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Determinants of a Customer's Willingness to Pay (WTP) for Green Hotels: An Empirical Study of Generation Y in the Bangkok Metropolitan Area

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Abstract
As attention to environmental responsibility is increasing, the number of travelers interested in environmental sustainability in the hotel industry is also rising. According to Official Statistics Registration Systems, Generation Y (Gen Y) is currently one of the largest groups in Thailand, accounting for 30.36 percent of the total population. This generation is known to have strong opinions about green issues and civic-mindedness. This research is focused on determining significant factors affecting the WTP for environmentally friendly hotels or green hotels by Gen Y. Factors influencing use of environmental friendly hotels are derived and evaluated. The descriptive results show that approximately 55.7 percent of respondents are willing to pay for green hotels, the average price that they are willingness to pay for it is about 2,019 Baht per on standard room per night [AN1*]. A binary logistic regression was applied to determine the probability of being willing to pay for green hotels. The result of binary logistic regression analysis indicated that the age range within Gen Y, purchase experience, customer loyalty, monthly income, attitude, and green behaviors affect the probability of a person's willingness to pay for green hotels.

Keywords: Binary logistic regression, Green Hotels in Thailand, Willingness to Pay

1. Introduction

Environmental preservation has becoming a global trend, and it significantly influences in any parts of the business (Aschemann-Witzel & Zielke, 2017; Walker, Di Sisto, & McBain, 2008), including foods industry (Rödiger, Plaßmann, & Hamm, 2016), agriculture products (Díaz, Pleite, Paz, & Garcı´a, 2012), and tourism (Huang, Lin, Lai, & Lin, 2014). In Thailand, tourism is an important sector that supports the economic and business development. Although the increase of travellers in certain areas or overtourism in Thailand may lead to an increase in national income, it also creates the negative effect to the environment (Zhong, Deng, Song, & Ding, P. 2011). Since the hotel is a key stakeholder in tourism, environmental friendly hotels or green hotel became one of the alternatives for the tourists. Customers tend to concern on the environmental impact from hotel industry (Han, 2015) (Huang et al., 2014). Environmental issues are significantly influence on consumers purchasing behaviours (Boemi, Irulegi, & Santamouris, 2016). However, green product or service is usually incurring the premium price. Customer making a decision based on perceived value including quality, price, and styles (Saleem, Ghafar, Ibrahim, Yousuf, & Ahmed, 2015).

*[AN1] is the amount for an environmentally friendly hotel room for the night or the amount they are willing to pay above a competitor's price.

The younger customers tend to have the higher level of environmental awareness (Tansakul, 2018). To be more specific, Generation *Y* (Gen *Y*) consumers are strongly concern on the environmental issues more than other generation groups (Fang & Lam, 2016). Gen *Y* are people born between 1980 and 1995 or and 2000 (Main, 2017). According to Karavasilis, Nerantzaki, Pantelidis, Paschaloudis, and Vrana (2015), the majority Gen *Y* (around 77 percent) are categorized themselves as environmental friendly customers. Hence, this research is emphasized to study of Gen *Y*'s consumers about their willingness to pay for green hotels, and identify factor affecting the probability of their willingness to pay. The empirical study targeted the Gen *Y* consumers in Bangkok and metropolitan areas of Thailand. The research consists of six sectors; it starts with an introduction that briefly explains the overview and objective of this paper. Then the second section presents the conceptual framework to conduct the research, the willingness to pay (WTP) and the contingent valuation method (CVM) concepts are discussed in this section. Next section focuses on literature review from the field of environmental, customer adoption process (CAP), and questionnaire development. The fourth section shows the methodology including data collection and binary regression analysis. The fifth shows empirical results and research findings. The summary of the research and conclusion are presented in the last section.

Conceptual Framework

WTP is a well-known method to evaluate the price of goods or services that customer wants to pay. WTP usually employ in environmental preservation research, for example, WTP for drop-off recycling (Tiller, Jakus, & Park, 1997), water and sanitation services (Fujita, Fujii, Furukawa, & Ogawa, 2005), environmentally friendly products (Skuras & Vakrou, 2002) (Solomon & Johnson, 2009). In addition, Chia-Jung and Pei-Chun (2013) identify the determinants of tourists' choice of green hotel attributes. However, WTP is affected by various factors, including income, education, and knowledge about the product (Skuras & Vakrou, 2002) (Díaz et al., 2012), and motivations of psychological and emotional (Mei, Wai, & Ahamad, 2016). Many research concluded that the consumers have a willingness to pay more on green products or service (Haytko & Matulich, 2008) (Khedkar & Patil, 2015) (Biswas & Roy, 2015), but they are not extremely zealous to pay a high price without an appropriate reason (Khedkar & Patil, 2015).

Therefore, the benefit of good/service in term health and reduced environmental degradation influence on the willingness of the customer to pay for the additional costs (Liu, Anderson, & Cruz, 2012). In order to estimate the WTP, Contingent Valuation Method (CVM) is the method that many researchers widely used to estimate the WTP (Samdin, 2008). CVM was first used to determine the highest possible bid of alternative facility available to the public by Davis in 1963 (Hoyos & Mariel, 2010). CVM is employed in many environmental research to determine a WTP, for instance, it is applied in determining willingness to pay for a geopark visit in HK (Cheung & Jim, 2013), biomass ethanol (Solomon & Johnson, 2009), and national park in Malaysia (Samdin, 2008).

In addition, the study of Cho, Yen, Bowker, and Newman (2008) states that there are some public preferences that uses willingness to pay (WTP) analyses. In Thailand, there are some research papers, using the CVM method in order to determine a WTP. According to Sakulrattanapornchai (2013), CVM is used to determine the willingness to pay for flood prevention and the economic worthiness of the construction of a reinforced concrete dam in Khlong Thawi Watthana. Moreover, it is used to investigate the willingness to pay and factors affecting of pricing for a condominium nearby future mass rapid transit project (Smaksman, 2014). In summary, CVM is a suitable tool for evaluating the value of environmental related goods and services.

2. Literature Review

Based on the theory of the adoption process, that indicates the behavior of consumers as they purchase new products and services (Sharma & Singh, 2011). According to Bhatia (2011), the customer adoption process (CAP) is a mental process of the customer since the first knowing new thing such as innovation and technology till the final adoption of that good or service. Moreover, it states that consumers go through in learning about a new product or service, trying it, and deciding whether to purchase it again (Lovell, 2015). CAP is a constant marketing tool, which has different stages to get it completed. These stages of such process applying to green hotel services are discussed as follow:

The first stage of CAP is to introduce a product/service in the market and create awareness for the product or services. The companies usually use many interesting ways to engage the consumers in this phase of product marketing (Jaideep, 2017). The companies can select the way to engage customers based on behavior and lifestyle of their target customers. According to the previous research, customer's behavior and lifestyle are significantly influenced by various factors including attitudes, belief, and environmental concern (Huang et al., 2014).

Once, the consumer becomes interested in a new product, service, and innovation, they collect more information. They are likely to spend time and energy for finding more information and knowledge about product/service and answer on how it can contribute to their life (Bhatia, 2011). They are many sources of information that the customer may acquire including different elements from the internal customer psychology to the external information from the product/service, friends, family, and online sources (Albro, 2013). The interactions of customers and provides also been a concern in CAP.

In the second stage, a consumer is then moving to evaluate whether or not to believe that this product or service will satisfy their needs (Jaideep, 2017). In this stage the consumer measure both pros and cons with respect to the cost of the product/service (Zkjadoon, 2016). The next stage is the trial basis which is an important stage as it determines the satisfaction of product/service (Zkjadoon, 2016; Jaideep, 2017). Past purchasing experience or perceived experience of consuming environmentally products or services in the past is an important factor that influences the probability of willing to pay for green hotels. The frequency of consuming or using environmentally friendly products and services are part of past purchasing experience. Customer experience combines all the aspects product/service that customer can perceive from the initial stage to the final stage of the product/service. (Albro, 2013). The consumer's past purchasing experience influence on the future decision of the customer (Dawei & Mengdi, 2016).

Furthermore, if the trial process gives satisfactory results, finally the consumer decides to adopt or buy the product/service (Jaideep, 2017) (Bhatia, 2011). Attitude can support the customer's decision making. According to Suki and Suki (2015), customer attitude is the feeling or emotion and it influences on the customer behavior. The summary of the variables in every stage of CAP that influences on the WTP of the customer is shown in table 1.

Table1: The explanation of each variable

Variables	Description
1. Age	Age refers to the measure of time in years. In this research, open-ended question was employed in the questionnaire. Respondents are asked to fill their age measured in years.
2. Behavior	Behaviour is the individual decisions and actions based on his or her available resources (time, money, and effort) to satisfy his or her needs.
3. Attitude and Awareness	Attitude and awareness are related to perception and behavior of each customer on the specific topic. It is related to the overall evaluation of a buying decision.
4. Past Purchasing Experience	It does involve every process of customer purchasing processes.

3. Methodology

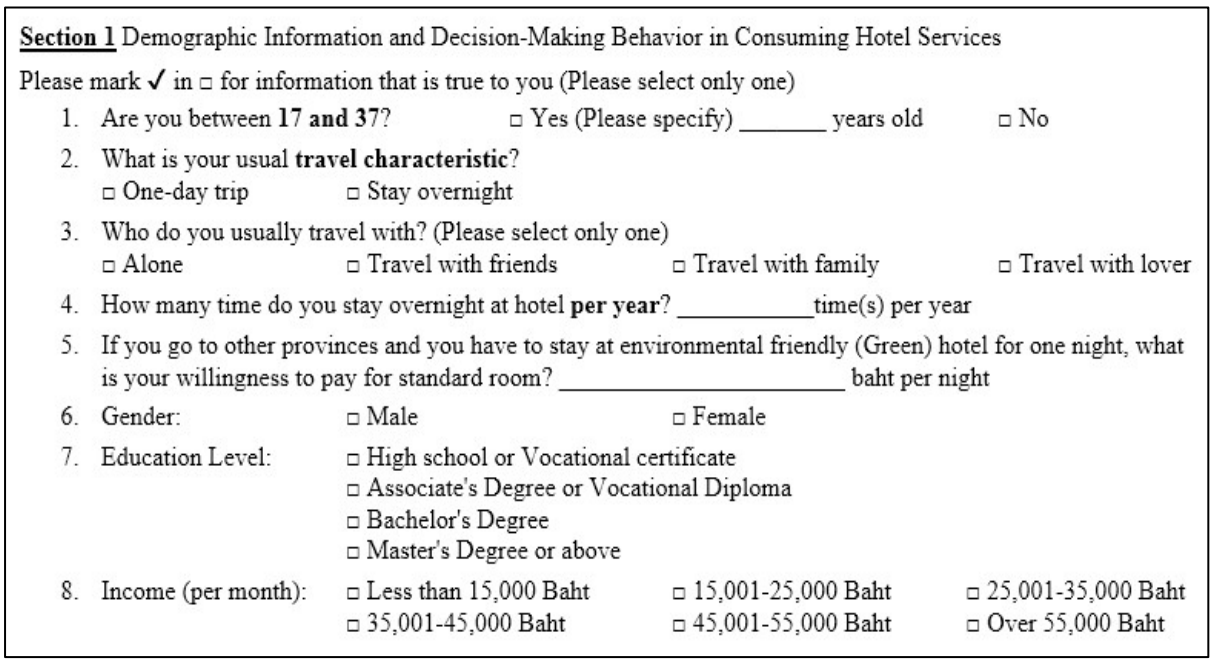
Data collection

Gen *Y* tends to consider the environment because the environment issue was becoming a norm in the society that they born and grew up (Rogers, 2013). Therefore, the WTP for environmental friendly product/service is particularly increase in Gen *Y* population (Rogers, 2013). According to Official Statistics Registration Systems (2017), Gen *Y* is currently one of the largest generational groups in Thailand, 30.36 percent of total population. With their environmental intentions toward green practice, a strong opinion about green issues and their civic-minded, Gen *Y* is expected to be a target of observation in this primary research. Taro Yamane formula with 95% confidence level is employed to calculate the sample size of this empirical study (Singam & Nonthapot, 2016).

The questionnaire consists of 4 parts, including open-ended questions, check-list questions, five-point Likert scale, and bidding game. The first part of the questionnaire is the demographic information shown in figure 1. The second section contains questions about general environmental attitudes that influence respondents to use green hotels. The questions are answered based on a 5 - point Likert Scale ranging from "extremely agree" to "extremely disagree". The third section consists of multiple choice questions. They are hypothetical questions related to green behavior and each respondent chooses the best choice that fit his or her behavior in each hypothetical scenario. The last section is about a bidding scenario where respondents indicate their willingness to pay for green hotels. The summary of each variable used in the analysis is indicated in table 2.

Table 2: Description of variables used in analysis

Variables	Description
Age	Open-ended question for each respondent's age in years (Gen Y ranges from 17-37 years old)
Monthly Income (Thai baht/month)	The respondent's monthly income: □ Income (1): At most 15,000 Baht □ Income (2): From 15,001 to 25,000 Bath □ Income (3): From 25,001 to 35,000 Baht □ Income (4): From 35,001 to 45,000 Baht □ Income (5): From 45,001 to 55,000 Baht □ Income (6): More than 55,000 บาท
Past experience with Environmental friendly products and services	0 if no experience and 1 otherwise
Frequency of use or receive Environmental friendly products and services	Open-ended question, where respondents are asked to indicate the number of experience they had in the past
Attitude Score	The degree (five-point Likert scale) to which respondents' agree with each statement related to environmental attitude: • Attitude 1: Environmental friendly hotels initiative • Attitude 2: Environmental responsibility • Attitude 3: Reuse, reduce and recycle implementation • Attitude 4: Environmental friendly products utilization
Green Behavior	The degree to which respondents' feeling contributed to the environment 4 if extremely green, 3 if green, 2 if neutral, 1 if slightly green • Green behavior while stay at a hotel ▪ Electricity utilization when stay at a hotel ▪ Towel utilization when stay at a hotel • Green behavior on regular basis ▪ Waste and garbage recycling behavior ▪ Plastic bags used and reused behavior ▪ Participations of environmental friendly activities
WTP	The maximum amount a customer is willing to pay for one night in a standard room at a green hotel measure in Thai Baht.
Willingness	Dichotomous variable: 0 if not willing to pay and 1 otherwise



Section 1 Demographic Information and Decision-Making Behavior in Consuming Hotel Services

Please mark ✓ in □ for information that is true to you (Please select only one)

1. Are you between **17 and 37**? □ Yes (Please specify) _____ years old □ No
2. What is your usual **travel characteristic**?
   □ One-day trip □ Stay overnight
3. Who do you usually travel with? (Please select only one)
   □ Alone □ Travel with friends □ Travel with family □ Travel with lover
4. How many time do you stay overnight at hotel **per year**? _____time(s) per year
5. If you go to other provinces and you have to stay at environmental friendly (Green) hotel for one night, what is your willingness to pay for standard room? _____ baht per night
6. Gender: □ Male □ Female
7. Education Level:
   □ High school or Vocational certificate
   □ Associate's Degree or Vocational Diploma
   □ Bachelor's Degree
   □ Master's Degree or above
8. Income (per month):
   □ Less than 15,000 Baht □ 15,001-25,000 Baht □ 25,001-35,000 Baht
   □ 35,001-45,000 Baht □ 45,001-55,000 Baht □ Over 55,000 Baht

Figure 1: Example of Demographic Information Questionnaire

Model Specification: Binary Regression Analysis

Binomial logistic regression or logistic regression is applied in this research to indicate the probability that an observed variable belongs into one of two categories. In general, one of the two levels of the response is considered the level of interest (Walsh, 2016). The dependent of the logistic model in this research is based on whether a customer is willing to pay for a green hotel. Independent variables included demographic information – age, income, past experience with environmentally friendly products or services, attitude and behavior. Age and frequency of past experience are continuous variables. Past experience is a dichotomous variable, while attitude and behavior are scores based on Likert scale

The likelihood ratio test is performed by estimating two models and comparing the fit of one model to another. According to McGee (2002), it is one of the best ways to measure diagnostic accuracy. Then the Wald test or Wald Chi-Squared Test was employed to test the parameters. According to KyngaÈs and Rissanen (2001), the Wald test is significant and variables should be included in the model only when the variables are zero. If not the explanatory variables should be removed from the tested model. Then all the significant variables are included in the final model (Díaz et al., 2012). An odds ratio (ORs) is employed in this research to measure the associated level of exposure and the outcome. Table 3 shows the definition of the value of ORs.

Table 3: Value of ORs

Value of ORs	**Definition**
ORs = 1	No impact from exposure to odds of the outcome
ORs > 1	Exposure associated with higher odds of the outcome
ORs < 1	Exposure associated with lower odds of the outcome

4. Results

Sample Characteristics

A total of 422 respondents are randomly distributed by both online and paper-based questionnaire. Table 4 reports the descriptive statistics of our sample group. The majority of respondents are female, accounted for 63.3 percent of total respondents. Most of respondents have earned at least a bachelor degree, accounted for more than 90 percent of all respondents. Moreover, 36.5 percent of respondents have income in the range from 15,001 and 25,000 Baht. About one-third of respondents earn their monthly income from 25,001 to 45,000 Baht. In addition, about 80.3 percent out of total respondents say that they never experience about any environmental friendly products or services. In addition, summary of attitude scores (5-point Likert scale) and average behavioral scores (4 level) are summarized in Table 5. In addition, respondents who are willing to pay for green hotels are willing to pay on average 2,019 Baht per one night stay, which is lower than the average charging price of currently registered as green hotels in Thailand.

Table 4: Respondent profiles (Demographics)

Determinants	Frequency (*n*=422)	Percentage (%)
Gender		
Male	155	36.7
Female	267	63.3
Education		
High school or Vocational certificate	8	1.8
Associate's Degree or Vocational Diploma	18	4.3
Bachelor's Degree	313	74.2
Master's Degree or above	83	19.7
Income		
Less than 15,000 Baht	75	17.8
15,001 - 25,000 Baht	154	36.5
25,001 - 35,000 Baht	94	22.3
35,001 - 45,000 Baht	49	11.6
45,001-55,000 Baht	28	6.6
Over 55,000 Baht	22	5.2
Travel With		
Alone	21	5
With friends	179	42.4
With family	144	34.1
With lover	78	18.5
Past experience with environmental friendly products or services		
Yes	83	19.7
No (Never)	339	80.3

Table 5: Average attitude and behavioral scores

Items	Mean	Std. Deviation	Min	Max
Attitude (1): Environmental friendly hotels initiative	4.14	0.747	2	5
Attitude (2): Environmental responsibility	4.72	0.485	3	5
Attitude (3): Reuse, reduce, and recycle implementation	4.40	0.671	3	5
Attitude (4): Environmental friendly products utilization	4.17	0.733	2	5
Green behavior while staying at a hotel	2.94	1.030	1	4
Green behavior on regular basis	2.74	0.998	1	4

Binary Regression Analysis Model

The relationships of demographic variables, past purchasing experience and its frequency, attitude scores, and green behavior scores toward willingness to pay were explored. Age and incomes are two demographic parameters that are significant. Other demographic variable do not contribute to the probability of the willingness to pay for green hotel. Since income are categorical, divided into six different level from low to high as previously indicated in the earlier section. Income (6) is used as a reference group for this logistic regression. Other income groups (1) – (5) are each test to determine if there is any significant different than the reference income group (6).

The results of binary logistic regression analysis first produced output that includes only intercept, which is referred to as block 0 output. Given the base rate of the two decisions (235/422 = 55.7 percent decided not to pay for a green hotel and 44.3 percent decided to pay for it), and no other variables, the best strategy is to predict the odd of not willing to pay; then the prediction ability would be 55.7 percent correct. In addition, the predicted odds in block 0 model is 0.796, meaning the predicted odds of deciding to pay for a green hotel is 0.796. Since 187 respondents are willing to pay for it and 235 otherwise, the observed odds are 187/235 = 0.796.

After that block 1 output is observed as predictor variables are added to the model. Omnibus Tests of Model Coefficients provides a Chi-Square of 130.665. The -2 Log Likelihood statistic is 448.890; it measures how poorly the model predicts the decisions. The smaller the statistic value the better the model. In this case, adding all variables in table 6 reduced the -2 Log Likelihood statistic by 130.665, indicating that the independent variables significantly predicted the outcome variable, the willingness to pay for green hotels. The output provided by SPSS gives the Exp (B) or the odds ratio predicted by the model. Table 6 shows the logistic regression coefficients, Wald test statistic, and odds ratios for each of the predictor variables. For Wald statistic test, all variables are statistically significant due to these variables are not zero. Monthly income is a highly significant with the highest Wald statistic value.

Table 6: Result of Data Analysis

Independent Variables	B	Wald	Exp (B)
Age	-0.108	9.801***	0.897
Past purchasing experience	0.312	10.098***	1.366
Frequency of past experience	0.453	9.48***	1.573
Monthly Income		53.13***	
• Monthly Income (1)	-2.727	15.182***	0.065
• Monthly Income (2)	-2.967	21.826***	0.051
• Monthly Income (3)	-2.589	17.627***	0.075
• Monthly Income (4)	-0.53	0.69	0.588
• Monthly Income (5)	0.361	0.213	0.645
Attitude (1)	0.534	10.484***	1.705
Attitude (2)	0.807	8.86***	2.241
Green behavior on regular basis	-0.385	9.821***	0.681
Green behavior while stay at a hotel	0.267	3.732*	1.306
Constant	-2.527	2.363	0.08

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$,

The classification table 7 shows 67.4 percent of correctly classifying respondents where the decision of willing to pay is observed. Also, 80.9 percent of correctly classifying respondents where the predicted event was not observed. Overall the success rate of predictions is 74.9 percent. Recall that it was only 55.7 percent for the model without any predictor variables (intercept model or block 0).

Table 7: Classification table

		Predicted		
		Decision		Percentage Correct
		No Pay	Pay	
Decision	No Pay	190	45	80.9
	Yes	61	126	67.4
Overall Percentage				74.9

5. Conclusion and Recommendation

Monthly income is highly significant factor influencing the probability of willing to pay for green hotels. Observe that income groups (4) and (5) are not statistically different than the reference income group (6). Meanwhile income groups (1), (2) and (3) are all significantly different than the reference income group (6) with negative coefficients. This implies negative relationship among income groups (1) – (3) (or income of at least 35,000 Baht) and the odds of willing to pay. Nevertheless, the respondents with income of at least 35,001 Baht (Income groups (4) – (6)) do influence the odds of willing to pay in the same positive direction as one unit increase in the income, the odds of willing to pay for green hotels increases about 6%. Hence, the targeted group for people who would decide to pay for green hotels are those who earn more than 35,000 Baht (Income group (4) – (6)).

Age has a strong relationship with the probability of WTP, and the results recorded the odds ratio of age to be 0.897. This indicates that within the age between 17 and 37 years old, the younger respondents are likely to pay more than older ones. In addition, past purchasing experience and its frequency positively influence the odds of paying for green hotels. Customers with prior experiences of using or consuming environmental friendly products or services are willing to pay for green hotels 1.366 times more than customers with no prior experience. Hence, it is important for business owners of green hotels to attract their prospect clients to try to use and experience the service of staying at green hotels.

Observe that only attitude (1) and (2) have significant positive relationship with the probability of WTP. Attitude (1) and (2) measured green moral level of respondents based on five point Likert scale. With an increment of one point, people with green attitude toward the green hotels and environmental responsibility are more likely to pay for green hotels, 1.705 and 2.241 times respectively. Similarly, respondents who practice green behavior while staying at any hotel; for instance, conserving electricity by turning it off regularly when leave a room or reusing the same towel during a period of stay, are likely to pay for green hotel 1.306 times more than respondent with less green behavior.

However, it is interesting to see a negative relationship between respondents who practice green behavior on regular basis and the odds of WTP. On regular basis; for instance, recycling their garbage, reusing plastic bags, and participating in environmental friendly activities, people who are in these categories are 6.81 percent less likely to pay for green hotels. These people routinely practice green activities; they have an awareness on the environmental issues and would do things to reduce any environmental problems. Any activities they do on regular basis have contributed positively on the surrounding environment. They are likely to decide not to pay any premium for staying at green hotels as they have other alternative ways to show their love and care for the environment. In the other hands, people who may not often practice green behaviors are likely to decide to pay for green hotels as they find an opportunity to show their concern toward the environment while staying at green hotels.

Hence, the targeted customer group for green hotels is likely to be consumers who are aware of some environmental issues, have positive attitude, occasionally practice green behavior. Because sustainability is now a critical issue in Thailand, environmental awareness becomes an essential thing that everyone should be conscious. In order to reduce waste and maintain sustainability, environmental and green attitude are the essential things that should be concerned. Encouraging people to have more environmental responsibility is highly recommended in order to prevent and protect the sustainability of our environment.

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