highlighted that daytime ventilation would allow the warm air to enter the indoor spaces and increase the indoor air temperature. Furthermore, the heavy-weight building material absorbs heat during the daytime and resulting a warm indoor condition during the night-time especially when the heat is being released.

Figure 6 shows the results of the study on the ventilation strategies between daytime and the night ventilation in the heavy-weight brick-walled of terraced house in hot-humid climate of Malaysia (Toe, 2013). The graph shows that the indoor thermal condition with the daytime ventilation strategy was always higher than the night ventilation condition. In addition, even with the night ventilation strategy, the indoor condition was not fully in the range of comfortable upper limit of the adaptive thermal comfort criteria for the whole day as indicated in Figure 6b.

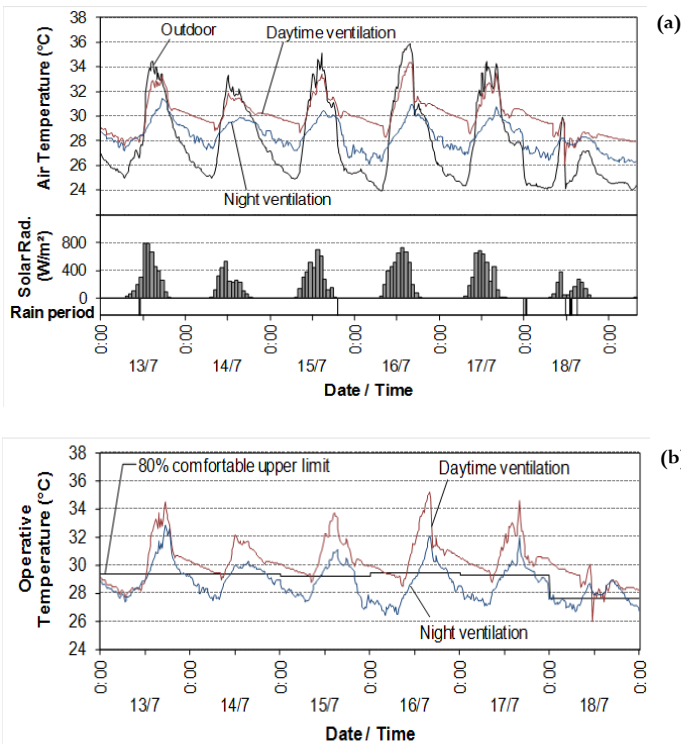
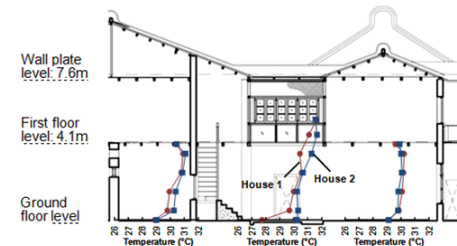
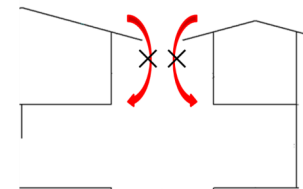


Figure 6 Temporal variations of the measured thermal variables at 1.5m above floor in the master bedrooms of terraced houses in Malaysia: (a) Indoor air temperature and solar radiation during daytime ventilation and night ventilation, (b) Indoor operative temperatures and the corresponding temperature limits for thermal comfort.
Source: Toe (2013).



(a) Daytime



(b) Night time

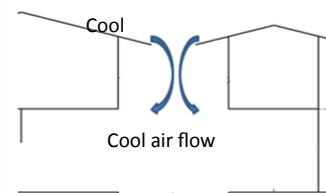
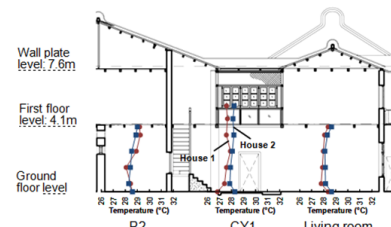


Figure 7 Average air temperature profile and its air flow illustration during (a) Daytime ventilation (b) Night-time ventilation, in two Chinese shop houses with courtyards in Malacca, Malaysia. Source: Kubota et al., 2014.

In contrast, several studies highlighted that the application of continuous and cross ventilation strategy could provide high indoor air flow rates and comfort condition (Sharples and Bensalem, 2001; Rajapaksha et al., 2003; Tablada et al., 2005). However, the study of Kubota et al. (2014) in Chinese shop house with courtyard in Malacca revealed that the thermal comfort for indoor could be obtained even without daytime ventilation (closed windows). In the study, they revealed that during the daytime, vertical air exchange between warm outdoor air and the cool courtyard air were prevented due to the temperature stratification in the courtyard. Therefore, relatively low indoor air temperature could be maintained. Meanwhile, during the night-time, the temperature stratification in the courtyard was not observed and this condition allowed the vertical air exchange between the cool outdoor air and the warm courtyard air. Thus, the indoor air temperatures are lowered sufficiently to reach the outdoor level. Figure 7 shows the characteristic of the thermal condition obtained from the study. In addition, it was believed that the roof design of the courtyard plays an important role in providing the cool outdoor air into the courtyard especially during the night-time. The roof surface would experience the effects of night radiation cooling and creates the heavy density of cool air within the roof surfaces. The cool air will fall into the courtyard in the sloped roof direction after reaching a certain density level or by the wind flow. Therefore, with the occurrence of this natural state condition, relatively cool outdoor air could be provided during the night-time and contribute to lower the daytime air temperatures on the following day.

4. Conclusions

This paper discusses environmental design considerations for courtyards in residential buildings in hot-humid climates through a literature review by contrasting with those in hot-dry climates. The discussion mainly focuses on the shading and ventilation effects of courtyard. In general, it can be concluded that climatic conditions do affect the consideration of shading and ventilation techniques for courtyard building environmental performances. The detailed conclusion is as follows:

- Shading by building orientation is considered to be the main priority for courtyard buildings in hot-dry climates. Meanwhile, for the hot-humid climates, the consideration of shading effects by controlling the sky exposure or courtyard roofs is anticipated to be more appropriate. Due to the high intensity of solar radiation in hot-dry climates, the shading effects by building orientation could provide a major protection before considering the application of other supplement strategies. In hot-humid climates, the exposure of courtyard to the diffused solar radiation largely affects the heat gains for the courtyard spaces. Therefore, the building orientation could be less important as compared to the shading effects by the sky exposure or the direct shading device.
- Shading by controlling the sky exposure of the courtyard roof is seen to be more significant in providing better indoor thermal conditions for buildings in the hot-humid climates. A proper design consideration of the sky exposure could offer desirable shading effects and allow the circulation of ventilation. The sky exposure rate of courtyard can be measured by a sky view factor.
- In hot-dry climates, the application of night ventilation with a high thermal mass structure could maintain the indoor thermal condition in an appropriate level. Meanwhile, for hot-humid climates, suitable ventilation strategies are still arguable especially for buildings with the high thermal mass structure. Several studies highlighted that continuous ventilation with upward air flows through courtyards is important to provide comfort to indoor conditions, while others mentioned that daytime ventilation was unnecessary because it would

allow hot air to enter building spaces.

- It is believed that the application of night ventilation and courtyard's sloped roofs could be the appropriate method in maintaining lower indoor conditions as compared to the outdoor. The night ventilation could ensure cool air to be provided to indoor spaces, while the sloped roofs could enhance the flow of cool air due to night radiation cooling effects.

In addition, there is still room for studies concerning the environmental effects of courtyard houses in hot-humid climates. Future studies mainly should be focused on the effects of sky exposure rate on its cooling effect and ventilation strategies assisted by courtyards in high thermal mass buildings.

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Diversifying Employment Opportunities of Urban Planning Graduates in the Period of Uncertainty

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ABSTRACT

Several countries, including Malaysia, have set a long term target of establishing a more educated workforce. This thrust on the *massification* of higher education has resulted in a new problem-graduate unemployment. The growing problem of graduate unemployment in Malaysia is widely debated in the media and blogs. The Higher Education Ministry, in its Graduate Tracer Study Report 2011, reported that 24 per cent of them have not found a job after six months of graduating. The employment scenario of the urban planning graduates has changed over the years from catering the needs of the public sector, to catering the needs of the private sector and to fulfilling the need of the One Stop Centre or the OSC. The advent of the liberalization of urban planning services challenges urban planning schools in Malaysia to produce planners not only to cater for local needs but also with the capability of exporting their skills and services internationally. Given the diverse scope of urban planning it is a paradox that graduates of urban planning should converge on the conventional urban planning organizations for employment. The paper will highlight some preliminary findings on the employment prospect of urban planning graduates in the immediate future and the possibility of diversifying employment opportunities of urban planning graduates.

1. Introduction

It is every student's dream to go to university, get a degree and get a job and a career upon graduation. Education is considered to be a key to employment. In the developing and under-developed countries education is seen as a mean out of poverty. While for the developed countries, education serves as a buffer against unemployment. Historically, graduates have enjoyed higher employment rates than individuals with lower levels of education (OECD, 2000). However, this is a thing of the past. Unemployment among graduates are increasingly becoming a genuine concern throughout the world (Livanos, 2010; Naess, 2004; Shadare and Tunde, 2012; Kraak, 2010; Wu, 2010; Fang and Kam, 2009).

Various reasons have been said to be responsible for this phenomenon. The economic situation is a significant contributor to this phenomenon. An economic downturn will result in a shrinking employment market for the graduates, when the number of jobs was not created in tandem with rapidly increasing numbers of graduates. The weak labor market resulted in major companies to scale back their graduate recruitment (Yen, 2012). Education expansion is another major contributing factor. Education expansion or the *massification* of higher education means greater access to higher level education opportunities. Korotkov (2006); Núñez and Livanos (2010); and Tunnicliffe (2010) noted that the rapid expansion of higher education has increased the number of graduates, and together with a weak labor market, further exacerbated the graduate unemployment situation.

The public sector has always been a source for employment in many countries. However, their proportion differs between countries. At one extreme is Qatar with 88% of its labor force working in the public sector (McGinley, 2010); and at the other extreme are Chile and Japan, with less than 10% of its population working in the public sector. Begley (2011) suggested that initially the focus is to educate people to have jobs in the government, but jobs in governments have saturated. Another reason given is the existence of education and industry mismatch where graduates knowledge and skills did not suit the demands of the rapidly growing economy. This was further exacerbated by graduates lacking soft skills such as social skills, interpersonal relationships, motivation, critical thinking, communication, creativity, and language skills that are extremely important to employers. Yalnizyan (2012) suggested that companies are choosing experience over new recruitment, partly because employers get more immediate value out of staff with experience.

In Malaysia the number of graduates that entered the labor market has increased almost tenfold from only 231,800 persons in 1982 to 2.10 million in 2010 (DOS, 2011). For the same period, graduate employment had increased from 228,100 to 2.03 million. Malaysia recorded a higher rate of unemployment among tertiary-level category compared to the lower levels of education. Although the rate of unemployment amongst the lowest educational level has more than doubled between the years 2000 to 2010 it is still lower than the tertiary level.

The growing problem of graduate unemployment in Malaysia is widely debated in the media and blogs. This necessitated the Ministry of Higher Education to conduct the Graduate Tracer Study each year attempting to trace the destinations of the graduates' employment and identify the degree of graduate unemployment. This study involved both government and private institution. The Graduate Tracer Study Report (MOE, 2011) reported that 24 percent of the graduates have not found a job after six months of graduating. The other fields of studies, where urban and regional planning graduates are incorporated, recorded higher percentages of unemployed graduates. However numbers of urban planning graduates that are unemployed are not mentioned in the report. In this case, the education field, which has a relatively lower proportion of unemployed graduates, is excluded.

2. The Challenges for Urban Planning Graduates in Malaysia

Planning education in Malaysia, at the first degree level, started with the establishment of the Bachelors of Urban and Regional Planning program in 1972 by the Department of Urban and Regional Planning of Institut Teknologi Kebangsaan, and later known as Universiti Teknologi Malaysia. Prior to this, it was only offered at the Diploma level leading to the position as a technical assistant at government departments. To become a full-fledge planner one had to go overseas for training, particularly to the United Kingdom. Currently, there are more than five universities in Malaysia that offer urban planning or similarly related programs. Most of these schools offer professional programs which are accredited by a professional body, the Board of Town Planners Malaysia, which governs planning practice in the country.

In the early 1980s planning schools in Malaysia produced planners mainly to cater for the needs of the public sector, particularly the Federal and State Departments of Town and Country Planning and a few large municipalities. By the end of the 1980s, the expansion of industrialization and the rapid urban growth the need for urban planners in the private sector began to grow. Planning schools began to cater the need for both the public and private sectors. The year 2007, saw a bigger role of many local authorities with the establishment of One Stop Centre or the OSC (Mohd, 2011), the move resulted in the increased need for urban planners in the public sector. As of 2010 though, the advent of the liberalization of urban planning services challenges urban planning schools in Malaysia to produce planners not only to cater for local needs but also with the capability of exporting their skills and services internationally.

The Report on Internationalization of Urban Planning Education (FDTCP, 2012) noted that the urban planning programs in Malaysia produce almost 270 planning graduates per year. The question is where these graduates go to get employed. With almost indistinguishable knowledge and skills amongst them, the graduates inevitably converge to the same employment market. The local employment market, however, is relatively limited. Thus the planning graduates are facing competitions from among themselves for employment. Contributing to this situation is the unknown numbers of urban planning graduates from overseas, probably with different knowledge and skills, which will add diversity to the competition. The encroachment from other professionals claiming their competency to undertake urban planning works further aggravate the planning practice situation in Malaysia leading to the shrinking of the employment market for the graduates.

The move towards the liberalization of urban planning services provide another challenge to urban planning graduates in Malaysia as it presents both opportunities as well as threats. In order to benefit from greater

opportunities arising from the liberalization of services, Malaysian urban planning graduates will have to adapt to a more open market environment. The graduates need to build up competency and competitiveness. But the same Report also stated that the local graduates lack the competitive edge to work in the broader market, to be employed by global firms and undertake offshore work. There should also be a willingness and ability to work and move to a new environment and be competitive according to international standards.

Another aspect worth remembering is opportunities for planners often depend on economic conditions (BLS, 2014). The demand for urban planners and the availability of planning works are much determined by the economic situation. Against these backdrops urban planning graduates may be facing an uncertain future if no efforts are made to broaden or diversify their employment opportunities as well as enhanced their competitive edge.

In comparison, employment opportunities for urban and regional planners in the United States were projected to grow 10 percent from 2012 to 2022, about as fast as the average for all occupations (BLS, 2014). The local governments account for about 66 percent of the urban planners. While an increasing proportion of planners were employed by private sector companies involved in engineering, architecture and management, scientific and technical consulting services. The majority of new opportunities for urban planners, however, were in affluent, rapidly growing communities (Campus Explorer, 2014). The positive outlook was attributed to several factors such as population growth, economic conditions, and environmental concerns.

In the United Kingdom about 70% of urban planning graduates were in employment within six months of graduating (Prospect, 2013). Of these, slightly less than 15% were town planning officers, and 16% were chartered surveyors. Other popular professions for the graduates include estate agents, auctioneers, housing officers, property, and housing and estate managers. Urban planning graduates in the UK are said to encroach into other areas such as engineering and building; marketing, public relation and sales; business, human resource and finance; and retail and catering. This indicates that there are avenues for urban planning graduates to diversify their employment market spectrum and not to depend solely on the restrictive present market.

In Australia, the number of employed urban planners has risen from 8,600 in 2002 to 14,500 in 2012 (Department of Employment, 2012). The 5-year occupation per cent growth was recorded at 26.1% compared to 8.1% for all occupations. In New Zealand, for the year 2010 to 2011, the number of employed urban planners increased by 180 from 2,673 to 2853 planners. However, for the year 2011 to 2012, the numbers decline to 105 new recruitments (MBIE, 2012). Chances of getting a job as an urban/regional planner in New Zealand are stated to be average, with the opportunities favouring experienced planners with at least five years' experience over recent graduates (careers.govt.nz, 2014).

3. The Employment Prospect of Urban Planning Graduates in Malaysia

Depicting an accurate picture of the employment status for urban planning graduates is almost impossible due to unavailability of actual data. Whatever data available are rather sketchy and did not cover urban planning graduates from all institutions that offer urban planning programs. However, the available data may give some indications to the employment situation that the urban planning graduates have encountered.

Data collected by UTM for the Ministry of Education Tracer Study 2013, indicated that, among the built environment disciplines, urban planning graduates were facing a tougher employment market. At the time the survey was conducted, only about 37% of urban planning graduates of the year 2013 successfully gained full time employment, while another 34% chose to further their studies. Of those gaining full time employment 54% were with urban planning firms; 11% dealing with property mortgage and logistic; 35% with retailing establishment. The proportion, however, has doubled compared to the year 2012 where only 16.4% managed to gain full time employment, of which 50% were with the urban planning firm; 10% each with developers; security firm; administration; customer service; 10% others.

A survey of urban planning firms conducted by the Department of Urban and Regional Planning, UTM 2013, showed that, the thirty-one planners from various local institutions who were employed in the twenty-one firms were recruited during the years 2010 to 2013. This came to be about 1-2 graduates for every 3-4 years per firm. Of the 31 of them, 68% managed to get employed within six months of graduation, 29% within 6-12 months of graduation, and 3% after more than 12 months of graduation. For the years 2007 to 2009, thirteen planners managed to get employment in thirteen firms; or about 1 graduate for every 2-3 years per firm. Of the 13 planners, 54% managed to get employed within six months of graduation, 31% within 6-12 months of graduation, and 15% after more than 12 months of graduation. This indicated that the market for urban planning graduates in Malaysia is rather tight. Although it can be argued that this evidence may not be convincing, it does show that there is an element of stiff competition and uncertainty facing urban planning graduates in the job market. Hence, the urgent need to explore and diversify the scope of potential employment destinations for the graduates.

4. Industry's Perspective of the Employment Prospect of Urban Planning Graduates in Malaysia

In order to gain insights from the industry on the employment prospect of urban planning graduates and the need for diversification, a structured interview survey was conducted involving agencies from both the public and the private sectors in Johor Bahru. A total of six respondents who are town planners were interviewed; three of them are from urban planning agencies, whose main tasks are preparing layout plan, documentation for planning permission application, and conducting planning studies; and three from planning related agencies that involved in transportation planning and housing. Initial findings from these interviews mirrored the employment situation as discussed above.

Respondents from both sectors agreed that during the immediate period and in the next five years to come, the employment prospects are rather challenging and competitive. Unlike in the US or Australia, where the public sectors were the main consumer of urban planning graduates, the public sectors in Malaysia have reached a plateau in terms of the absorption of the graduates. The recent major recruitment by the public sector was following the establishment of the One Stop Centers (OSC) in 2007. The Secretariat of the OSC is headed by urban planners, which were established to streamline development applications and approval process and minimize bureaucracy. The establishment of the OSC created new employment opportunities for urban planners in almost all local authorities in Malaysia. The establishment of OSC offices at the local authorities resulted in the reshuffling and re-designating of planning officers within the Federal and State Departments of Urban and Regional Planning. This created vacuums within the Departments which were then filled by new recruits.

The private sector demands, on the other hand, depend on the capacity of the firms to manage projects at hand. In the light of slow economic growth and lack of development funds, the availability of new projects is rather scarce and limited. Given this scenario, most of the respondents were of the opinion that they have achieved capacity and will not be able to recruit new planners. If they are any recruitment, it is a replacement for those who left or retired. Even if there are needs for new recruits, they prefer to recruit experienced planners rather than fresh graduates. The reason given was that experienced planners gave them time and cost advantage over new graduates. For any recruitment of new graduates will mean spending time and money on training to reach the level of competency required. With limited projects at hand, recruitment of new staff is a liability to the firms.

In quantifying the prospects of urban planning graduates able to gain employment, based on a scenario of a 100 graduates joining the employment market annually, most respondents were of the opinion that only between 5-10 percent of them successfully be employed. However, when asked about the number of new recruitments that they have acquired over the last five years, all firms stated that they recruited 2 staff and that confirmed the figure gathered from the survey conducted by the Industrial Training Coordinator. This made the estimation that 5-10% annual employment success rate of urban planning graduates rather optimistic, given about 250 urban planning graduates are produced annually. In addition to the reasons stated earlier, the policy towards a more educated workforce means a higher number of students enter university which will later lead to the inundating of the employment market. Since there are no clear caps to the number of students university programs have to accommodate, and owing to the inelasticity and slow growth of the employment sectors, an oversupply situation will inevitably surface.

5. The Need to Broaden and Diversify

Although the employment outlook for graduates of urban planning being employed in urban planning is not encouraging, it is not entirely depressing. Examples from the UK showed, urban planning graduates can and have secured employment in many other fields. Some local urban planning graduates too, have shown that they are able to secure employment in other fields besides planning, although they are not yet widespread. As respondents from the interviews have concurred, the knowledge and skills that the graduates have gained from the urban planning programs are not only applicable in conventional planning practices but also to many related areas.

However, there are several issues that need to be addressed. Firstly, the lack of exposure regarding the broader job market among the urban planning graduates. For a long time the students of urban planning have framed their mind, mainly towards the urban planning fraternity. After graduating, their employment search focuses on the agencies and departments that directly deal with urban planning. Graduates overlooked that urban planning is a multi-disciplinary field, incorporating aspects such as the environment, housing, transport, property valuation, development process etc., which can act as feelers in their search for employment opportunities in allied agencies such as environmental, transportation and logistics agencies, property developers, utilities and telecommunications agencies, etc. As examples have shown there are openings for urban planning graduates in these agencies among others. The institutions offering the programs, on their part, should do more to expose students to a broader employment market for their graduates by engaging potential agencies allied to urban planning to deliberate on their scope of work and the possibilities of

urban planning graduates being roped into the organization.

Secondly, the lack of motivation and ingenuity, among the graduates, to apply and adapt the knowledge and skills acquired, to suit the requirements of the planning related fields. Knowledge and skills that were taught in the urban planning program does not necessarily only confined to be applied within the field. The knowledge and skills are usually adaptable to be employed in numerous fields. The knowledge on housing, the development process and aspects of valuation for example, can be useful in the search for employment, for example, with housing developers. The knowledge of transportation planning can open doors to employment in logistics agencies and transportation consultants. Technical skills such as GIS, remote sensing, statistical analysis, "AutoCAD", "Sketchup"; and social skills such as communicating, teamwork, data gathering and analysis skills, technical writing skills, multitasking and presentation skills are transferable skills that can be applied in a wider scope of work. What is needed is creativity on the graduate's part. Current urban planning students are advised to start keeping a folio of their work as evidence of their competency, and use them as a means of advertising their capabilities during interviews. Graduates, on the other hand, may have to bury their pride and offer themselves for short term attachments at agencies, probably with minimal pay, to get the experience required to enhance their competitiveness in the employment market.

Thirdly, the lack of adventurousness among urban planning graduates to explore and venture into new areas and surroundings. With the knowledge and skills mentioned above, graduates should have the confidence to seek new things, venture into new areas and new surroundings. The move towards liberalization of urban planning services provides a springboard and platform for urban planning graduates move abroad and not only confine to local employment opportunities. With the increasing emergence of a global labor market, the graduates must not only enhanced their knowledge and skills, but also develop a competitive personality to attain to the international expectation. The education of planners too should shift its orientation, from concentrating on process and procedures, to greater focus on analytical and decision making.

Lastly, jobs are associated with the specific discipline of the degree. It is unfortunate that, in Malaysia, the jobs are still rigidly associated with the specific discipline of the degree and not on what the holders of the degrees could offer. The mindset of the employers has to change, as rigidly associating jobs to the specific discipline of the degree may alienate potentially capable candidates that could possibly create more diversity in the job scope of an organization. The findings of a graduate recruitment survey undertaken in the UK showed that besides degree classification, competencies were more widely used as a selection criterion by employers than relevant work experience or specific degree subject (AGR, 2010). The graduate should demonstrate that they are competent in the skills that they have developed and the networks they have established through the extracurricular activities that they were involved in. In a period where the employment market is competitive and restrictive, graduates searching for jobs are recommended to conduct rigorous research into potential employers and into the sector prior to interviews (AGR, 2013). This is aimed at ensuring that graduates have a clear understanding of what the business is about prior to the interview. Graduates also are advised to be flexible and willing to relocate to broaden the number of opportunities available to them.

6. Conclusion

The *massification* of higher education that produces large numbers of

graduates along with the stiff employment opportunities has resulted in a phenomenon of graduates' unemployment among the Urban and Regional Planning graduates. Of late, the mismatch of knowledge and skills attained from the University and the industry's expectation did not suit the demands of the rapidly growing economy. Graduates are also often criticized for lacking soft skills such as social skills, interpersonal relationships, motivation, critical thinking, communication, creativity, and language skills that are extremely important to employers.

In Malaysia, it has been a tradition that planning graduates work in urban planning organization and the number of graduate working in planning related organization is insignificant. The uncertain economic scenario led to scarce and limited planning projects to planning firms, leading them to be very selective in recruiting new staff. Planning firms prefer to employ experienced staff rather than recruiting fresh graduates because employers get more immediate value out of staff with experience. A survey on planning firms stated that firms recruited about 2 staff per firm for the last five years and generally has employed about 2 graduates for every 3-4 years. Although this evidence may not be convincing, it showed that there is an element of uncertainty facing urban planning graduates in the job market. Thus, there is a need to explore and diversify the scope of potential employment destinations for the graduates. It is also evident that some local urban planning graduates are able to gain employment in many other related fields such as in transportation, urban design and housing developers. The knowledge and skills that the graduates have gained from the urban planning programs are applicable in many related areas not only in urban planning practices.

It is common in countries like the UK and USA that planning graduates working in other planning related field; among others in engineering, estate property, management and architecture, marketing, public relation and sales; business, human resource and finance; retail and catering. This indicates that there are avenues for urban planning graduates to diversify their employment market spectrum and not solely dependent on planning agencies only.

The advent of the liberalization of urban planning services in Malaysia in 2010 is an urge to tertiary education institutions to produce graduates not only to cater for local needs but also with the capability of exporting their skills and services internationally. The move towards liberalization of urban planning service provides a bridge for urban planning graduates to move abroad and not only confine to local employment opportunities. Malaysian urban planning graduates will have to adapt to a more open market environment so as to benefit from greater opportunities arising from the liberalization of services.

Based on the current scenario, the employment prospect of urban planning graduates in the immediate future seems to be tight; however, there is a possibility of diversifying employment opportunities for urban planning graduates. Due to the uncertainties of the employment market for urban planners, planning graduates should have the motivation and ingenuity to utilize and adapt the acquired knowledge and skills to suit the requirement of alternative planning related fields. Graduates should also be able to explore and venture into new fields and be competent and competitive to the global market.

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Modernity and Transformation of the Architecture of Depok City, Indonesia

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ABSTRACT

Depok, a city in the south of Jakarta, has developed very rapidly in the last 30 years. Until the end of the 1970s, Depok was dominated by agricultural land, but now it is replaced by residential, commercial and services areas. The dynamic development of Depok has been followed by the transformation of the architecture of the city. In the process, the transformation occurs without control. The change of the architecture of Depok city does not only affect visual issue, but also the issue of declining of city amenity, and the emergence of social and environmental issues. The transformation, as a result of modernity, has background of political, economic, and social factors. Modernity does not only mean the present or the distinction from previous periods, but also breaking the tradition of the architecture of Depok city. We formulated a clear concept and foundation based on the current researches and literature, to further examine the issue of the transformation of the architecture of Depok city. The results of this study can be applied to a wide range of interests of continuity and change of Depok city, and also as a comparison to other cities with similar character.

1. Introduction

In the recent 30 years, Depok city has been changing in a very fast way. Up to the end of 1970s, Depok was dominated by agricultural land, but now the city crowded with residential, commercial and services areas. Silver (2008) depicted that one of the growth centers along the railway connecting Jakarta and Bogor was the town market of Depok, which had only a few thousand inhabitants in the early 1970s. Depok grew rapidly. The population was about 390,000 in 1990. The city was a part of Jakarta metropolitan region (Figure 1), during the early of this period. The population growth continued and by 2000 it reached 816,000 (Silver, 2008). In 2012, the population of Depok city was 1,898,567, with the average density of 9,479 people/km² (Board of Statistic of Depok Municipality, 2012). The change of Depok city is a process of modernization, as explained by Widodo (2007), as an evolution process that continues on. Kostof (2001) called it as urban process that involved physical change through time.

Frisby (2004) stated that 'architecture, like other modern arts, must represent our modernity, our capabilities and our actions through forms that we have created'. The dynamic development of Depok was followed by the transformation of the architecture of the city. The transformation, as a result of modernity, has the background of political, economic, and social factors. In the process, the transformation occurs almost without control. The change of the architecture of Depok city does not only bring visual issue, but also the issue of declining of city amenity as well as the emergence of social and environmental issues.

Berman (1988) in his criticism described that being modern means that we put ourselves in an environment that pledges an experience, authority, pleasure, development, and transformation of ourselves and the world, but at the same time that changes everything we have, we know, and everything about us. Modern environment erased all geography and ethnical limits, tribes and nations, religion and ideology, in this case, modernization is considered to unify all of them. Yet, it becomes a paradox, a unity of disunity, an occurred disintegration, contradiction, occurring confusion and even suffering. This paradox also occurs in Depok city, which on one hand, the modernity of Depok city shows a fast physical development, but on the other hand, the development also has sacrificed the quality of environment and comfort of the city.

Urban transformation is indeed not a new topic in research (see Dunbar, 2001; Woo & Hui, n.d; Yamane et al., 2008). Based on literature review, there are not many literatures and researches about transformation of the city's architecture, particularly on the research on the relationship between modernity, architecture of the city, and urban transformation. There is not any research about the transformation of the architecture of Depok city.

This paper is a part of literature review of the dissertation on the transformation of the architecture of Depok city. Based on this review, we formulate a clear concept and foundation on the issue of the architectural transformation of Depok city, and explain how the modernity process on the transformation in Depok city. The results of

this study can be applied in a wide range of interests on the continuity and change of Depok city. The change is for the present time and the future, and also as a comparison to other cities with similar character.

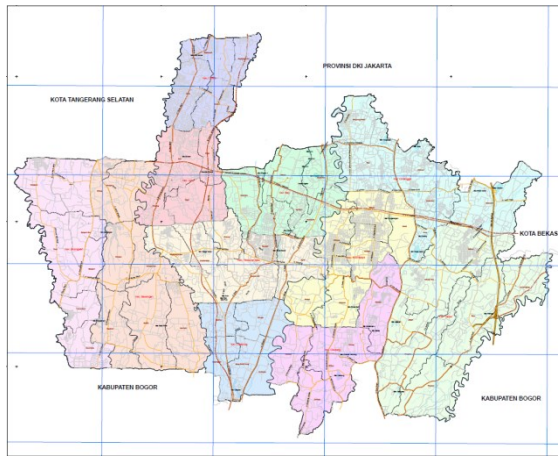


Figure 1 Map of Depok City within the area of Jakarta Metropolitan Region (Jabodetabek/Jakarta, Bogor, Depok, Tangerang, and Bekasi) (above) and Map of the area of Depok city (below).

2. Literature Review and Concepts

2.1 Modernity and Transformation

In analyzing the modernity, it needs to understand the difference between the terms modern, modernism, modernity, and modernization. Widodo (2009) defined the modern as up to date, trendy and new from the time in progress or recently. It is a very different term from the word 'antique' or old-fashioned.

Kusno (2012) explained that the modernity shows a condition of new because of the imagination and reality of local economic, politics, and social changes. Heynen (1999) provided different point that 'modernity is what gives the present the specific quality that makes it different from the past and points the way toward the future'. She also described that a modernity as being a break with tradition, and as typifying everything that rejects the inheritance of the past. Kusno (2012) also asserted that modernism is a movement in modern arts. He argued that the world of architecture embraced the universalism (timeless and placeless). Modernization is therefore a process of modernizing something or making something to be modern.

Widodo (2009) also explained the relationship between modern and transformation. The term of modern refers to anything which is not old tradition and to the new creation acquired through invention, creation, and transformation adjusted to the needs and demands recently. The process of changing is as bedding process, through continuous evolution by transplantation, adaptation, accommodation, and fusion.

The relation between modernity and transformation is also conveyed by Heynen (1999). She stated that 'modernity refers to the typical features of modern times and to the way that these features are experienced by the individual: modernity stands for the attitude toward life that is associated with a continuous process of evolution and transformation, with an orientation toward a future that will be different from the past and from the present'. In similar way, Widodo (2009) argued that the changes are embodied in various style and form of architecture with the extraordinary mixture and variety along the history. The changes of urban and architectural forms are the realization of social, economic, politic, art and cultural values.

2.2 Transformation of the Architecture of the City

Rossi (1988) affirmed the city as a man-made object. City, as an architectural entity, is not just considered visually as its various architecture, but also as an architectural construction which grows over time (Rossi, 1988). Spreiregen (1965) insisted that urban spaces, urban mass, circulation patterns, urban scale are the elements in the process of urban growth and change. In his dissertation entitled "*Pengendalian Kualitas Arsitektur Kota pada Ruang Publik di Kota Pekanbaru*" (Urban Architectural Quality Control on Public Space in Pekanbaru), Ekomadyo (2009) defined urban architecture as a man-made urban environmental constructions to meet their needs in their cultural life. Urban architecture can be seen through the configuration of its constructing physical elements. These physical elements include natural elements (i.e. topography, river, or sea, buildings, group of buildings as part of the city, roads, utility and infrastructure system, vegetation), and aesthetical elements (such as decoration, street furniture, and street paving pattern). These elements are composed as a media for doing various activities of the people in a city (Ekomadyo, 2009).

Rossi (1983, 1988) stated that transformation of the architecture of the city is affected by 3 factors: economic, politic and social factors. The transformation is through three phases. The first phase shows by the destruction of the fundamental structure of the medieval city. Contemporaneously, workers' housing, mass housing, and rental housing appeared. The second phase was characterized by a progressive expansion of industrialization. Engendered separation of house and work place and destroyed their former relationships to neighborhood. He depicted '*A choice of housing that is not always in the immediate vicinity of the work place*'. The third phase, the development of means of individual transportation and the full efficiency of all means of public transportation to the work place. '*The choice of place of residence became increasingly independent of the place of work*'. The search for housing outside the city in the adjacent countryside grew ever stronger, rise to the phenomenon of the commuter.

The second factor – the politic factor, different political systems generate different forms of city and different features of urban space. The third factor is social factor. It is about the social relation to make urban *Gestaltschau* and the make-up of the very image of every built up area (Rossi, 1983 & 1988). The Rossi's transformation phases are similar to the transformation in Depok city. The analysis of the transformation is explained in the subsequent sections.

3. Results and Analysis

3.1 Modernity in the Colonial History in Depok

Frampton (1992) conveyed that territorial transformation together with the technological and cultural transformation, occurred in the end of 18th century to the early 20th century in the cities of England, America, and France, underlined the born of modern architecture. The high cost of land and the decrease of the quality of the living environment, which was caused by industrialization in the urban central area, affected the movement of urban development to the suburban. The build of train tracks and highways also affected that movement.

Modernity has occurred in Depok since the colonialism era of the Dutch. In 1880, railway of the old train was built between *Batavia* (former name of Jakarta) and *Buitenzorg* (former name of Bogor) through Depok. In 1920, *Depok Lama* Train Station was improved from its previous status as a shelter since 1881, to be a station. Also, during the colonialism era, in Depok there was a social change done by a Dutch landlord named Cornelis Chastelein (1657-1714) to his slaves. He left his land to 12 slaves and their ancestry who were later called as *Belanda Depok* (Jonathans, 2011). The social change done by Chastelein can be said as a modernization. Chastelein changed the tradition of relationship between the lords and their slaves during the colonial era.

Modernization process during the colonial era also affected the architecture of Depok city, with its buildings that had *art-deco* architectural style (Jonathan, 2011). The buildings from the colonial era can still be found in *Depok Lama* (Depok old city district) by this time (Figure 2).



Figure 2 Some heritage buildings of the colonial era that can still be found on Jalan Pemuda, in Depok Lama.

The modernization process stopped and had vacant period after the Dutch left Indonesia after the independence of Indonesia on August 17th, 1945. Even, Depok experienced a depressing time when social revolution happened. It is known as *Peristiwa Gedoran Depok* that occurred in October 1945, in which all the ancestries of the Dutch who were considered as the endorser of the Dutch were caught by the civilians. There were social-pillage, buildings demolition, and many dead victims (Wanhar, 2011).

3.2 Modernity and Transformation Era from 1970 up to now

Depok began to experience significant change since the National Housing Projects (*Perumnas*) Depok I and Depok II were built in the middle of 1970s. *Pusat Dokumentasi Arsitektur Indonesia* – PDAI (The Center of Architecture Documentation of Indonesia), PDAI (2012) confirmed that the growth of Indonesia's economics in the decade of 1970s – during low-hanging fruit of oil production – was run by gas and oil production. The presence of those two low-cost National Housings got a high appreciation from the Jakarta society who faced the expensive cost of land in their city.

The development of those two national housings can be considered as the beginning of commuter's mobility, where people living in Depok commuted for their workplace in Jakarta. Along with the use of private and public transports, the commuters were supported by the railway from Bogor to Jakarta. By the operating of the *Jagorawi* Highway access to Depok in 1978, the commuter's mobility increased. The development also signified the beginning of the real estate development in Depok city. The success of Depok National housing supported by the existence of railway and highway from Depok to Jakarta, has pushed other developers to build housing estates in Depok. The fast real estate development in Depok is in-line with the Rossi's critics to the occurrence of real estate phenomenon on the delivering process of modern capitalist city.

By this time Depok has grown very fast as a city with various commercial and service activities. The city was ever called as dormitory town or as a passive city. It signifies that the city becomes only 'a sleeping bed' at night for the commuters who work in Jakarta. However, the present Depok shows active urban living in the day and night.

The development of Depok city is also affected by the presence of University of Indonesia (UI) campus that was built in 1987. The development of UI campus then followed by several other universities such as *Gunadarma University* (UG). The existence of those universities has made Depok as the target of the commuters, especially the college students from Jakarta and the *periurbans*. The daily mobility from the central of the town to the suburban or to Depok becomes interesting phenomenon of the suburban area in 21st century which is labelled by Jackson (2006) as reverse commuters.

The existence of UI and UG also becomes an external force to the change of land use in the surrounding area. The need of residence for the college students becomes a business chance for the society. They converted or renovated their houses to be boarding houses, canteen or restaurant, photo copy service, paper typing service, computer service, and others. Those changes do not only happen in the main street in Depok city, but also expand to the residential area.

The area around UI and UG campuses is dominated by boarding houses which are inhabited by comers like college students and workers as

temporary residents. There is a change in social structures among the society, housing environment which previously was a community of closed local citizens later on changed into an environment that was inhabited by comers who became temporary residents. In a recent decade, there has begun the build of vertical residence, such as apartments in Depok (Figure 3).



Figure 3 Depok experienced the transformation from landed houses (boarding houses) (above) to vertical residences / apartments (below), located on Margonda Raya Street.

The existence of apartments in Depok city becomes an interesting phenomenon. This phenomenon is described as the process of residence transformation from the boarding houses to vertical residence/ apartment (Prasidha, 2014). This notion is supported by the presence of apartments with studio-typed room with the facility of 1 bedroom and bathroom sized between 21-24 m², typically designed like the layout of hotel/boarding house room. The information about the shift of development of apartments to the suburban caused by expensive land cost in the central of the city, the existence of apartments in Depok obviously targeted the college students or commuters as the markets (Info Apartemen Magazine, 2013).

The development of the apartments in Depok is carried in-line with the growing number of college students from the middle-upper class of society in UI who preferred staying in the apartments than staying in boarding houses, and the increasing amount of commuters who prefer living in Depok to living in South Jakarta. The phenomenon of this 'vertical boarding house' happens in other cities as well where the concentration of University's campuses is there. For example, in Bandung and *Jatinangor*, in West Java Province.

The society sacrifices open area in their living environment to be replaced by the boarding houses. Gradually, the open spaces in Depok city are lessen, and changed to be buildings for business activities. Various changes in the use of the area caused the increase of the intensity of land utilization. The fastest transformation of Depok city architecture occurred on *Margonda Raya* Street and its surrounding areas. On this main corridor of Depok City, various buildings such as shopping centers, offices, and business centers, educational institution buildings, apartments, hotels are built in various modern architecture. Along the street, we can also find governmental center, three railway stations and

a bus terminal of Depok City. This transformation, on one hand, shows the presence of modernization. On the other hand, it shows the decrease of the city architecture quality and the expansion to the open space and public area as well (Figure 4).

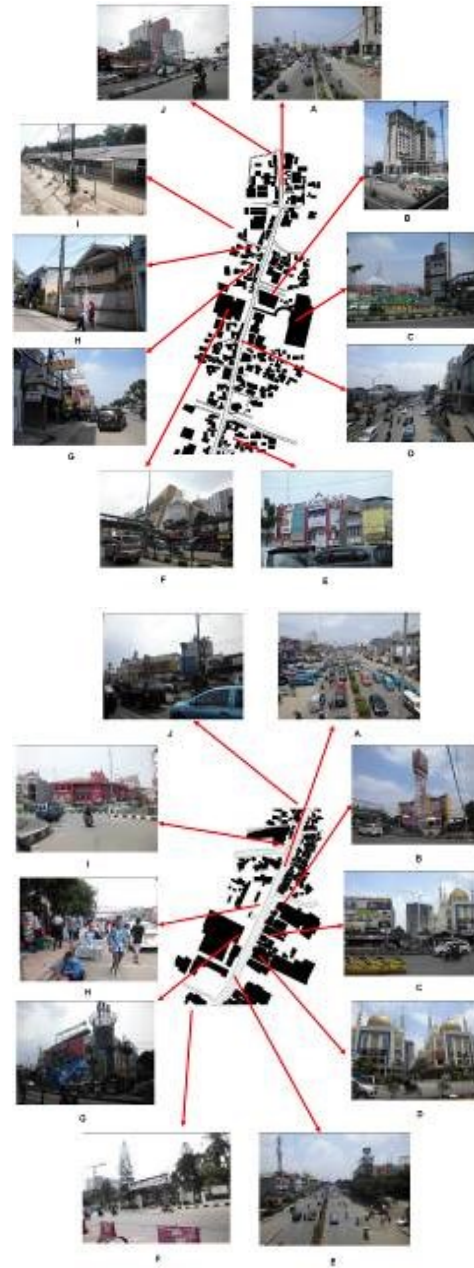


Figure 4: The area of Margonda Raya Street that represents modernity and transformation of the architecture of Depok city. The northern of Margonda Raya Street (above); the southern of Margonda Raya Street (below)

3.3 Modernity Paradox in the Transformation of the Architecture of Depok City

Politically, the faster change of Depok city is not out of the existence of 'the Law 22/1999 on Regional Government' also known as 'the Law of Regional Autonomy of 1999'. With the wider autonomy and independence, the local government tries to increase their income, such as by issuing business license for the company that can increase the regional income. In the same year, legal status of Depok was promoted as a City based on the Law 15/1999 about Depok City Municipality.

Law on Bogor Regency (Law 1/1988) is the first regulation that controls Depok City planning process. The Law is valid during the period in which Depok city was still a part of administrative region of Bogor Regency. This planning regulation has pushed the physical expansion of Depok City as one of the strategic growth centers of the Bogor Regency. Although, it was bestowed by the regulation on detailed city planning (Law 16/1995), yet this regulation did not run effectively because it did not manage the zoning regulation. The Law on Regional Spatial Planning (Law 12/2001) guides the developing of Depok city as 'Counter Magnet City' that adjusts the function of Jakarta Metropolitan Region, also forces the physical change of the city. Like the previous regulation, this regulation does not manage the city planning and zoning regulation in details.

The fast growing of Depok also invites investors to build modern market that dematerializes the traditional market. The existence of traditional market like *Pasar Kemiri Depok* becomes marginalized because of the presence of modern market. Mini market grows rapidly all around the city until the living environment. Even some heritage buildings turned into commercial buildings such as cafe, shops, and mini markets, without considering the values of architectural preservations (Figure 5).



Figure 5: One of the buildings from the colonial era – "Pondok Cina House" built in 1841 (above). Its function has changed to be a cafe in a shopping center (below)
 Source: <http://poestahadepok.blogspot.com/2012/08/rumah-tua-pondok-cina-di-depok.html> and <http://editorial.blogdetik.com/depok-modern-kota-yang-kehilangan-identitas-sejarahny>

Shopping centers and apartments are built extensively on the major corridors of the city. Depok city grows in ribbon pattern, in which the architecture of the city is dominated by shop houses and billboards (Figure 6). Depok has become a service city which is consumptive. The fast existence of those various commercial facilities describes that Depok city is a modern city, like the phenomenon explained by Powell (2000) 'the prime role of the modern city is a center of consumption rather than production, and most recent urban architecture reflects that reality'.

The development of Depok grows massively with similar appearance like the critics of Gregotti (1996) on modernization that emerges homogeneity and massive culture in architecture. Architecture follows the market required and market competition, so that it can cause the loss of basic principles of architecture in objectives and aesthetics.



Figure 6 Business activity around the campuses (above). Shopping centers and shop-houses in the main corridor of the Depok city (below). Billboards are also dominating the facade of the corridors of Depok city.

Gregotti (1996) also conveys the occurrence of the shift of meaning monumentalism in architectural work. The appearance of the city reflects the exploitation of economic effects and individualistic characters.

4. Conclusion

In the context of relation between city as architecture, as Rossi (1988) noted, and the transformation of the city's architecture, as Gregotti (1996) affirmed that 'no new architecture can arise without modifying what already exists'. Vickers (1999) stated that 'city architecture is the visible and tangible expression of our society's taste, culture, politics and preoccupations'.

The modernity and transformation of the architecture of Depok city have a closed link. Modernity has participated in changing the architecture of Depok city, through the land use change, the change of building mass order, the change of building intensity, visual appearance of the area, outside space, and the change of social economic of the society. Modernity comes through the effect of various, strength, especially the effect of economics.

The modernization takes place in Depok, contains two things, i.e. the change of technology and the change of tradition. With the modernization in public transportation system, such as railway and highway, participates in forcing the shift of development, from the central of the city (Jakarta) to the suburban, in this case Depok. Depok is not only a residential place but also has become the center of service growth. This change becomes the modernity that changes the tradition in Depok, and mainly is on the activities of the civics and the elements of the architecture of the city.

The development of Depok city is not only a sub-urbanization process, but there are factors affecting that. Uncontrollable changes are affected by economic, social, and politics factors. Economy is the most influencing factor of the development of Depok city. The tense of uncontrollable development as paradox of the modernity, needs

corrective steps to control the development of Depok city.

The changes that happen can affect each other, but all the urban changes finally will get back to the factor of politics, in this case, the policy of controlling the development of Depok city. The policy of Depok city development will go along with the market that implies to the architecture of Depok city and other following urban problems. Depok city will be built upon its specific character.

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Recapitulating the issues Concerning the Applications of the Bills of Quantities

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ABSTRACT

A preliminary review of the literature had indicated a growing concern over various issues concerning the application of the Bills of Quantities (BQ). Though eminent, these issues, however, have sparsely been highlighted on a fragmentary basis, thus requires a systematic restructuring to manifest its underlying meaning. Following this review, a study has been conducted with an aim to recapitulate and subsequently suggest some of the most compelling issues concerning the application of the BQ. In this regard, it has objectively strived to identify relevant issues from the literature and ensue by critically synthesizing the outcome in response to the aim. Correspondingly, with support from tables and models developed to represent the concepts, the study has proposed three main categories of issues from the restructuring process. These are: (1) issues related to information, (2) issues related to format and (3) issues related to the method of working. Issues related to information have been suggested from the process as the issue considered most compelling thus warranting further consideration by the industry. The significance of this study is on the methodological way of restructuring and refocusing the issues related to the BQ. The finding has the potential prospect for future research and act as a basis from which the industry's awareness can be bolstered.

1. Introduction

The Bills of Quantities (BQ) is an integral part of the quantity surveying profession. It remains an essential service in many quantity surveying practices, and its production is often seen as the bread and butter of the profession (Charles, 2007; Olatunji *et al.*, 2010). BQ preparation is traditionally regarded as the main source of income for the independent quantity surveying consultants (Marsden, 1996). In fact, the service which helped to stage and establish the profession in the construction industry (Ferry *et al.*, 1999; Marsden, 1996).

The impressive reputation relished by the BQ seems to permeate following its long period of engagement in the industry. In this instance, Milliken (1996) stated that this particular document has been prepared in various form for more than 300 years, over which it was subjected to various degree of evolution in meeting the demand placed by the industry (Khairuddin, 2011). Following this pace, the existence of various proposals which focuses on improving the BQ format (Shamsulhadi and Fadhlin, 2012) had utterly enunciated this fact and serve as the hard evidence supporting the multi-faceted degree of its evolution.

As far the Malaysian construction industry (MCI) is concerned, the BQ has long been recognised as an important element in the overall process of construction. This element was largely caused by extensive domination of the traditional lump sum system of construction

procurement (Khairuddin, 2002) which integrally include the BQ in the forefront of its process (Jaggar *et al.*, 2001; Seeley, 1997). Table 1 shows the frequencies of the adoption of the traditional lump sum system as compared to other types of procurement used. This point asserts that the adoption to this system has constantly remained strong which unswervingly reaffirm the position of the BQ in the Malaysian construction industry.

Table 1 The frequencies of adoption of the traditional lump sum system as compared to other types of procurement (2009 - 2013)

	Year/Percentage									
	2009	%	2010	%	2011	%	2012	%	2013	%
Traditional lump sum system	6724	96	7027	96	7324	96	7217	94	5717	96
Other types of procurement used	315	4	275	4	281	4	433	6	268	4
Total:	7039	100	7302	100	7605	100	7650	100	5985	100

Source: CIDB (2011) CIDB (2012) and CIDB (2013).

Apart from being evidently prominent through its wide industrial adoption, studies by Abdul Rashid and Normah (2004); Fadhlin and Ismail (2006) and Rosli *et al.* (2008) had also confirmed the significance of BQ preparation to the independent quantity surveying firms in Malaysia. Rosli *et al.* (2008) further reiterated that the service had considerably formed the backbone of their professional fees and seem to contribute substantially to their operating income. Hence, given the fact

that 84.4% of this job-scope had been outsourced by the Public Works Department of Malaysia (PWD) in 2004 alone (Abdul Rashid and Normah, 2004) strongly indicates that BQ is highly relevant and has contributed much to the process in the MCI.

Despite the importance and contribution of the BQ to the construction process in Malaysia, there have been prior reports published in the UK and Australia that clearly show the use of the BQ in these countries have begun to wane. Table 2 shows the use of BQ as a tender document in UK from 1985 to 2007 reflected an overall declining trend (Ashworth and Hogg, 2007). A similar situation was observed from a survey carried out by the Construction Economic Committee of Victoria (CECV) in Australia (Davis and Baccarini, 2004; Wood and Kenley, 2004). The reports indicate that some dissatisfaction exist over some aspects of the BQ that probably contributes to its declining usage.

Table 2 Percentage of project value where BQ (firm and approximate) is used as tender document in the UK

	1985	1987	1989	1991	1993	1995	1998	2001	2004	2007
	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)
% by value of projects	64.7	55.5	55.9	50.8	45.7	46.1	30.1	23.1	26.1	15.2
*Increase / Decrease		-9.2	-0.4	-5.1	-5.1	0.4	-16.0	-7.0	3.0	-10.9

Note: Rate of increase / decrease measured from 'report-to-report'.

Source: Adapted from the Royal Institution of Chartered Surveyors (RICS) report on contract in use in the UK (RICS, 2010, p. 8) and Ashworth and Hogg (2007, p. 256).

Correspondingly, the concerns relayed from data published by the reports have sent an alarming question on what to have triggered such predicament. In some ways, it indicates that some issues closely related to the BQ might currently un-resolve and possibly have become the factors that have triggered the dissatisfaction. Asserting from this point, an initial review of the literature was conducted for the purpose of identifying pertinent studies involving the BQ. This identification has been done on a broad basis and aim to gauge the extent of which issues related to the BQ have been expressively outlined. The outcome of the preliminary review suggests that issues related to the BQ have been highlighted on a fragmentary basis. It shows a gap was highlighted and prompted for an organized effort to collect and finally represent the issues in its entirety. Hence, a systematic effort to identify, restructure and reorganize every compelling issue concerning the BQ might be considered timely and would offer the necessary assistance in pursuing future interest in research relating to BQ.

A study has been conducted with an aim to recapitulate and subsequently restructure the compelling issues concerning the application of the BQ into a hypothetical model representing the identified issues. Accordingly, the objective is to explore, identify and critically synthesizing the literature concerning the subject. Typical connotation among the issues will be identified with a focus expanded to reduce and subsequently suggesting the significant issues. The fulfilment of the purpose is posed to restructure the fragmented issues hence achieving the aim envisaged in this paper.

The paper is structured to provide a brief explanation on the methodology employed in identifying the issues. This identification is followed by general review on the BQ and ensues by presenting detail discussion on the pertinent issues identified from the review process. A model on the most compelling issues is suggested from the outcome of the synthesis and concludes by signifying the issue in reference to the

immediate and future interest concerning the BQ. The finding presented in this paper is significant, considering the lack of the current effort in reviewing the array of issues concerning the application of the BQ either in Malaysia or elsewhere. It was firmly justified from the fragmentary nature of the issues and the need to answer the concerns indicated by the reports. Apart from recapitulating issues related to the BQ, the study is also posed to reinvigorate industry-wide interest on the subject, hence, providing a foundation for any forthcoming research with regards to the BQ.

2. Research Methodology

The study involves the process of identifying and reviewing the literature. More than hundred pieces of printed and on-line materials have been gathered from library search and subjected to rigorous review and appraisal. Some techniques employed in the review process were skimming, reading and interpreting (Bowen, 2009) with high focus expanded in detecting salient issues and searching-out any underlying themes (Bryman, 2006). For the purpose of synthesizing the outcome from the review, we use specialist qualitative analysis software - NVivo. The software facilitates coding the inputs derived from the review and helps to draw meaningful relationship among categories and detail cohorts espoused from the coding process. Accordingly, the methodological process employed indicates that the study has been systematically pursued, and thorough in its approach for manifesting the aim envisaged in this study.

3. The Use and Concern over the Use of the BQ

The BQ is not a dormant subject per se and has been subjected to various degree of development (Khairuddin, 2011). It grows in significance with the adoption of the conventional or the traditional process of building contracting and helps to ensure that efficiency is achieved in the process of tendering (Jaggar, *et al.*, 2001; Wilcox and Snape, 1980). As modern building operations increase greatly in scale and complexity, it becomes seemingly impossible for a contractor to price and compete for a job without substantial use of the BQ (Seeley, 1997). It indicates that the use of the BQ is at best considered indispensable and apparently is still the best method for placing contract in the construction industry.

Being prominent, the BQ has been highly useful to the industry due to the information contain in the document. The BQ follows the meticulous process performed by the quantity surveyors in interrogating the drawings and specifications (Davis *et al.*, 2009), which results into a concise schedule of descriptive and quantified items of the proposed project (Hackett *et al.*, 2006). Succinctly, the schedule provides detailed breakdown of the materials (Kwakye, 1997; Lee *et al.*, 2011; Lenard, 1992), labor (Baccarini and Davis, 2002; Kwakye, 1997), services required (Lenard, 1992; Mohd Hisham and Azman, 2008), workmanship (Rosli *et al.*, 2006), cost (Rosli, *et al.*, 2008), nature of work (Rosli, *et al.*, 2008), plant (Kwakye, 1997) and other works necessary to complete the construction project. In essence, the manner in which the BQ is prepared indicates that it contains the highest detail of information, which is consequently usable to the varying needs of its users in the industry.

The information that characterizes the BQ is useful and has generally benefited the clients, consultants and the contracting organizations (Rosli *et al.*, 2006; Sierra, 1984). This character has been transpired from the details available from the quantification process, which help a

project to become more transparent among the contractual parties. Although the BQ may have benefited various parties, there was a strong consensus in the literature for associating the BQ to the practice of the contracting organizations (Davis and Baccarini, 2004; Davis, *et al.*, 2009; Kodikara, 1990; Kodikara *et al.*, 1993; Skinner, 1979). This presumably rest with the acceptance that this organization have been the primary user of the BQ (Davis, *et al.*, 2009; Wood and Kenley, 2004) either for establishing the contract price or later in the course of the construction work.

Charting out from this view, the BQ has been accorded as expediently useful to the array of tasks that need to be performed by the contracting organizations. This circumstance was demonstrated from earlier studies by Skinner (1979); Smith and Hoong (1985); Kodikara, *et al.* (1993) and Davis and Baccarini (2004) which shows the variability of its functions to the party in addition to its traditional use in the tendering process. In addition, a recent study by Shamsulhadi *et al.* (2014) had further supported the proposition presented in the earlier studies. In this instance, thirty fundamental uses of the BQ, as shown in Table 3, have been suggested and were derived from detail consideration of concerning literatures. Accordingly, the wealth of literature available concerning this indicates that the BQ is fundamentally useful to the organizations concerned hence providing assistance across the main phases of a project.

Table 3 The fundamental uses of the BQ to the contracting organizations

Project period	Project phases	The fundamental uses of the BQ to the contracting organizations
A.	Tender period	Estimating <ol style="list-style-type: none"> 1. Materials enquiries to supplier. Such as: material details, stock availability and method of assembly. 2. Basis for materials quotations from suppliers. 3. Basis for works quotations from sub-contractors (work trade). 4. Building up own price for work/items requested in the BQ.
		Planning <ol style="list-style-type: none"> 1. Identification of task/activities and planning of construction method. 2. Programming the duration of task/activities for tender pricing. 3. Drafting method statement for the identified task/activities.
B.	Pre-contract period	Purchasing <ol style="list-style-type: none"> 1. Identification of material requirements to order from suppliers. 2. Preparation of material schedules for ordering purposes.
		Planning <p>Preparation of detail work program i.e. establishing the relationship among task/activities.</p>
		Site management <ol style="list-style-type: none"> 1. Planning for the allocation of materials for works. 2. Planning for the allocation of plants/equipment for works. 3. Planning for the allocation of labor for works.
C.	Construction period	Purchasing <ol style="list-style-type: none"> 1. Placing orders for materials to suppliers. 2. Purchasing/leasing plants for works. 3. Procurement of sub-contractors. 4. Scheduling sub-contractor's work. 5. Procurement of general labor.
		Planning <ol style="list-style-type: none"> 1. Off-site manufacturing of building components. 2. On-site manufacturing of building components.
		Site management <ol style="list-style-type: none"> 1. Recording actual use of materials. 2. Recording actual use of plants. 3. Recording actual use of labors.
		Quantity Surveying/ Financial control <ol style="list-style-type: none"> 1. Preparation of claim document for interim valuations. 2. Preparation of claim document for varied works to client (variation orders). 3. Evaluation of claims submitted by sub-contractors employed for the works. 4. Preparation of payment to sub-contractors. 5. Monitoring planned and actual project's expenditure.
D.	Defects and final account period	Quantity Surveying/ Financial control <ol style="list-style-type: none"> 1. Preparation of final claim document to client. 2. Preparation of document for closing of project's account (final account).

Source: adapted from Shamsulhadi, *et al.* (2014, p. 128)

Despite the assistance provide by the BQ, there were profound evidence from reports mentioned earlier that suggests a declining trend with the adoption of the BQ from the practice of the industry. This seemingly shows that some dissatisfaction exist over its use and consequently vitiate its reputation as a valuable mechanism to the industry. Following

this, the preliminary review of the literature suggests various causes of the predicament to surface. For instance, Waterworth and Weddle (1978) and Benedict (1972) pointed out that the BQ give no substantial value to the contractor while Charles (2007) blamed cost and labor as the hindrance in its production. Accordingly, the initial outcome from the preliminary review reflects the presence of a concern, hence deliberately supports the effort to review the subject further.

It is rather clear at this point that the predicaments probably were the main causes which had invoked the concern over the use of the BQ in the construction industry. This somehow has impacted the credibility of the BQ (Blyth, 2001; Choy and Sidwell, 1991; Marsden, 1996; Morledge and Kings, 2006; Uher, 1996) and resulted with a backward perception over its ability to embrace the needs of a changing industry (Smith and Hoong, 1985; Turner, 1983). In addition, there was also claim by Hodgetts (1984) that suggest the obsolescence of the BQ. For this reason, its suitability in representing the approximate nature of the construction environment was utterly questioned (Khairuddin, 2011) with unwieldy actions reported in supplanting the BQ with new techniques and procedures (Hackett, *et al.*, 2006; Kwakye, 1997). This portrays that an apprehension towards the BQ is mounting and possibly a drawback for its future application in the construction industry.

The concerns over the use of the BQ as described had placed a strong justification for a systematic identification on the sources of the predicament. This could be represented by the model proposed in this paper that could help to restructure the issues to a common ground. Hence, the next section will delve into the issues as identified from the literature and move on towards synthesizing the outcome.

4. Identifying the Issues concerning the Application of the BQ

The process of identifying and reviewing the literature has managed to gather pertinent sources of information for the purpose of this study. In this instance, every regarding cause of predicament – or issues, mentioned by authors from the studies was listed and interpretively defined to accentuate its underlying concept. The purpose of this process was to accumulate as many issues from the literature with the prospect of manifesting ordinary connotation among the issues from the list. This process will subsequently assist in highlighting the concerning issues and help to aggregate any similar issues indicated by different authors. The outcome from the process is presented in Table 4 with deliberations ensued in the following paragraph.

Following the rigorous process of appraisal, we identified twenty-nine discerning issues from the studies of various authors and presented in Table 4. In order to facilitate interpretation, the concepts which underlie each of the identified issue was defined, accentuated and integrated back in the list of issues identified from various sources of literature. The defined and accentuated concept – depicted in (*bracket), helps the study to proceed by disclosing the gist of the issues and provide a preliminary appreciation on the category of issues embodied in the literature (Bryman, 2008). This concept consequently allows the issues to be structurally viewed and highlight the general heading of the issues in preparation for the synthesis needed in this study.

5. Weightage and Focus of the Identified Issues

Though the list shown in Table 4 has managed to point out the discerning headings of all related issues, these issues however have been

accentuated in fragment and have followed the individual interpretation of the identified issue. In this instance, there was no chance to confirm on the theme and cumulative weightage of the issues, which critically were needed to suggest direction or focus that is worthy of consideration. This has placed bounds in the quest to synthesize the issues and indicates that an analysis of theme/weightage is required before an acceptable level of synthesis could be performed to the developed concepts.

With this condition in mind, a thematic analysis was performed based on the method espoused by Bryman (2008). In this regard, Bryman (2008) had suggested the counting of frequency with which certain words occur, in order to reveal the predilection that has exaggerated certain number of concepts used in the study. It helps by disclosing the weightage that the concepts have and consequently provide evidence for confirming the categorization contained within the concepts. For this purpose, we used dedicated qualitative analysis software – NVivo in respect of the analysis. The software helps to minimize any error in the counting process hence increasing the credibility of the themes that are developed from the concepts.

Subsequent to the analysis, a model representing the frequency of the accentuated concepts was generated from the software as shown in Figure 1. The model shows that ‘information’, ‘format’ and ‘methods’ were the three most occurring concepts from the issues and presumably were the main concepts that underlie the issues in its broadest term. Hence, it is clear from the model that ‘information’ contain the most number of issues followed by ‘format’ and ‘methods’ respectively. The model thereby indicates that the fractional issues that has emerged from the prior review could succinctly be clustered into three main categories hence suggesting relevant focus that is worthy of consideration.

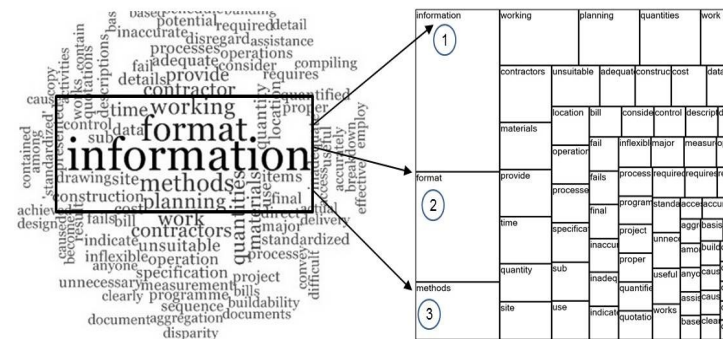


Figure 1 The NVivo model for representing the frequency of concepts underlying the issues - showing reference to three categories of the most occurring concepts

For the purpose of expounding the categories further, it seems imperative to re-associate the categories developed in Figure 1 by revisiting the array of issues identified and presented earlier in Table 4.

This process was conducted within an interpretative context and aim to synthesize as much details in respond to the developed categories. Cohorts – or details to the categories were identified and have facilitated in recapitulating the issues aimed in this paper. Accordingly, this course has managed to restructure the fragmented issues and help to provide a new perspective on it.

The outcome is presented in Table 5 with elaborations ensued in the paragraph that follows.

Table 4 The summary of issues concerning the application of the BQ – aggregation of similar issues from various authors

No.	Source of predicament (issues) identified from the review of the literature	Authors
1.	BQ does not provide (*information) on the (time) and quantity schedule for the on-site delivery of materials required for the works.	Hamimah et al. (2011); Smith and Hoong (1985)
2.	BQ (*information) provide <i>no assistance</i> to anyone drawing up a pre tender program (*time) .	Contributed (1964)
3.	BQ (*information) only represent cost breakdown structure with <i>no link</i> to actual project schedule (*time) .	Mohd Hisham and Azman (2008)
4.	SMM based BQ (*information) <i>unable to provide</i> a useful basis for contractor's work program (*time) .	Jaggar, et al. (2001); Smith and Hoong (1985)
5.	<i>Preliminaries bill</i> and <i>specification</i> (*information) documents contain many <i>unnecessary</i> (*insufficient/ inadequate) items as a result of direct copy and 'standardized' document.	Hamimah, et al. (2011)
6.	BQ quantities and descriptions (*information) do not accurately provide information on work sequence and <i>contractor's methods of operation</i> (*working methods and planning) .	Hamimah, et al. (2011); Leon (1966)
7.	The specialist trades contractors consider that the <i>tasks of planning</i> (*time) could not be achieved by using the bills (*information) .	Morledge and Kings (2006)
8.	BQ (*information) is <i>unnecessary</i> for <i>compiling</i> (*format) subcontractor's quotations and is <i>inadequate</i> for reviewing materials quotations from potential supplier as <i>quality of materials</i> (*specification) are not clearly stated.	Hamimah, et al. (2011); Kinlay (1984b)
9.	(*Information) in BQ are <i>uncoordinated</i> , <i>aggregation on similar materials</i> rather than <i>operation</i> (*format and working methods) .	Kodikara, et al. (1993)
10.	BQ (*format) is <i>not in final forms</i> for direct use by site personnel.	Kodikara and McCaffer (1993); Kodikara, et al. (1993)
11.	BQ (*information) requires sub-processes as the information are <i>not presented</i> in a standardized (*format) .	Cornick and Osbon (1994)
12.	BQ <i>fail to become a mechanism</i> to determine <i>construction processes</i> (*working methods) . It does <i>not consider input</i> (*information) to the construction process (*working methods) but only identifies the end result or product of construction.	Holes (1990); Jaggar, et al. (2001)
13.	BQ <i>only present</i> (*information) that have been processed and <i>in final form</i> (*format) . Detail (*information) such as supporting details on <i>quantities measured, work location and types of operations</i> (*working methods) the contractors have to employ are of use by estimators should access is given.	Hamimah, et al. (2011); Turner (1983); Wood and Kenley (2004)
14.	BQ (*information) had <i>inadequacies</i> for utilization by contractors. (*Quantities) <i>Location of quantified information</i> was not adequate for its purpose.	Baccarini and Davis (2002); Wood and Kenley (2004)
15.	BQ does <i>not indicate</i> (*information) as <i>where the quantity is located</i> (*location) and therefore <i>difficult to get a feel</i> for the projects from the bill.	Slattery (1994)
16.	BQ <i>disregards potential</i> further value of reanalyzing the (*information) into activities, operations or elements (*format) .	Kinlay (1984a)
17.	BQ (*format) is <i>not adequate</i> as it <i>hinders effective use</i> of (*information) contained.	Roshi et al. (2006); Smith and Hoong (1985)
18.	BQ <i>fails to convey</i> details (*information) of <i>materials</i> (*specification) , <i>plants and temporary works</i> required for <i>proper work execution</i> (*working methods and planning) and to enable those resources to be identified, quantified and valued by contractor's estimator.	Ahenkorah (1993); Hamimah, et al. (2011); Holes (1990)
19.	BQ is only useful for tendering and financial control but <i>not used extensively</i> for <i>contractor's site operation</i> (*working methods and planning) .	Smith and Hoong (1985)
20.	BQ <i>does not support</i> contractor's management function. BQ (*information) <i>disregard</i> resource requirements and <i>only measures</i> (*quantity and units) <i>fixed in place measurement</i> .	Baccarini and Davis (2002)
21.	<i>Nett quantities and inaccurate quantities</i> (*information) are <i>major dissatisfaction</i> among contractors in the way (*quantities) are provided in BQ.	Hamimah, et al. (2011)
22.	BQ (*format) other than trade <i>fails to facilitate</i> contractor's pricing (*unsuitable format) .	The BOQ Working Group (1995)
23.	BQ (*format) do not indicate project's buildability, work sequence and control of work (*inflexible format) .	Skoyles (1968)
24.	BQ (*format) do not adequately reflect the <i>interaction</i> (*inflexible format) between the design of a building and the production process (*working methods and planning) .	Skoyles (1964)
25.	BQ (*format) is <i>not adequate</i> to fulfil its maximum functions (*unsuitable format) .	Hughes (1978)
26.	BQ (*format) and <i>data presentation</i> (*unsuitable format) are a <i>major causes</i> for <i>inefficient</i> flow of estimating data.	Kodikara and McCaffer (1993)
27.	BQ data (*information) <i>fail to provide</i> contractors with information they need for <i>proper planning, organizing and managing</i> of their work (*working methods and planning) .	Contributed (1964); Holes (1990); Leon (1966); Waterworth and Weddle (1978)
28.	BQ (*information) requires sub-processes by site QS as the information are <i>not presented</i> in a standardized format (*unsuitable format) .	Cornick and Osbon (1994)
29.	BQ (*information) produced is <i>inaccurate</i> in terms of its <i>quantities and descriptions</i> . Inaccuracy is caused from an omission of important cost items, disparity between drawing details and quantity list and over and under measurement of cost items.	Abdul Rashid and Normah (2004); Rosli, et al. (2008)

Note: (*) – the accentuated concept in defining the identified issues. Key dissatisfaction identified and details of the dissatisfaction are presented in *italics*.

Assisted by NVivo, it is highly indicative from the synthesis that the numbers of identified cohorts were reflective of the frequency model

presented in Figure 1. In this instance, issues related to BQ ‘information’ were recorded to have the highest number of cohorts followed by cohorts from issues related to BQ ‘format’ and contractor’s ‘method of working’. While cohorts related to the later categories of issues seem straightforward, extensive variability of cohort details were recorded within the first category. In this respect, pertinent matters related to quantities/quantities location/quantity units, BQ descriptions, material specifications, time, preliminaries and temporary works were identified, which correspondingly relates to BQ information. The outcome indicates that focus on issues could substantively be redirected in accordance to the findings hence recapitulating concerning issues related to the BQ.

Table 5 The outcome from the process of re-associating the categories with the issues - showing the build-up of the recapitulated issues

Categories of issues	Dissatisfaction key-word	Category’s cohort	Issues recapitulated
Issues related to BQ information	Inaccurate	Quantities	1. Inaccurate (*and wrong) quantities.
		Descriptions	2. Inaccurate descriptions.
	Inadequate	Material specifications	3. Inadequate material specifications.
		Insufficient	Information on the location of the quantities
	Duration/Time		5. Insufficient information on *duration/time.
	Preliminaries	Information on temporary works	6. Insufficient information on preliminaries.
			7. Insufficient information on temporary works.
	Inappropriate	Quantity units	8. Inappropriate quantity units.
Issues related to BQ format	Unsuitable	Format	9. Unsuitable format (*and presentation).
	Inflexible	Format	10. Inflexible format (*and presentation).
Issues related to contractor’s method of working	Insufficient	Working method	11. Insufficient (*clarification) on working methods.

Note: (*) – added in context from the issues presented in Table 4.

6. Development of a Model and Discussion of the Findings

The analytical process pursued in this study has managed to restructure the concerning issues in accordance to the latent themes impelled from the review process. In this instance, three major categories of issues have initially been identified and this was subsequently followed by the identification of eleven cohorts which provide details to the categories. Accordingly, the cohorts suggest that the amounts of concern registered in the review are presumably the major concern with the application of the BQ. This has reinforced the issues recapitulated in this study, hence presenting the concerns on a much specific basis.

In view of the above finding, it was thought that a model in respect of the cohorts would possibly help to further explain the outcome derived in this study. Hypothetically, a model would allow detail pattern from the categorization of cohorts to be induced and contribute farther in espousing points not specifically known in the prior analysis. In this regard, the model is posed to offer an additional perspective to the finding, thus allowing relatable conclusion to be made in prospect for a

greater understanding. Subsequent to the premise, a model was developed by utilizing the NVivo’s modelling feature and presented in Figure 2.

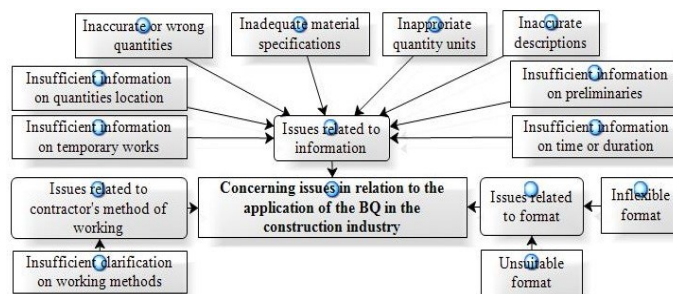


Figure 2 The NVivo model for recapitulating issues concerning the application of the BQ in the construction industry

As shown in the previous section, the model presented in Figure 2 had reaffirmed the severity of information related issues in comparison to issues related to BQ format and the contractor’s method of working. This model shows a substantial dissatisfaction over the way information is presented in the BQ and the oddities it might possess in meeting the varying requirements of its prospective user (Kinlay, 1984a; Morledge and Kings, 2006). Notably, the claim by numerous authors such as Hamimah, *et al.* (2011); Slattery (1994); Wood and Kenley (2004) and Smith and Hoong (1985) on various aspects of BQ information inadequacies had helped in justifying this presumption and broadly braces the general discontentment over its utility for a variety of purposes.

In addition to this point, the model also reflects the main causes that have triggered reported distress over the application of the BQ. It becomes apparent from the analysis that information issues have largely underpinned the concern, and this could again be related to the inadequacies spelt out in the foregoing paragraph. As the clarification might similarly suggest, it is seemingly obvious at this point that, with the exception of ‘quantity location’, all of the cohorts contained in the information category are generally elements that made up the overall content of a BQ. This notion follows from studies by Kodikara (1990) and Kodikara, *et al.* (1993) who suggest eleven types of element that were advocated to represent the BQ as a whole. Apparently, the concurrence that was reflected in the model shows that some elements that made up the BQ content may be currently deficient thus causing an intolerable dilemma over its use in the industry. This argument consequently suggests that effort to revisit the usability of the BQ content could be considered timely and may offer a new perspective in the quest to understand the predicament further.

Much of the discussion has focused on the information which was indicated in the weightage as having the greatest impact in characterizing the issues. By all means, it did not infer that the two other categories of issues were not important but as the number of the cohorts suggest, these are considerably less worrying despite concerns over it was noticeably mentioned in the literature. Though this notion has consequently placed limits in the study, greater focus to ‘information’ is significant for one reason. In this respect, as information lays in the center of construction management (Griffith *et al.*, 2000; Winch, 2010), wieldy focus on this aspect would help to dissect the issues to the core and disclose details which was previously not known. Accordingly, it helps to unveil the principal cause of the reported predicament and supports focus for immediate attention.

The outcome from this study is primarily significant in restructuring the present way of observing issues related to the BQ. Supported by the model, it suggests that issues concerning the BQ should principally be viewed from three discerning aspects with emphasis to be given towards the cohorts related to the aspects. Somehow, this is important in establishing a valid perspective on the issues and allows substantive effort to be channeled in the direction reflected in this study. Apart from this, the study is also significant in its stance concerning the content and presentation of the BQ. This could substantially trigger interest over the state of information contained in the BQ and similarly point to a direction that is imperative to be pursued. Overall, it has the potential in prompting future research to be undertaken and act as the foundation from which the industry's awareness could be bolstered.

Although substantial contribution is expected, the fact that the study was carried out based on the literature had posed some limitations towards the findings. In this instance, the findings are mainly constrained by the subjectivity of the interpretation made towards the resources, which may or may not accord with the underlying meaning conveyed in the literature. The subjectivity of the interpretation consequently suggests that the model presented in support of the arguments were at best to be considered hypothetical. Notwithstanding this limitation, the effort expanded in analyzing and interpreting the resources indicate that the study has been pursued to the best endeavor and capability. This has resulted with a strong argument on the severity of the issues and was considered important in expediting current knowledge pertaining to the BQ. Perhaps the time is ripe for the industry to think over the issues recapitulated in this study, for the purpose of justifying whether the BQ is still needed and relevant in the current construction environment.

7. Conclusion

The finding derived from the analysis conducted in this study has offered a new insight on issues concerning the application of the BQ. It had provided a concise representation of the fragmentary issues spelt out in a wide array of studies and subsequently had exposed the main cause of the predicament that invoked recent dissatisfaction. As the method used in this study involved substantial degree of analysis, specialist qualitative software was used, and this has evidently helped by minimizing error while facilitating the interpretation with some of its features. In this instance, a model was developed and used to support the arguments presented in the study. Accordingly, the rigorous technique employed for identifying, analyzing and synthesizing the literature had utterly been supported by the expanse used of the software hence justifying the worthiness and credibility of the findings.

As the study has highlighted, the meticulous technique applied in interpreting the literature has made it possible for the study to cluster the issues in respect to three categories. Amongst this, information issues have been considered to highly characterize the issues and subsequently indicate pertinent concern on the way information is presented in the BQ. Though the finding clearly indicates the presence of the issues, this has only been backed with support of the literature. This somehow indicates that further study is needed and would provide deeper understanding in respect to any improvement needed with the BQ. Nevertheless, given the limited number of study that explore extensively on this aspect, it implies that the study of this nature is timely and accord to the need reflected by the industry. As shown in this study, it has abled to provide a cross-sectional view on the issues that impacting the application of the BQ and allow more focus to be given in the suggested direction.

With the support from the model that was developed, it clearly suggests that the study has been successful in achieving its aim. It prompts the industry to rethink on the impacts that the issues might bring to the existing practice and whether or not the BQ has been successful in representing their requirement to the fullest. Perhaps an investigation on how the issues are affecting the use of the BQ is needed and may provide further explanation to the current concerns. Supported by these recommendations, the paper hereby calls for more effort to be channeled in probing every possible cause that affects the application of the BQ. Accordingly, this will provide strong justification to remain or to change from the existing practice and further rationalize on the viability of using this instrument in the industry. With all in place, more exciting development concerning the BQ is expected from now on hence becoming a jumpstart in leaping this interest further in the industry.

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Destination Branding Identity from the Stakeholders' Perspectives

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ABSTRACT

In order to establish a strong destination branding, understanding the process of image in positioning the destination is crucial. Arguably, a brand identity for a tourist destination that makes up a name is often captured from the user point of view. However, little was understood as to how the stakeholders perceived image-making, and later, the branding of destination and their influence. In this context, brand identity through projection of Destination Management Organizations (DMOs), significantly contribute towards existing image. In other words, they are forcing the creation of branding using the vision of how the market and segmentation should perceive a brand. The question that may rise is how this branding process is truly acting as a catalyst of a production towards desirable destination. This paper addresses the following issues; (1) Stakeholders' involvement particularly local community in tourism development and planning (2) previous studies in destination branding (3) the relationships between destination identity and destination brand. This paper also highlights the existing gaps in understanding destination identity from the stakeholders' perspectives to the branding strategy. It also suggests the future studies.

1. Introduction

The growth of the tourism industry is tremendous and it has been recognized as one of the fastest growing economic sectors in the world. Many developing countries are engaging in the tourism industry due to its contribution to the countries' economic growth. Destinations such as Malaysia, Thailand and Singapore are competing against each other in attracting tourists by putting a lot of investments in enhancing tourism products and services. The expansion of the world tourism industry has created fierce competitions among destinations. As a result, many destinations are adopting destination-brand building concept to differentiate and improve destination perceived images (García et al., 2012). For example, Malaysia has launched a new promotional campaign 'Malaysia Truly Asia' since 1999 and the campaign has proven successful as indicated by the number of tourists' arrivals and tourist receipts.

Malaysia Truly Asia campaign promotes Malaysia's unique cultural heritage, ecotourism and international events. Currently, the tourism industry is recognized as one of the significant contributors to the country's economic growth and employment opportunities. Singapore is also continuously improving its branding campaign from *Uniquely Singapore* (2004 to 2009) to *Your Singapore*, a new destination brand launched in year 2010 to showcase its tourism products that focusing on shopping, cultural and theme park attractions. All these branding strategies are implemented for the purpose of being different and recognized in the tourists' minds or target market (García et al., 2012;

Qu, Kim, & Im, 2011).

This paper explains the concept of destination brand by looking at supply and demand perspectives. In this paper, the concept of brand identity is best described from the internal stakeholders' views (supply-side) and the concept brand image is from the tourists' views (demand side) (Aaker, 1991; Konecnik & Go, 2008; Pike, 2012). It also highlights the previous studies on stakeholders' involvement in destination branding process and suggests area of further research.

It is important to clearly understand what a destination brand is, before explaining why and how it is done. In the literature, there are no single definition of destination brand is yet being accepted. For example, Qu et al. (2011) simply define destination branding as 'a way to communicate a destination's unique identity by differentiating a destination from its competitors'. Marzano & Scott (2009) attempt to define destination brand as a multi-stakeholder decision making process by describing the effect of stakeholder power on destination branding process. The researchers go on by explaining how power of stakeholders in the form of authority and persuasion may influence the destination branding process despite the absent of collaboration and agreement among various stakeholders. Nevertheless, due to lack of definition of destination brand available in the literature, Aaker (1991) defined the brand that is widely accepted by the researchers in describing about destination brand. According to him 'a brand is a distinguishing name and/or symbol (such as a logo, trademark, or package design) intended to identify the goods or services of either one seller or a group of sellers,

and to differentiate those goods or services from those of competitors'. Such definition is mostly used for branding tangible products amid the necessity to revise it to suit the tourism intangible products and services. Kim & Lehto (2012) support the notion of on branding definition by Blain et al., (2005) and argue that the definition is the broadest and most widely accepted one. Blain et al. (2005) stated that:

'Destination branding is the set of marketing activities that (1) support the creation of a name, symbol, logo, word mark or other graphic that readily identifies and differentiates a destination; that (2) consistently convey the expectation of a memorable travel experience that is uniquely associated with the destination; that (3) serve to consolidate and reinforce the emotional connection between the visitor and the destination; and that (4) reduce consumer search costs and perceived risk. Collectively, these activities serve to create a destination image that positively influences consumer destination choice.'

However, branding a destination is not simply developing brand slogans and logos as most of the destinations are currently doing. A brand must represent something unique and different of a destination (Campelo, Aitken, Thyne, & Gnoth, 2013). A current problem indicate that in practice, branding a place or a destination is limited to the design of new logos and the developments of catchy slogans (Kavaratzis & Hatch, 2013) and followed by a new marketing campaign to promote a destination. Such creativity-driven branding applies few creative ideas such as catchy slogans and interesting logos. The branding is important but it is still limited in terms of understanding the branding process. Destination branding process should go beyond promotional and advertising activities by recognizing the actual value or identity of the destination and delivering consistent brand message and theme (Tasci & Gartner, 2009). This can only be done by engaging various stakeholders in the branding process especially the internal stakeholders. Looking specifically at the important of the internal stakeholders' involvement in the branding process within a destination, Wheeler et al., (2011) claim that:

'What appears to be missing is a process of developing and implementing the brand by engaging the values and identity of the host communities and operators. These are the brand owners charged with delivering the brand, either by contributing funds to cooperative marketing campaigns or, more explicitly, through their interactions with visitors, thereby facilitating the brand experience and the formation of a subjective sense of place for the visitor.'

In relation to this statement, the concept of destination brand and destination image is widely arguable in terms of their differences and similarities (Tasci & Kozac, 2006). In destination image literature, Tasci & Gartner (2007) stated that there are three sources of image formation agents: (1) supply-side or destination, (2) independent or autonomous, and (3) demand-side or image receivers. Thus, image may be defined from either supply side, which is brand identity, or from the demand side which is perceived image. Destination image in particularly image formation is not branding but it is a step closer to it (Cai, 2002). Therefore, understanding the image is very important in order to create a successful brand. The confusion between image and brand warrants further empirical investigation to clarify how those two concepts are interrelated (Tasci & Kozac, 2006).

In order to establish a strong destination branding, understanding the process of image perception by the demand-side and projection by the supply-side is crucial in positioning the destination and competitiveness (Cai, 2002; Lin, Pearson, & Cai, 2010; Mak, 2011). Image making and the creation of brand identity is as the important destination branding components that emerge from various involvement and participation in

branding process (Saraniemi, 2011). Arguably, assessment of image and identity for a destination that makes up the brand is often captured from the user point of view, namely the visitor or tourist (Mak, 2011) and little was understood as to how the image making, and later the branding of destination, is projected by the stakeholders and their influence in doing so. This projection includes collective views of stakeholders such as host community and business operators in determining the projection of unique image in terms of existing social, cultural, historic and geographic values. However, Tasci & Gartner (2007) argue that in reality the projection image is always incongruence with tourists' perceived image.

In this context, brand identity through projection of Destination Management Organizations, including host community and business operators, significantly contribute towards existing image. In other words, they are forcing a creation of branding using the vision of how the target market and segmentation should perceive a brand. The question that may rise is how this branding process truly acts as a catalyst of a creation towards desirable destination image. Another question to be addressed is how does image formation or image building associate with destination branding particularly destination brand identity, which according to the literature, is lacking a critical link (Cai, 2002; Konecnik & Go, 2008).

Understanding destination identity development from internal stakeholders' perspectives may help marketers to project unique images of destination that really powerful. The images are based on collective views of the local community and business operators. Identifying the important identities of a destination may create a sense of belonging to the people who live and work there. Projecting such images may contribute to a very strong destination brand due to the full support from the stakeholders. Zouganeli et al. (2012) assert that only if internal stakeholders agree with the image projected of their place should they be expected to support and live the brand. They further note that the gap between reality and projected image can create conflict among visitors or tourists when they observe that the projected image is incongruence to reality. However, collecting the information or opinions from those stakeholders about destination identity may not be an easy process. There will be conflicting views and disagreements among them what actually the identities of the destination. Destination brand identity which goes against the values of the destination and stakeholders' aspirations may not last long because it will not get full support from those stakeholders (Bregoli, 2012).

2. Brand identity as an important component of destination branding process

Based on Aaker's branding concept, Pike (2012) claims that destination branding process has three important core constructs which are brand identity, brand positioning and brand image. That core concepts of destination branding process is depicted in figure 1.

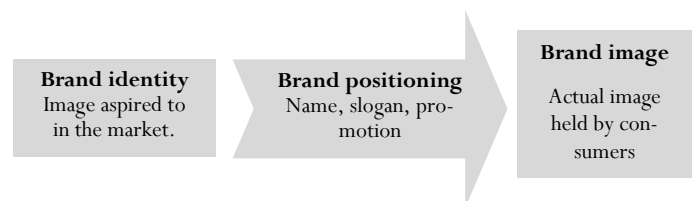


Figure 1 Destination branding elements (Pike, 2012)

Brand identity development is basically activities performed by destination marketers or the supply side in identifying the desired image to be projected in the market. The second element, brand positioning, is the next step of destination branding process where activities performed to position the brand as what has been intended in the brand identity. The third component, brand image is the actual image held by consumers which is normally influenced by the brand positioning process and other sources such as social media, independent blogs, reports, documentaries and films.

From a consumer's branding theoretical perspective, the success or failure of a brand is not easily been identified (Burmam et al., 2009). Most studies are focusing on the brand image (how the consumer made purchase decision based on brand) and neglecting the other part of brand dimension. Brand identity is as conceptualized by the owner or manager of the brand (Burmam et al., 2009). Similarly, in the context of destination branding, according to Lin et al. (2010), brand identity is different than brand image despite their strong relation. Brand identity comes from an organization and basically it is an image wanted by the marketers to be projected to the tourists or supply-side image (Kneesel et al., 2009; Lin et al., 2010; Pike, 2007). Brand image, however, is an individual perception of a particular brand. It is an actual image of a destination held in customers' mind or demand-side image (Kneesel et al., 2009; Lin et al., 2010; Pike, 2007). Therefore, it is crucial for destination marketers to understand both brand identity and brand image in developing a destination brand.

The purpose of having an identity is for a destination to identify and position itself or its products and services to the tourists (Wheeler et al., 2011b). They argued that the source of the destination identity or desired image is relied upon the destination stakeholders. Brand identity refers to self-image desired by the marketers, whereas brand image is the actual image held by consumers (Pike, 2009). In short, brand identity for a destination communicates about how a destination to be perceived as what the brand owners – the supply side (i.e. DMOs, host community, tourism operators) wish for. On the other hand, brand image relates to the consumer's perceptions of the brand – demand side (Kozak & Baloglu, 2011). Tasci & Gartner (2007) affirm that there are three sources of image formation agents: (1) supply-side or destination, (2) independent or autonomous, and (3) demand-side or image receivers. Destination image in particularly image formation is not branding but it is a step closer to it (Cai, 2002). Therefore, understanding image is very important in order to create a successful brand. This include a collective view of stakeholders such as host community and business operators in determining the projection of unique image in terms of existing values of social, cultural, historic and geographic. However, Tasci & Gartner (2007) argue that in reality the projection image is always incongruence with tourists' perceived image.

3. Stakeholders' involvement in destination branding process

The participation of various stakeholders in the destination branding process is very critical to ensure the success of the strategy (Campelo et al., 2013; Konecnik & Go, 2008). A brand identity for a destination represents a collective view from different stakeholders such business operators and host community of a destination that they reside in. The brand identity may assist Destination Management Organizations (DMOs) or tourism authorities in creating a very strong brand and provide a vision how a brand should be perceived by its target market. Literatures in destination branding indicate that the roles of stakeholders are very important in communicating the brand message and projecting

positive images to the visitors. Thus, the involvement and participation of internal stakeholders in the branding process is very important to ensure the destination brand may be sustained in the long run.

According to Wheeler et al. (2011), destination branding process and brand implementation tend to neglect the engagement from host community and tourism business operators. These particular groups are among the brand owners who need to deliver the brand promise by interacting with the visitors. Instead, destination management organizations depend on the potential visitors and other related customers by focusing on their perception towards the destination. As a result, a destination brand is developed without the inclusion of stakeholders' interest which represents the destination brand identity. Local tourism community is responsible for delivering brand promises and they have to get the feeling or sense of the identity towards the brand being associated with a destination (Steve Pike, 2005).

Stakeholders' involvement in the creating of brand identity development and image projection to the visitors are critical in branding a destination. At the same time, investigating destination identity or images from their perspective may create a brand that they are committed to it such as being more hospitable and friendlier towards visitors (Choo et al., 2011). However, it seems that the roles played by these various stakeholders in destination branding process are not fairly established. The process is particularly valid in developing destination brand identity and investigating whether it is congruent or not with the brand image. Most published research to date is related to the development of destination brand identities and the important involvement of the stakeholders. These stakeholders, in enhancing the success of destination brand, include host community, tourism operators, DMOs and local authorities (Bregoli, 2012; Campelo et al., 2013; Choo et al., 2011; Konecnik & Go, 2008; Mak, 2011; Wheeler et al., 2011b).

Mak (2011) investigated the identification of brand identity and brand image among tourism operators in destination Iowa, USA and the finding pointed that the image projected by destination marketer is in agreement with what have been perceived by the operators. The researcher suggested that more research is needed to get the views from the tourists regarding the destination brand image in order to counterbalance with operators' perspectives. However, Lin et al. (2010) examined food as one of the importance identities for a destination Taiwan and found out that there are discrepancies between the identity projected in the promotional materials with what been understood by various stakeholders. They further note that brand identity which is weak and inconsistent may create confusion among visitors in terms of destination perceived image.

Morgan et al. (2003) investigated the process of destination branding from the stakeholders' perspectives namely the destination management organizations. By exploring branding activities undertaken by New Zealand, they conclude that the roles of stakeholders are of paramount important in ensuring the success of a powerful destination brand. Destination branding is highly complex due to the influence of political interest in projecting certain images and creating reputation among other competing destinations. Branding destination is a very challenging process since it involves different stakeholders. DMOs have a little control on these stakeholders that include different components of local businesses, attractions, natural resources and cultural of the host community. Creating a destination brand needs strong political will since it has to please different stakeholders such as host community, local businesses and regional authorities. DMOs also have small budget in developing a brand for a destination but yet it is important to ensure the success of branding campaign. It is suggested that for a destination to build a strong brand to utilize a web driven marketing strategy. The web

is very cost effective and at the same time it provides a wide coverage of different target market.

Similarly, Konecnik and Go (2008) explored the concept of destination brand identity from the supply side perspective specifically the destination marketing organizations. The researchers investigated the strategic analysis of branding of Slovenia, the brand identity and how to position the brand using proper marketing tools from the destination marketers' point of view. The authors argue that most of the studies about destination branding focus heavily on the demand-side perspective such as the tourists perceived image of a destination. Therefore, research on supply side destination brand identity's perspective may provide an alternative view on the image side of a destination. Wheeler et al. (2011a) suggested that brand identity, which is one of the important components of destination branding process, should reflect values and meanings expressed by wider local communities of that particular destination. Those values and meanings are derived from the elements of social, cultural, historic, geographic and economic and therefore may enhance tourist positive experiences delivered best by these local communities who live and work in that area (Wheeler et al., 2011a)

4. Conclusion

A literature survey indicates that more works to be done in getting the internal stakeholders to participate in the destination branding process. Branding a destination is not about displaying symbols, developing catchy slogans and positioning the brand through selected media sources alone. Rather, the branding process is very complicated indeed and it requires a lot of investments. There are many stakeholders supposed to get involved in that process ranging from local community, tourism operators, destination marketers to visitors of that particular destination. These stakeholders' involvement directly or indirectly on that process may determine the success of destination branding strategy. However, as mentioned by Pike (2007) and supported by Wheeler et al. (2011a), branding a destination is very challenging due to the fragmented nature of tourism destinations that provide intangible products and services. Furthermore, destination branding also may involve politic and governing process as many stakeholders need to be identified and consulted.

This paper strongly suggests that more research is needed to determine the extent of internal stakeholders' involvement in destination branding and, at the same time, to investigate the image projection by destination marketer is congruent with what they aspired for. To measure the effectiveness of destination brand, research is also needed to examine the brand image from the demand perspectives and to make comparison with the intended brand identity. Thus, these studies are expected to contribute to a more holistic approach to our understanding of destination branding process.

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