Téoros
Revue de recherche en tourisme

Business Perspectives of Adopting Sustainable Tourism Practices
A Study of Tourism Companies in Vietnam

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Liu (2003) has observed that sustainable tourism became a critical research topic in tourism management (at both micro and macro levels) in the 1980s. Continuous efforts have been made to formulate suitable, sustainable tourism programs with different conditions and different levels in different countries. Most researchers agree that a successful sustainable tourism program requires support and participation from the government, local communities, visitors, tourism businesses, and other influences such as media and international forces, as well as certain non-governmental organizations (Butler, 1999; Dewhurst and Thomas, 2003; Horobin and Long, 1996; Lele, 1991; Liu, 2003). However, Dewhurst and Thomas (2003) and Liu (2003) pointed out that successful examples of sustainable tourism often begin at the micro or firm level. Thus, a tourism firm's voluntary participation can play a crucial role in the success of a sustainable tourism program (Rangel, 2000).

After a long period of war, Vietnam chose to follow an economic policy that blocked out all nations outside of the Soviet bloc and/or communist rim. Such policy discouraged many international economic activities, including trade and tourism. In 1986, coping with various dramatic changes in the Soviet bloc and Eastern European countries, the Vietnamese Communist Party announced a procedure known as the "*doi moi*" (economic transformation) for the country. As a result, international tourists began visiting Vietnam in late 1985. Initially, most tourists were businesspeople looking for a new market. Today, however, the major reason visitors come to Vietnam is for recreation. The number of international tourists to Vietnam increased from 440,000 in 1992 to over two million in 2004 (Vietnam National Administration of Tourism – VNAT). Recognizing the enormous economic opportunity that tourism offers, the Vietnamese government declared tourism as a primary focus of the *doi moi* (*Socialist Republic of Vietnam – SRV: Party Congress Socioeconomic Report – Report on Socioeconomic Development Orientations and Tasks for the Five-year 1996-2000 Period*, 1996). As a newcomer to the international tourism market, Vietnam had an opportunity to learn from the experience of others, including the negative impact of tourism on the natural and cultural environment that had occurred in Thailand, Indonesia, Malaysia, etc. (Marris *et al.*, 2003). The Vietnam National Administration of Tourism (VNAT) is actively seeking for a well-thought out tourism development plan that both promotes tourism business and protects the environment.

Ha Long Bay, Vietnam.
Photo: Jean O'Sullivan/UNESCO

This study seeks to identify and examine the potential factors that influence Vietnamese tourism businesses' likelihood of adopting (LOA – or intention to adopt, interchangeably) sustainable tourism practices (STPs) as an effort to establish a sustainable tourism program. Specifically, this study addresses three research questions: (1) What factors influence hotels' intentions to adopt STPs? (2) What factors influence tour companies' intentions to adopt STPs? (3) Are companies and hotels motivated to adopt STPs for different reasons?

Tourism Industry in Vietnam and Sustainable Tourism Practices

The tourism industry, according to Gee *et al.* (1989), is made up of several components. These include tour companies, accommodation providers, transportation providers, tourist attractions, and supporting services and facilities. Before the *doi moi*, private business was not recognized as a legal form of ownership and only state- or public-owned organizations were allowed to operate. Most of the tourism facilities that existed were owned by the State and were used to accommodate state employees enjoying their bonus vacations for outstanding performance. After the *doi moi*, the VNAT identified two new management tasks: (1) managing an increasing flow of international tourists into the country without a clear general legal policy from the government such as the policy regarding visa issuance; and (2) managing companies in the industry with different types of ownership, some of which are new to VNAT.

The traditional type of ownership is state- or public-owned, which comprises a large proportion of the tourism industry. State-owned companies (SCs) are often medium and large size with partial financial support from the government. Three new types of ownerships were created as a result of the open-market policy, including privately-owned, joint-venture, and *equitized* companies.

Privately-owned companies (PCs) are often small-sized, family-run types of businesses; however, PCs with multiple owners can be very large. The term joint-ventures (JCs) describes a joint-invested company between a domestic company and international corporation. These companies are often large and have strong financial resources provided by foreign partners. The term e*quitized* is perhaps customized to indicate a special type of ownership in Vietnam. State-owned companies that were in danger of bankruptcy were allowed to be equitized, meaning that they could sell up to 49% of their shares to private investors. By equitizing, the state maintains control of the company while increasing its funding from other sources. Equitized companies (ECs) are often medium or large size. Because of the difference in ownership and thus in management style, Vietnamese tourism companies may have a very different attitude towards voluntary participation in sustainable tourism programs.

Imperial City, Southern Gate, main entrance to the palace, Vietnamese architecture, Vietnam.
Photo : Alexis N. Vorontzoff/UNESCO

As the two management tasks are relatively new to VNAT, the agency has experienced difficulty in coordinating the two crucial components of the tourism industry (tour companies and hotels) with other components (transportation and tourist attractions) (Haley and Haley, 1997). In addition, most tourist attractions, such as forests, are often multiple-use resources shared by other industries (for example the forest products industry). Tourist transportation comprises only a small proportion of the country's transportation infrastructure. Consequently, the tourism industry has a limited influence on the formulation of government policies concerning the transportation industry and management of tourist attractions. Therefore, our study focuses on the tourism accommodation and tour operators, referred to as hotels and tour companies in this paper.

Sustainable tourism being such a broad topic, it results in a variety of definitions ranging from ecotourism and green tourism to more obscure terms like scientific or appropriate tourism (Mowforth and Munt, 1998). While these terms help to establish the differences between sustainable and non-sustainable tourism activities, they narrowly focus on "*the need to preserve the resources on which the tourism industry depends, rather than on the sustainable use of resources*" (Dewhurst and Thomas, 2003 : 384). Furthermore, these classifications also tend to discourage other types of tourism from working towards the common goals of sustainable development.

Therefore, in this study, we adopted the definition of sustainable tourism given by Liu (2003 : 461), which includes "*all types of tourism (conventional or alternative) forms that are compatible with or contribute to sustainable development.*" This definition of sustainable tourism is not restricted to those tourism firms that operate only in the niche market of "green tourism" or "ecotourism," but also includes all businesses that adopt environmentally-friendly practices. For example, sustainable hotels in this context are not necessarily located in a natural resource area or focused exclusively on ecotourists. Nonetheless, a critical element of sustainable tourism development is getting these types of hotels to apply sustainable tourism business practices such as energy and water conservation, reducing the use of toxic chemicals in landscaping, facilitating visitors' understanding and respect of local culture, etc.

Diffusion of Innovations Theory as Conceptual Framework

Rogers' theory of diffusion of innovation (DOI) provided the theoretical framework for this study. Since it was first published in 1962, the model has been used in over 5,000 studies in disciplines ranging from health care, agriculture, information communication and technology to business, marketing and environmental studies (Rogers, 2003). The model has also been cross-culturally tested and its consistency proven (Rogers, 2004; Wejnert, 2002). According to Rogers (1995), innovations are ideas, practices or concepts that are perceived as new to the potential adopters. Internationally, the notion of sustainable tourism is not a new idea. However, viewing STPs as the adoption of environmentally friendly innovations is unique, especially in Vietnam. As such, Rogers' model of DOIs serves as a useful theoretical framework.

With such a large diversity of applications, studies within the DOI literature do not share a fixed set of factors influencing intentions to adopt innovations. However, a common classification of factors has been summarized by Rogers (1995; 2003), and recently reviewed by Wejnert (2002). These authors divided these factors into three main groups: innovation characteristics; organizational (or adopter) characteristics; and external environment characteristics. Each group contains several factors that depict the corresponding construct. According to Spector (1992), in social sciences, it is more reliable to use one question to measure collective behaviours such as attitudes and motivations towards adoption of environmental innovation, because of the complex nature of the topic. Therefore, we measured our variables of interest using a series of items and these are displayed as the third measurement level of our model. Table 1 presents three measurement levels in the conceptual framework and their hypothesized relationships with the LOA.

Innovation characteristics include complexity, relative advantage, observability and compatibility. *Complexity* is the degree to which an innovation is perceived as difficult to understand and use. *Relative advantage* is the degree to which an innovation is perceived as better than the idea it supersedes or substitutes. Relative advantages can be financial, such as cost saving, improvement of financial performance) or non-financial (such as strengthening a company's marketing image). *Compatibility* is the degree to which an innovation is perceived as being consistent with existing values, past experience and needs of potential adopters. *Observability* is the degree to which the results of an innovation are visible to the potential adopters. Except for complexity, innovation characteristics were hypothesized to be positively correlated with the LOA.

Organizational characteristics include firm size, firm's attitude towards sustainable tourism (greenness) and firm's attitude towards adopting new ideas and challenges (risk-taking). *Firm size* is a controversial factor because certain disadvantages and advantages associated with the size of a company create different behaviours relative to the adoption of STPs. For example, a large firm may have more financial resources while a small firm may be more dynamic and more attached to the place of business (Bramwell *et al.*, 1996; Martinez-Ros, and Labeaga, 2002). *Greenness* and *risk-taking* are two variables that measure organizational norms and attitude towards adopting STPs. Firms that are more environmentally-friendly-oriented and more open to new ideas are expected to have a higher LOA.

Lastly, factors in the **external environment characteristics** category are measured in terms of the degree to which a firm can be certain of its external environment, including changes in customer demands, changes in government regulatory policies, and level of threats from rival firms (Downs and Mohr, 1976; Miles and Snow, 1978). The level of certainty of customers' demand and government policies are often found positively correlated with the LOA because a stable, supportive environment is always preferable to an unstable one (Kotler *et al.*, 2003). Firms are not likely to invest in new technologies and products, especially environmentally-friendly sound products, if they do not sense a positive attitude from the government and demand from customers (Ozsomer *et al.*, 1997). Research suggest that firms perceive uncertainty in government policy or customer demand as a risk or threat, and thus are not likely to make new investments in related innovations (Ozsomer et al., 1997; Rangel, 2000; Soderbaum, 2000; Vazques *et al.*, 2001; Von Krogh and Roos, 1995). However, there is no common agreement about how competition affects LOA. Competition is considered as one of the motivations for tourism firms to go green in order to gain competitive

advantages (Kotler *et al.*, 2003). However, other researchers such as Appiah-Adu and Singh (1998) found that firms operating in highly competitive environments are less likely to adopt innovations because they are more cautious as regards financial risks.

Methods

Survey Instrument

Since there was no codified set of STPs in Vietnam at the time of this study, a generic list of practices was created from existing programs such as the Nature and Ecotourism Accreditation Program – NEAP *(*2003) in Australia, the Sustainable Tourism Program from Costa Rica (CST, 2003) and the "Green Hotel" criteria from the Hyatt Corporation (Enz and Siguaw, 1999). The list was redefined by two expert panels through a semi-Delphi routine recommended by Delbecq *et al.* (1975). This approach was effective to generate management criteria and decisions, given time and budget constraints. The experts were selected based on their knowledge in the field of sustainable tourism, especially in developing countries like Vietnam, and their experience in working with tourism businesses.

The first expert panel comprised English-speaking experts, including two from Australia who had contributed to the construction of the NEAP. Two other experts from the U.S. had extensive experience working on environmental protection policies in developing countries, including Vietnam. One Malaysian expert was involved in the development of sustainability criteria for hotels in Malaysia. These experts were asked to select the practices that are the most important and the most practical in the context of developing countries like Vietnam. Two lists of the commonly selected practices (one for hotels and one for tour companies) were then emailed to the experts for confirmation and to ensure consensus.

These lists were translated into Vietnamese and re-translated into English to ensure accuracy and to minimize language issues. The Vietnamese versions were then given to a second expert panel comprised of seven tourism experts in Vietnam. Panellists were selected based on their experience and their knowledge of the tourism sector. They came from research institutes, government administration and business organizations.

Table 1

Measurement Levels within the Diffusion of Innovations Conceptual Framework

Level 1	Level 2	Level 3
Innovation Characteristics	*Complexity and observability* (McCabe, 1987)	Level of technical difficulties (TECH1)
		Level of difficulties in applying/installing (TECH2)
		Level of consequential adjustment (TECH3)
		Level of ease to forecast the overall effect (OTHER1)
	Relative advantage (financial and all others) (Karagozoglu and Lindell, 2000; Kocis, 1986)	Flexible cost saving (COST)
		Level of increase in sale volume (OTHER2)
		Level of improvement in overall financial status (FINANCE)
		Level of improvement in company's reputation/image (OTHER3)
		Level of support from employees (OTHER4)
Organizational Characteristics	*Greenness level* (Horobin and Long, 1996)	We are holding the environment and resources of the country in trust for future generations and we have a responsibility to pass these on in good condition (GREEN1)
		The fortunes of tourism and the environment are closely linked. Without a beautiful environment, tourism could not flourish and be sustained (GREEN2)
		The greater the attraction of a beautiful place the greater the danger that large numbers of visitors will reduce its attractiveness (GREEN3)
		It is relevant for tourism businesses of all sizes to encourage the development of a tourism industry which can serve the needs of both current and future generations (GREEN4)
		We can all respond to the need to protect the environment, for example by altering some of our everyday business activities (GREEN5)
	Risk-taking (Hurley and Hult, 1998; Miles and Snow, 1978; Vazques et al., 2001)	Technical innovation, based on research results, is readily accepted in our organization (RISK1)
		Management is actively seeking innovative ideas (RISK2)
		People are penalized for new ideas that do not work (RISK3)
		Innovation in our company is perceived as too risky and is resisted (RISK4)
External Environment Characteristics	*Perceived competition* (Appiah-Adu and Singh, 1998; Jaworski and Kohli, 1993)	Competition in our industry is cut-throat (RIVAL1)
		Anything that one competitor can offer, others can match (RIVAL2)
		Our competitors are relatively weak (RIVAL3)
	Perceived customer and government certainty (Miles and Snow, 1978)	Customers' demand for existing product (DEMAND1)
		Customers' demand for new product (DEMAND2)
		Government regulatory agencies changes in law or agency policy on pricing (GOV1)
		Government regulatory agencies changes in law or agency policy on product standard or quality (GOV2)
		Government regulatory agencies changes in law or agency policy on environmental standard (GOV3)
		Government regulatory agencies changes in law or agency policy affecting marketing and distribution methods (GOV4)
		Government regulatory agencies changes in law or agency policy on acceptable accounting procedures (GOV5)

All independent variables (level 2), except for complexity, are hypothesized to be positively correlated with the LOA.
Source: Author's compilation.

The experts were used to confirm items on the lists, to reduce the number of items, and to make sure important items were not left out. Panellists were instructed to identify practices most important and most applicable to the tourism industry in Vietnam. A consensus was reached after two rounds, with 13 practices selected from the original list of 45 for tour companies, and 15 practices selected from the original list of 56 for hotels.

Variables representing innovation characteristics were measured on a semantic differential scale from 1 to 7, with 1 being most disadvantageous and 7 being most advantageous to the company's business. For example, in item TECH3 of Table 1, respondents were asked how easy it is to predict the overall technical difficulty of applying various practices on a scale from 1 to 7 with 1 being "extremely difficult" and 7 being "extremely easy" to forecast the overall effect. Variables representing organizational characteristics, except for firm size and location, were measured with an equal interval scale, ranging from 1 (strongly disagree) to 7 (strongly agree). Firm size was determined using several proxy measures including average number of customers per month, total assets and number of employees. External environment characteristics were measured with an equal interval scale, with 1 being "highly unpredictable" and 7 "highly predictable." Two questionnaires were separately designed for tour companies and hotels, based on selected practices.

Study Participants

As recommended in other organizational studies (Damanpour, 1991; Rangel, 2000; Wolfe, 1994), participants in this study were owners, managers, or members of a decision-making unit of tourism companies in Vietnam. However, it was difficult to select an appropriate sample size given the lack of reliable sources of information on the approximate size of the tour company population (total number of companies in Vietnam). The nationwide phone directory provided by the Vietnamese Telecommunication and Postal Service was used to estimate the population of tour companies. Companies registered as tour companies, tour ticket offices, tour operators and travel agencies were initially selected. Companies with the same name or classified as representative offices, ticket offices and branches were then re-

moved from the list, because they are run by the same administration. This resulted in a total of 298 tour companies throughout Vietnam. A random sample of 149 companies (50% of the estimated population) was then selected.

The total number of accommodation providers in Vietnam, as published on the VNAT website as of November 2002, including hotels, resorts, villas, tourism villages and apartment rentals, was 3,267. Hotels that were inactive (closed for renovation/repair or out of business) were excluded from the selection because managers could not be contacted. In addition, hotels managed by the same person were only selected once. After these adjustments, the estimated population of hotels was closer to 2,500. A random sample of 497 hotels was selected from this database. Participants were owners or managers. This logic follows that of other organizational studies (Damanpour, 1991; Rangel, 2000; Wolfe, 1994).

Questionnaire Distribution

The survey period spanned from August to December 2003 with a three-step procedure suggested by Vincent and Santos (1996) to improve response rates. The surveyors first attempted to set up appointments with the participants. A brief face-to-face meeting was arranged during which the participants were given a questionnaire to complete and a stamped return envelope. Secondly, upon agreement with the participants, the surveyors returned to retrieve the questionnaire a few days later. If the questionnaire was not completed at the second meeting, participants were asked to return it by mail. Thirdly, if the questionnaire was not returned by mail, a reminder letter was sent and a telephone call was made one and two weeks after the meeting.

Nonresponse Bias

Even though the samples were carefully selected to include one manager per hotel at a time, 33 hotels among the 497 selected actually had the same manager as another hotel on the list. This reduced the usable sample size of hotels to 464 (20% of the estimated population). The questionnaire was completed and returned by 193 hotel participants and 60 tour company participants. Three hotel participants sent back a blank questionnaire reducing the usable responses

to 190, thus the total number of responses was 250, resulting in a 40% overall response rate. Based on the estimated population, the sampling error was calculated to be 10%, according to Salant and Dillman's method (1994).

A common way to assess nonresponse bias is to compare socio-economic characteristics of respondents with nonrespondents (Dey, 1997; Sheaffer et al., 1996; Stoop, 2004). Because our unit of analysis is an organization, we used two proxies (the firm location and type of ownership) to assess nonresponse bias for both hotels and tour companies. The firms were located in three administrative regions: north, south, and central. Their types of ownership were SCs, JCs, PCs and ECs. Chi-square test results show insignificant differences in terms of location between respondents and nonrespondents (p>0.1) of both hotels and tour companies. However, with p<0.01, the Chi-square test results indicate a significant difference between respondents and nonrespondents in terms of ownership among tour companies, while it is not statistically significant among hotels. Among tour companies, JCs are the most responsive, while PCs are the least responsive to the survey.

Monument on the banks of the perfume River, Hué aera, Vietnam.
Photo: Alexis N. Vorontzoff/UNESCO

A possible explanation for this behaviour is that Vietnamese people are generally unfamiliar with scientific studies and have a culture which strongly resists self-disclosure with strangers (Milburn *et al.*, 1991; Sasao, 1994). JCs may have a different culture influenced by their foreign partners, thus making them somewhat more open to scientific studies (Chudnovsky and Lopez, 2003). As the potential bias identified, the *generalizability* for privately-owned tour companies is somewhat limited and results should be interpreted with caution.

Statistical Analysis

Internal consistency. Cronbach's coefficient alpha was used to assess the reliability and consistency of measurement scales. All measurement scales were sufficed with Cronbach's coefficient alpha ranging from 0.52 to 0.87 (Nunnally, 1978). Examining scales with lowest Cronbach's coefficient alpha (risk-taking and perceived competitive level), RISK3, RISK4, and RIVAL3 (see detail in Table 1) is found to be negatively correlated with other items in corresponding scales. However, these correlations are statistically insignificant ($p > 0.1$). Because all these items were worded negatively, this result suggests that Vietnamese participants' responses may differ from the English-speaking audiences of the original studies because of their cultural differences (Hurley and Hult, 1998; Miles and Snow, 1978; Vazques *et al.*, 2001). In addition, since the correlation coefficients of these items are statistically insignificant, these items are removed from the scales. After such removal, the internal consistency of the scales improves with Cronbach's coefficient alpha from 0.65 to 0.87 (see Table 2).

Factor analyses to depict independent variables. Three factor analyses were conducted to depict variables presenting three hypothesized constructs: innovation characteristics, organizational characteristics and external environmental characteristics. In addition, variables created from the results of the factor analyses are statistically independent from those used in regression models in order to eliminate interaction effect. The results of factor analyses are shown in Table 2. Most factor components reveal variables that are consistent with the theoretical construct. For example, in the first factor analysis (construct factor 1 measuring complexity), all items depicting technical

Table 2

Variables Depicting Theoretical Construct as Results of Factor Analyses and their Reliable Assessment

Construct	Item	Variable			Cronbach's coefficient alpha
		Complexity	Other benefits	Financial benefits	
Innovation characteristics (explain 75% of total variance)	TECH2	**0.901**	0.118	0.195	
	TECH1	**0.896**	0.079	0.163	
	TECH3	**0.765**	0.313	0.193	0.87
	OTHER3	0.103	**0.881**	-0.009	
	OTHER4	0.201	**0.769**	0.198	
	OTHER2	0.063	**0.713**	0.398	
	OTHER1	0.445	**0.578**	0.219	0.81
	COST	0.351	0.070	**0.836**	
	FINANCE	0.158	0.454	**0.760**	0.74
		Greenness	Risk-taking		
Organizational characteristics (explain 67% of total variance)	GREEN1	**0.892**	0.137		
	GREEN2	**0.834**	0.260		
	GREEN4	**0.646**	0.477		
	GREEN3	**0.524**	0.147		0.77
	RISK1	0.096	**0.869**		
	GREEN5	0.274	**0.782**		
	RISK2	0.337	**0.749**		0.79
		Perceived certainty about changes in government policies	Perceived certainty about customer demand	Perceived competitive level	
External environment characteristics (explain 74% of total variance)	GOV3	**0.801**	0.202	0.053	
	GOV4	**0.775**	0.092	-0.055	
	GOV1	**0.768**	0.067	-0.018	
	GOV5	**0.753**	0.119	-0.094	
	GOV2	**0.667**	0.258	-0.138	0.83
	DEMAND1	0.110	**0.865**	0.063	
	DEMAND2	0.282	**0.766**	0.010	0.71
	RIVAL1	-0.023	-0.057	**0.863**	
	RIVAL2	-0.105	0.126	**0.826**	0.65

N.B.: Bold type indicate significant correlation coefficients

Source: Author's compilation.

difficulties are highly correlated with each other. Variables depicting external environment characteristics are also consistent with the theoretical construct.

However, factor analysis 2 is somewhat unusual. Item Green5, which is supposed to measure a green behaviour, is correlated higher than items depicting risk-taking attitude. This discrepancy may be attributed to the fact that the participants in our study are culturally different from those in the original study by Horobin and Long (1996). As item Green5 was: "*we can all respond to the need to protect the environment, for example by altering some of our everyday business activities,*" the Vietnamese survey participants might have interpreted this item as a risk-taking action rather than a "green" action as it

mentions altering business activities. Given this justification, we accepted the two variables depicting organizational characteristics as shown in Table 2.

The last variable, firm size, is measured by several different proxies according to the type of firm. For hotels, proxies measuring firm size include: number of rooms, number of employees, and total assets. The number of employees and total assets are proxies measuring size of tour companies. These proxies are combined in one linear regression principle component to measure the firm size.

Comparisons among types of ownership. Figure 1 provides a visual comparison of adoption rates among different types of

companies and the Chi-square test result is shown in Table 3 (first line). Adoption rates are calculated by the number of innovations being adopted by each type of company over the total number of innovations. While adoption rates do not vary among hotels, joint-venture tour companies are more likely to adopt STPs than other types of companies. ANOVAs were also conducted to examine the difference in perceived innovation, organization and external environment characteristics due to different types of ownerships. If any difference was found, pairwise comparisons were then conducted to examine the level of differences among groups of ownerships.

No statistically significant differences are found among companies' perception of innovation complexity regardless of their types of ownerships. Similarly, companies with different types of ownerships have no statistically significant differences in terms of their greenness level, risk-taking attitude, perceived competition and perceived certainty about customer demands. However, in the case of tour companies, ECs perceive somewhat a higher level of financial benefits from adopting environmental innovation. Among hotels, JCs perceive a higher level of other benefits of adopting STPs, while SCs have more certainty about changes in government policies. Such results indicate that while tourism companies do not have totally different perceptions towards adopting STPs because of the differences in ownerships, they may have different motivations. For example, equitized tour companies may be more sensitive regarding financial benefits of innovations while joint-venture hotels may focus more on the marketing image of the company when they consider adopting STPs.

Logistic regression analysis. The dependent variable is a firm's intention to adopt STPs. Survey participants were asked to answer with binary response yes/no after considering the advantages and difficulties of adopting a practice. Multivariate probability plots reveal that there is a curvilinear pattern in the relationships between the dependent and independent variables (see Figure 2). Scatter plots were used to assess the curvilinear pattern. Firm size and perceived competitive level are identified as potentially having curvilinear relationships with intention to adopt among hotels. No curvilinear pattern is found among tour companies. The logistic regression model is presented as followed:

$$LOA = Y = \beta_o + \sum_{i=1}^{9} \beta_i x_i + \beta_{10} x_4^2 + \beta_{11} x_9^2$$

Where,

β's are the correlation coefficients

x_1: complexity

x_2: financial benefit

x_3: other benefits

x_4: firm size

x_5: greenness

x_6: risk-taking

x_7: perceived certainty about government polices

x_8: perceived certainty about customer demand

x_9: perceived competitive level

The last two quadratic terms present curvilinear effect of firm size and perceived competition on the LOA. These two terms are only applied in the case of hotels.

Logistic regression analyses were conducted with backward elimination selection procedure (significant level = 0.1) to examine the influence of independent variables on the LOA of each of the 15 hotel practices, and each of the 13 tour company practices. However, for tour companies, in addition to small sample size, the following two practices contain a large amount of missing data (only 39 companies provided complete answers):

Practice 3 stated: *"The purpose of interpretation activities is to provide customers with opportunities to learn more about the natural and cultural heritage of the area they are visiting through their own languages."* – 4 non-adoptions.

Practice 11 stated: *"Customers are discouraged from purchasing any form of endangered species or rare wildlife including food, stuffed animals, bones, tusks, teeth, fur or any part of the animals."* – 4 non-adoptions.

The data is insufficient to detect the correlations between independent variables and LOA for these two practices. The results of the logistic regression analyses are summarized in Table 3 with 15 hotel and 11 tour company practices.

Figure 1

Adoption rates (in percentage) of sustainable tourism practices by different types of tour companies and hotels in Vietnam

Legend:
- Joint-venture
- State-owned
- Equitized
- Privetely owned
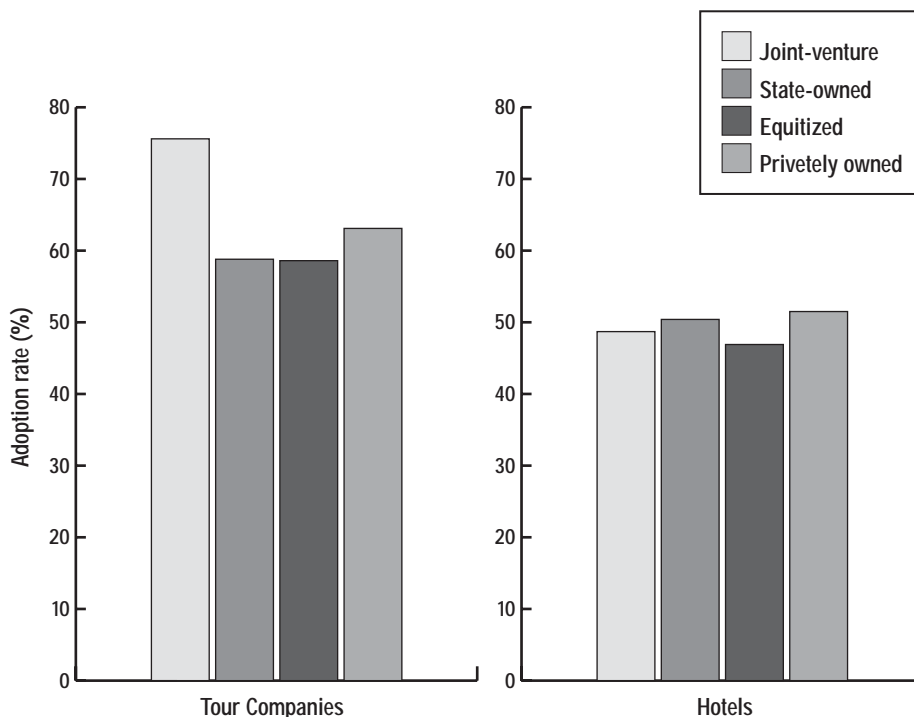
Source: Author's compilation.

Table 3

Comparison of the Difference among Types of Ownerships and Results of Logistic Regression Correlation between Dependent Variables and LOA for 15 Hotel Practices and 11 Tour Company Practices

Variable	Accommodation companies			Tour companies		
	Comparison among ownership	Logistic regression		Comparison among ownership	Logistic regression	
		Sign of correlation coefficient (when significant)	Number of times found significant (among the 15 practices)		Sign of correlation coefficient (when significant)	Number of times found significant (among the 11 practices)
Intention to adopt	Ns	Na	Na	JCs adopt more	Na	Na
Complexity (measured in decreasing level)	Ns	+	12	Ns	+	4
Financial benefits	Ns	+	5	ECs perceived higher	+	1
All other benefits	JCs perceived higher	+	10	Ns	+	6
Firm size	Na	- and + (2 negative second order 1 positive first order; 1 negative first order)	4	Na	-	1
Greenness level	Ns	Ns		Ns		Ns
Risk-taking	Ns	+	5	Ns	+	6
Perceived certainty about government regulatory policies	SCs are more certain	+	2	Ns	Ns	0
Perceived customer demand	Ns	+	6	Ns	Ns	0
Perceived competition	Ns	+	4 (2 second order)	Ns	+	1

- *The signs represent the direction of the correlation: a positive sign means the variable is positively correlated with the LOA and a negative sign depicts a negative correlation*
- *Significant level = 0.05, Ns = no significant relationship is found, Na = not applicable*
- *Second order: correlation coefficient associated with x^2*

Source: Author's compilation.

Overall, results confirm the hypothesized relationships between independent variables and LOA. Complexity (measuring in decreasing level), financial benefits and other benefits are positively correlated with the LOA. Perceived certainty about government policies and customer demand are also positively correlated with the LOA as hypothesized. However, firm size and perceived competition have more complicated relationships with the LOA as both linear and quadratic correlations are found. Greenness level, when hypothesized to be positively correlated with LOA, is not significantly correlated.

Furthermore, innovation characteristics are the dominant factors, especially complexity and other benefits as their correlations with a firm's intention to adopt STPs are found significant in most cases. External environment characteristics are the factors that have the least influence on the LOA. In fact, their correlations with a tour company's intention to adopt STPs are very weak as it is found to be statistically significant in only one practice.

Figure 2

Multivariate plot showing the curvilinear relationship between the dependent and independent variables
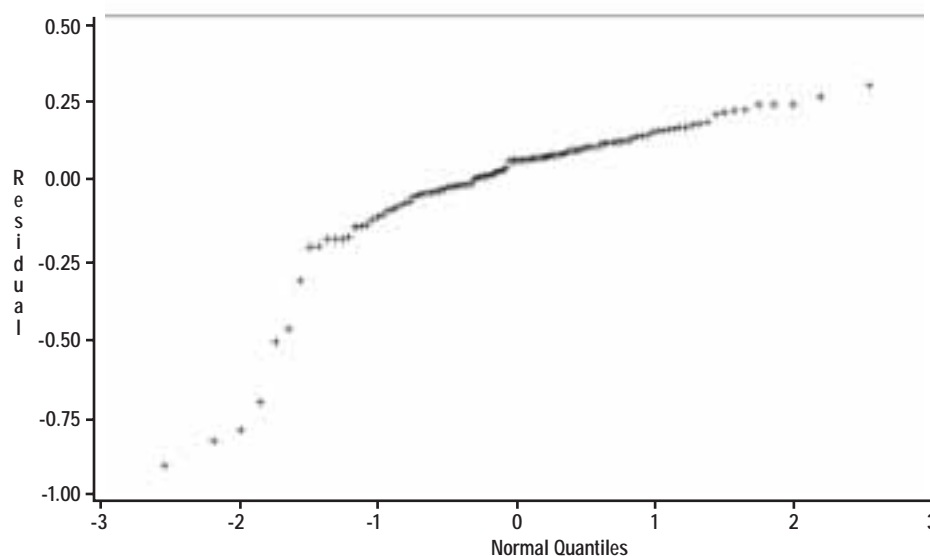
Source: Author's compilation.

Small trade on Ha Long Bay, Vietnam.
Photo: Jean O'Sullivan/UNESCO

Results and Discussions

Innovation Characteristics

The results of this study are consistent with findings by Rogers (2003) himself and other researchers such as Al-Gahtani (2003), Martins *et al.* (2004) and Wejnert (2002): innovation characteristics, especially complexity, are the most important factors that influence a firm's intention to adopt an innovation. Although complexity plays a very critical role in a hotel's intention to adopt STPs (80% of all cases, see Table 3), other benefits have more influence on tour companies. STPs for hotels include both technical and administrative innovations, while these practices are mostly administrative as regards tour companies. In fact, among 15 practices selected by an expert panels for hotels, 11 are technical, while all 13 practices selected for tour companies are administrative. Because innovations applied to hotels are more diverse, they also tend to be more complex with a wider range of technical difficulties. As a consequence, hotel managers appear to be more sensitive to the complexity of innovations than are tour company managers.

As both hotels' and tour companies' products are intangible services, it is impossible to assess quality before consumption (Lundberg, 1990). Thus, customers have to rely on a firm's reputation to make a purchase decision. A firm's reputation is a crucial competitive advantage in the tourism industry, thus innovations that strengthen the firm's image are more likely to be adopted (Kotler *et al.*, 2003). As a result, "other benefits" which entail strengthening a firm's image strongly influence the intention to adopt STPs of both hotels and tour companies. More than half the time, "other benefits" influence both hotel and tour company managers' intentions to adopt STPs.

The results show that "financial benefits" are significantly correlated with intention to adopt five hotel practices and only one tour company practices (Table 3). This correlation indicates that hotel managers tend to be more motivated by financial benefits than tour company managers. This may be explained by the wider range of financial investment required by hotels to adopt STPs. For example, the designing and construction of a hotel building compatible with its surrounding

landscape can be a very costly practice, while providing recycling bins for guest rooms is a relatively low-cost practice.

Organizational Characteristics

Among organizational characteristics, risk-taking has the greatest influence on tourism firms' intentions to adopt STPs. This pattern has been observed in the early stages of sustainable tourism development of other studies (Dewhurst and Thomas, 2003; Rangel, 2000; and Rivera, 2004. Because sustainable tourism is a relatively new concept in Vietnam and tourism firms often lack access to international market information (Haley and Haley, 1997), it is natural for firms to be sceptical about the results of adopting environmental innovations. As a consequence, STPs are considered risky actions and more likely to be adopted by higher risk-taking firms.

The influence of firm size on the LOA is a more complicated relationship, especially in the case of hotels. All possible relationships between firm size and LOA are found, including a quadratic correlation, positive linear correlation and negative correlation. The quadratic

correlation indicates that small and large firms are indifferent in their intention to adopt the practice. The positive linear correlation indicates that large firms are more likely to adopt it, and negative linear correlation shows that small firms are more likely to adopt it. These findings confirm the hypothesis that large firms are not different from small firms in terms of the number of innovations they are likely to adopt; rather, small firms are likely to adopt different types of innovations. As small hotels have fewer employees and provide less services, it is more convenient for them to hire local people with minimum training, while large hotels often seek highly skilled employees. Local people may lack needed skills. Similarly, small hotels typically have a very limited area dedicated to landscaping. Retaining native vegetation is impractical and sometimes impossible for small hotels while it is an easier task for large hotels with larger landscaping areas.

External Environment Characteristics

External environment characteristics are the factors that have the least influence on a tourism firm's intention to adopt STPs. Perceived certainty about changes in government regulatory policies has almost no effect on the LOA. Being environmentally responsible may become a positive social norm that is supported by the government. Thus, tourism firms do not perceive changes in government policies as having no effect on supporting them to adopt STPs.

Perceived certainty about customer demands, while having no impact on a tour company's intention to adopt STPs, is positively correlated with a hotel's LOA. This may be explained by the variety of customers that hotels serve. While tour companies' customers mainly are tourists who purchase packaged tours and other travel services, hotel customers comprise a much wider variety, which includes tourists, businesspeople and political delegations. It may be easier to predict tourist demand for a 'green destination' and very difficult to evaluate demand for a green hotel service. Adopting certain STPs, such as reducing water consumption in bathroom facilities, may contradict or reduce a hotel's luxury and high-quality service in the eyes of some customers. Therefore, hotels tend to be more sensitive regarding the certainty of customer demands than tour companies.

Tour companies' reactions to perceived competition is relatively weak as only one positive correlation with LOA was found. However, the relationship between LOA and perceived competition among hotels are more complicated as a quadratic correlation was significant. The results indicate that, at this early stage of sustainable tourism development, Vietnamese tourism firms have not yet seen competition as a pressure to adopt STPs.

Conclusions

The results of this study are consistent with Rogers (1995) conclusions of the adopters at early stages of diffusing innovations. Sustainable tourism is a relatively new concept in Vietnam and firms demonstrate a sceptical behaviour towards adopting STPs. There is a strong indicator of an intertwined relationship between perceived complexity and risk-taking with LOA. Overall, tourism firms perceive adopting STPs as a risk-taking action as they are very concerned about the disadvantages of innovations, while their benefits are not explicit. However, there is evidence that Vietnamese tourism companies are beginning to perceive certain benefits, especially strengthening the company's image by the adoption of STPs. This can be used as a key motivation to promote voluntary participation in sustainable tourism programs among tourism companies in Vietnam.

The findings suggest that a feasible course of action to promote sustainable tourism in Vietnam should start with introducing STPs to tourism companies, perhaps with a set of codified standards. This set of standards should be adaptable to the size of the company and type of business (tours *vs.* hotels). This would help tourism companies to determine innovation characteristics, especially complexity, and the benefits of adopting innovations. In addition, VNAT can also encourage and provide support to certain companies to adopt STPs and use them, and thus become models for others to follow. Once a successful example is introduced, adopting innovations will appear to be less risky to the firms. Moreover, while the process of promoting sustainable tourism can be successfully conducted by a third party, as in Costa Rica (Rivera, 2002, 2004), VNAT leadership is important to ensure government support to the firms.

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Bibliography

Al-Gahtani, S.S. (2003), "Computer Technology Adoption in Saudi Arabia: Correlates of Perceived Innovations Attributes", *Information Technology for Development*, vol. 10, nº 1, p. 57-69.

Appiah-Adu, K., and S. Singh (1998), "Customer Orientation and Performance: a Study of SMEs", *Management Decision*, vol. 36, nº 6, p. 385-394.

Bramwell, B., I. Henry, G. Jackson, A. Goyia Prat, G. Richards, and J. van der Straaten (1996), *Sustainable Tourism Management: Principles and Practices*, Tilburg, Tilburg University Press.

Butler, R.W. (1999), "Sustainable Tourism: A State-of-art Review", *Tourism Geographies*, vol. 1, nº 1, p. 7-25.

Chudnovsky, D., and A. Lopez (2003), "Diffusion of Environmentally Friendly Technologies by Multinational Corporations in Developing Countries", *International Journal of Technology Management and Sustainable Development*, vol. 2, nº 1, p. 5-18.

CST (Costa Rica Sustainable Tourism Organization) (2003), *Protecting the Paradise: Costa Rica Sustainable Tourism Program*, Department of Natural Resources of Costa Rica Tourist Board and the Costa Rica National Accreditation Commission, [http://www.turismo-sostenible.co.cr], consulted Jan. 10.

Damanpour, F. (1991), "Organizational Innovation: a Meta-analysis of Effects of Determinants and Moderators", *Academy of Management Journal*, vol. 34, nº 3, p. 555-590.

Delbecq, A.L., A.H. Van de Ven, and D.H. Gustafson (1975), *Group Techniques for Program Planning: a Guide to Nominal Group and Delphi Processes*, Glenview, Illinois, Scott, Foresman and Company.

Dewhurst, H., and R. Thomas (2003), "Encouraging Sustainable Business Practices in a Non-regulatory Environment: A Case Study of Small Tourism Firms in a UK National Park", *Journal of Sustainable Tourism*, vol. 11, nᵒ 5, p. 383-403.

Dey, E.L. (1997), "Working with Low Survey Response Rates: The Efficacy of Weighting Adjustment", *Research in Higher Education*, vol. 38, nᵒ 2, p. 215-227.

Downs, G.W., and L.B. Mohr (1976), "Conceptual Issues in the Study of Innovations", *Administrative Science Quarterly*, vol. 21, p. 700-714.

Enz, C.A., and J.A. Siguaw (1999), "Best Hotel Environmental Practices", *Cornell Hotel and Restaurant Administration Quarterly*, vol. 40, nᵒ 5, p. 72.

Gee, C.Y., J. Makens, and D.J. Choy (1989), *The Travel Industry*, New York, Van Nostrand Reinhold.

Haley, U.C.V., and G.T. Haley (1997), "When the Tourists Flew in: Strategic Implications of Foreign Direct Investment in Vietnam's Tourism Industry", *Management Decision*, vol. 355, nᵒ 8, p. 595-604.

Horobin, H., and J. Long (1996), "Sustainable Tourism: The Role of Small Firm", *International Journal of Contemporary Hospitality Management*, vol. 8, nᵒ 5, p. 15-19.

Hurley, R.F., and G.T.M. Hult (1998), "Innovation, Market Orientation, and Organizational Learning: An Integration and Empirical Examination", *Journal of Marketing*, vol. 62, p. 42-54.

Jaworski, B., and A. Kohli (1993), "Market Orientation: Antecedents and Consequences", *Journal of Marketing*, vol. 57, p. 53-70.

Karagozoglu, N., and M. Lindell (2000), "Environmental Management: Testing the Win-Win Model", *Journal of Environment Planning and Management*, vol. 43, nᵒ 6, p. 817-829.

Kocis, S.M. (1986), "The Adoption and Diffusion Methods for Estimating Recreation Use in the Pacific Northwest Region of the U.S. Forest Service", Unpublished Master's Thesis, University of Idaho, Moscow.

Kotler, P., B. John, and J.C. Makens (2003) (3ʳᵈ ed.), *Marketing for Hospitality and Tourism*, Upper Saddle River, New Jersey, Prentice Hall.

Lele, S.M. (1991), "Sustainable Development: A Critical Review", *World Development*, vol. 19, nᵒ 6, p. 607-621.

Liu, Z. (2003), "Sustainable Tourism Development: A Critique", *Journal of Sustainable Tourism*, vol. 11, nᵒ 6, p. 459-475.

Lundberg, D.E. (1990) (6ᵗʰ ed.), *The Tourist Business*, New York, Van Nostrand Reinhold.

Marris, G., A. Allcock, and K. Sipaseuth (2003), "Managing Tourism in the Protected Areas of the Lower Mekong Region", *Parks – Protected Areas as Engines for Development*, vol. 13, nᵒ 3, p. 23-35.

Martinez-Ros, E., and J.M. Labeaga (2002), "The Relationship Between Firm Size and Innovation Activity: a Double Decision Approach and an Application to Spanish Manufacturing Firms", *Economic Innovation New Technology*, vol. 11, nᵒ 1, p. 35-50.

Martins, C.B.M.J., A.V. Steil, and J.L. Todesco (2004), "Factors Influencing the Adoption of the Internet as a Teaching Tool at Foreign Language School", *Computers and Education*, vol. 42, p. 353-374.

McCabe, D. (1987), "Buying Group Structure: Constriction at the Top", *Journal of Marketing*, vol. 51, p. 89-98.

Milburn, N., L.E. Gary, J.A. Booth, and D. Brown (1991), "Conducting Epidemiological Research in a Minority Community", *Journal of Community Psychology*, vol. 21, nᵒ 6, p. 747-773.

Miles, R.E., and C.C. Snow (1978), *Organizational Strategy Structure, and Process*, New York, McGraw-Hill Book Company.

Mowforth, M., and I. Munt (1998), *Tourism and Sustainability: New Tourism in the Third World*, New York, Routledge.

Nature and Ecotourism Accreditation Program (2003), *Ecotourism Australia*, [http://www.ecotourism.org.au], consulted Jan. 10.

Nunnally, J.C. (1978), *Psychometric Theory*, New York, McGraw-Hill.

Ozsomer, A., R.J. Calantone, and A.D. Benedetto (1997), "What Makes Firms More Innovative? A Look at Organizational and Environmental Factors", *Journal of Business and Industrial Marketing*, vol. 12, nᵒ 6, p. 400-416.

Rangel, J.R. (2000), *Does It Pay To Be Green In The Developing World? Participation in Costa Rican Voluntary environmental program and its impact on hotels' competitive advantage*, Unpublished Doctoral Dissertation, Duke University.

Rivera, J. (2002), "Assessing a Voluntary Environmental Initiative in the Developing World: The Costa Rican Certification for Sustainable Tourism", *Political Science*, vol. 35, nᵒ 4, p. 333.

Rivera, J. (2004), "Institutional Pressures and Voluntary Environmental Behavior in Developing Countries: Evidence From the Costa Rican Hotel Industry", *Society and Natural Resources*, vol. 17, p. 779-797.

Rogers, E.M. (1995) (4ᵗʰ ed.), *Diffusion of Innovations*, New York, Free Press.

Rogers, E.M. (2003) (5ᵗʰ ed.), *Diffusion of Innovations*, New York, Free Press.

Rogers, E.M. (2004), "A Prospective and Retrospective Look at the Diffusion Model", *Journal of Health Communication*, vol. 9, p. 13-19.

Salant, P., and D.A. Dillman (1994), *How to Conduct Your Own Survey*, U.S., John Wiley and Sons, Inc.

Sasao, T. (1994), "Using Surname-based Telephone Survey Methodology in Asian-American Communities: Practical Issues and Caveats", *Journal of Community Psychology*, vol. 22, p. 283-295.

Sheaffer, R.L., W. Mendenhall, and R.L. Ott (1996) (5ᵗʰ ed.), *Elementary Survey Sampling*, Belmont, Duxbury Press.

Soderbaum, P. (2000), "Business Companies, Institutional Change and Ecological Sustainability", *Journal of Economic Issues*, vol. XXXIV, nᵒ 2, p. 435- 443.

Spector, P.E. (1992), *Summated Rating Scale Construction*, vol. 82, Newbury Park, Sage Publications, Inc.

SRV (Socialist Republic of Vietnam): *Party Congress Socioeconomic Report – Report on Socioeconomic Development Orientations and Tasks for the Five-year 1996-2000 Period. (1996, July 1, 1996)*, Paper presented at the 8ᵗʰ National Party Congress of The Communist Party, Hanoi, Vietnam.

Stoop, I.A.L. (2004), "Surveying Nonrespondents", *Field Methods*, vol. 16, nᵒ 1, p. 23.

Vazques, R., M.L. Santos, and L.I. Alvarez (2001), "Market Orientation, Innovation and Competitive Strategies in Industrial Firms", *Journal of Strategic Marketing*, vol. 9, p. 69-90.

Vincent, V., and G.D.I. Santos (1996), "Improving Tourism Survey Response Rate", *Annals of Tourism Research*, vol. 23, nᵒ 4, p. 939-940.

VNAT, Tourism Statistics. Vietnam National Administration of Tourism, [http://www.vietnamtourism.gov.vn], consulted July 2004.

Von Krogh, G., and J. Roos (1995), "A Perspective on Knowledge, Competence and Strategy", *Personnel Review*, vol. 24, nᵒ 3, p. 56-76.

Wejnert, B. (2002), "Integrating Models of Diffusion of Innovations: A Conceptual Framework", *Annual Review Sociology*, vol. 28, p. 297-326.

Wolfe, R.A. (1994), "Organizational Innovation Review, Critique and Suggested Research Directions", *Journal of Management Studies*, vol. 31, nᵒ 3, p. 405-431.