

PREDICTORS OF SUSTAINABLE TOURISM: RESIDENT PERCEPTIONS OF TOURISM IN HOLLAND AND CHINA

Stuart Cottrell, Ph.D.
Department of Natural Resource Recreation and Tourism
Colorado State University, 1480 Campus Delivery
Fort Collins, CO 80523,
Cottrell@cnr.colostate.edu

Jerry J. Vaske, Ph.D.
Colorado State University

Fujun Shen, Lecturer
College of Forestry and Horticulture, Henan Agricultural University, China

Abstract

Construct validity of four dimensions of sustainability on local residents' satisfaction with tourism is examined. Data came from communities bordering Hoge Veluwe National Park (HVNP) in Holland (n=142) and Chongdugou Village in China (n=400). As suggested by prior research, we hypothesized that economic, socio-cultural, ecological, and institutional dimensions of sustainable tourism would influence resident satisfaction with tourism. Dimensions were based on three to six survey items with reliability coefficients ranging from 0.55 to 0.75. Perceived satisfaction, a dichotomous variable, measured resident satisfaction with tourism in their area. From a logistic regression, two dimensions were statistically significant for HVNP and all four for Chongdugou. The HVNP model correctly classified 81 percent of respondents and 70 percent for Chongdugou. The socio-cultural component was the strongest predictor for HVNP and the institutional for Chongdugou. The results supported the hypotheses that the four dimensions can contribute to resident satisfaction with sustainable tourism, however, the relative contribution of each varies depending on the site context. We argue for improving the measurement of sustainable tourism indicators and the developing standards associated with each indicator.

1.0 Introduction

"Sustainable development meets the needs of the present without compromising the ability of future generations

to meet their own needs" (WCED 1987). Sustainable tourism can play an important role in community development, especially in areas abundant in natural capital, yet lacking financial resources or ability to pursue other avenues of growth. Any tourism promotional effort, however, can have positive and negative *ecological*, *economic*, and *socio-cultural* consequences. Achieving a balance among these three classic dimensions of sustainable tourism is difficult to realize, however, without an *institutional* perspective to manage, mediate and facilitate growth (Eden, Falkheden & Malbert 2000; Spangenberg 2002; Spangenberg & Valentin 1999). This fourth institutional dimension emphasizes participatory decision-making processes such as public participation and involvement. The German Wuppertal Institute combined these four dimensions into a single framework called the "prism of sustainability (Figure 1) with clearly defined links among the dimensions (Spangenberg & Valentin 1999). This study examined the construct validity of these four indicators of sustainability on local residents' satisfaction with tourism in communities bordering Hoge Veluwe National Park in Holland and Chongdugou Village in China.

The *ecological dimension* emphasizes the need to reduce pressure on the physical environment. The environment is considered the sum of all bio-geological processes and their elements. The *economic dimension* considers human needs for material welfare (e.g., employment) in

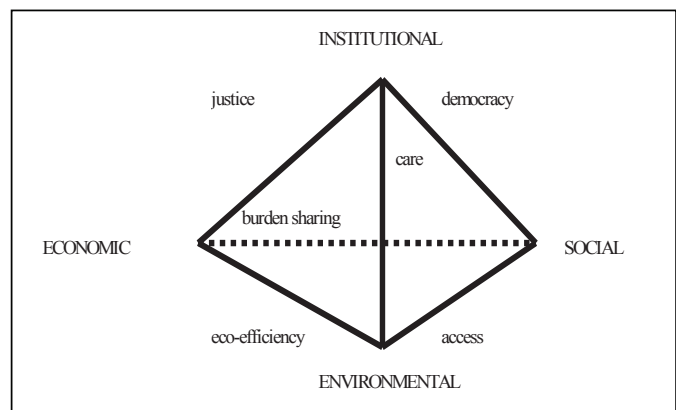


Figure 1.—Prism of sustainability (adapted from Spangenberg & Valentin 1999)

a framework that is competitive and stable at the macro-economic scale. An economic system is environmentally sustainable only as long as the amount of resources utilized to generate welfare is restricted to a size and quality that does not deplete its sources for future use. The *social dimension* refers to individuals' skills, dedication, experiences and resulting behavior. Societal interaction and associated social norms are necessary preconditions for economic activities (Spangenberg 2002). Institutions represent organizations within a system of rules governing interaction among members. The *institutional dimension* calls for strengthening people's participation in political governance. As acceptance of and identification with political decisions become broader, public participation is strengthened. Valentine and Spangenberg (2000) imply that the four dimensions can be linked to indicators for local communities to monitor and evaluate sustainable development.

1.1 Indicators of sustainable tourism

Agenda 21, the document outlining principles for sustainable development adopted during the 1992 'Earth Summit' in Rio de Janeiro (Twining-Ward & Butler 2002), called for coordinated efforts to develop sustainable development indicators at local, regional, national, and global levels. In response, the United Nations Commission on Sustainable Development (CSD) launched a program to develop indicators of sustainable development in 1995. Five years later, highly aggregated indicators were completed and applied in many countries. These indicators, however, primarily concentrated on regional, national, and global levels and focused on the physical environment. The World Tourism Organization (WTO in Dymond 1997), for example, identified 11 core indicators for sustainable tourism categorized as ecological, social, economic and planning. Nine of the 11 were physical indicators (e.g., site protection, development control, waste management planning process). Only two core indicators were psychological (e.g., local satisfaction with tourism) (Dymond 1997).

Although the WTO effort provided a useful starting point, it failed to justify the choice of indicators, lacked clear stakeholder participation, did not consider

local level indicators, and did not offer a monitoring framework for translating indicator information into management action (Twining-Ward & Butler 2002). In response, research has focused on developing practical sustainable tourism indicators, emphasizing the importance of local community involvement during sustainable indicator creation (Sirakaya, Jamal & Choi 2001; Spangenberg 2002; Valentin & Spangenberg 2000). Yuan, James, Hodgson, Hutchinson, and Shi (2003), for example, examined local indicator development in a case study of Chongming County, Shanghai, China. Similar work has been conducted by others (Dymond 1997; Hughes 2002; Innes & Booher 2000; Miller 2001). Not all indicators, however, are relevant to every community (Valentin & Spangenberg 2000). Each community should develop an individual set of indicators within a common structure (Spangenberg 2002).

This approach (common structure, different indicators) allows for community comparisons without ignoring their specific needs and situations. If the four dimensions of sustainable tourism (ecological, economic, socio-cultural, and institutional) are generalizable as suggested by prior research (Berg, Bree, & Cottrell 2004; Cutumisu 2003; Coccossis et al. 2001; Cottrell, Berg, & Bree, 2004; Spangenberg 2002; Spangenberg, & Valentin 1999), all four predictors should influence local residents' satisfaction with tourism. This paper examined the relative contribution of the four indicators to explaining satisfaction with tourism development in two study locations (i.e., a Dutch National Park and a Chinese tourism village).

1.2 Study Settings

The Hoge Veluwe National Park (HVNP), established in 1935, is one of the largest national parks (5500 hectares) in the Netherlands. The area was fenced in the early 1900s to serve as a hunting area with animals brought from abroad. The Hoge Veluwe remained a family estate of Kröller-Müller's until 1935 when they donated their land to the Dutch government as a national foundation due to financial problems. The founding philosophy and principles of Kröller-Müller, however, remained to preserve the park as a nature reserve combining art and culture with nature. The Kröller-Müller Art Museum and

Sculpture Garden located in the center of the park houses fine works of art attracting international tourists while the park itself attracts mostly Dutch visitors. Visitors must enter the park to access the art museum. There are three entrances to the park, each adjacent to a small village representing three sample sites for the HVNP study.

Chongdugou is a small mountain village in the Henan province, China, located in the confluence of two rivers and the Shuilian palace historical site. Chongdugou village includes four sub-villages (Chongdujie, Xigou, Nangou and Xiagou) with 340 families (1300 residents). Local people have traditionally relied on mining, bamboo and timber harvest, each of which contributed to environmental degradation. In 1996, the local government began developing Chongdugou tourism as an economic alternative. Local residents turned spare rooms into guest rooms for home stays. A local government sponsored tourism company manages the Chongdugou happy-in-farmhouse tourism project characterized by experiencing life on the farm. After four years of development, residents participating in the project have had substantial increases in yearly income (Yuan et al. 2003).

2.0 Purpose

This study examined the construct validity of the four sustainability indicators on local residents' satisfaction with tourism in their location. The following empirical questions were examined:

1. What is the relationship between the four dimensions of sustainable tourism (economical, socio-cultural, ecological, and institutional) and resident satisfaction with tourism development?
2. Which sustainability dimension is the strongest predictor of resident satisfaction with tourism development?

The prism of sustainability provided the framework for comparing the settings (Berg & Bree 2003; Berg et al. 2004). Given the inherent cultural differences between the two study locations, the indicators of sustainable tourism were adapted to each study context.

If the constructs are valid, each of the four dimensions of sustainability should influence resident satisfaction with tourism. The following conceptual question was examined.

3. To what extent is the prism of sustainability a useful framework for monitoring sustainable tourism development?

3.0 Methods

Data were obtained from on-site surveys at three communities bordering Hoge Veluwe National Park in Holland ($n = 142$) and four communities of Chongdugou Village, an agri-tourism destination in China ($n = 400$). For HVNP, the study population included local people 16 years or older in the villages of Hoenderloo ($N = 1400$), Otterloo ($N = 2360$), and Schaarsbergen ($N = 864$). Interviewer completed surveys were conducted in shops and bakeries during June 2003. There were 142 respondents (response rate = 46%). For Chongdugou Village, multi-stage random sampling was used to proportionately represent households in the four sub-villages (Fujun, 2004): Chongdujie ($N = 492$, $n = 156$), Xigou ($N = 450$, $n = 143$), Nangou ($N = 200$, $n = 63$) and Xiagou ($N = 121$, $n = 38$).

3.1 Variables measured

Drawn from previous research (Ankersmid & Kelder 2000; Cottrell & Duim 2003; Dymond 1997), four to eight items were used per study to measure each dimension of sustainable tourism. Perceived satisfaction was operationalized as a single dichotomous variable that asked respondents to indicate whether or not they were satisfied with tourism in their area.

4.0 Results

For HVNP, Cronbach reliability alphas were 0.56 for a three-item institutional dimension, .65 for a three-item economic, 0.71 for a four-item ecological, and 0.75 for a six-item socio-cultural dimension (Table 1). For Chongdugou Village, alpha scores were 0.53 for the three-item ecological dimension, 0.59 for a four-item institutional, 0.64 for a three-item socio-cultural, and 0.70 for a five-item economic dimension. An additive index of was computed as the mean of items per dimension.

Table 1.—Scale items for dimensions of sustainable tourism (Hoge Veluwe NP and Chongdugou China)

	Hoge Veluwe ^a NP (n=142)		Chongdugou ^a China (n=400)	
Dimensions of Sustainable Tourism	α	Mean	α	Mean
Institutional Dimension	.555	2.53	.588	2.76
Local inhabitants have influence on decision making process		2.2		---
Tourism contributes to better waste management of the region		2.5		---
There is good communication among parties involved in policy and decision making process		2.8		2.8
Participation is encouraged by local authorities.		---		2.7
Feel I can access decision-making process to influence tourism development in the district.		---		2.3
Long-term planning by regional authorities can control negative impacts of tourism				3.2
Ecological Dimension	.712	3.37	.553	2.84
Tourists cause pollution of environment (water, soil and air)*		2.9		2.8
The number of visitors results in disturbance of plants and animals*		3.3		2.9
Increasing exhaustion of water and energy resources was caused by tourist activities*		3.8		2.9
Tourism does not lead to the extinction of species in the region		3.5		---
Economic Dimension	.652	3.86	.704	3.71
Tourism brings more income to the local communities		4.0		---
Tourism increases the consumption of local products		3.6		---
Tourism creates job opportunities for local people		3.9		3.6
Tourism has resulted in local economic diversification		---		3.8
Products and services are better available generally since the development of tourism.		---		3.9
Region has better infrastructure (roads, electricity, water, public transport) due to tourism.		---		4.1
I have more education opportunities (vocational training) due to tourism development		---		3.2
Socio-cultural Dimension	.755	3.32	.644	3.34
There are too many tourists coming to the region*		3.2		---
Tourism development causes a change of local lifestyle and traditional habits*		3.0		---
Tourists annoy me*		3.9		---
Visitors to NP cause too much noise*		3.8		---
Changes in local lifestyles from tourism is positive		2.9		---
Tourism has increased the level of criminality, alcoholism, vandalism etc*		3.2		3.6
Tourism negatively influences norms and values in our area.*		---		3.2
Local traditions became less important because of tourism.*		---		3.3

Items measured on 5 point Likert agreement scale

*Items recoded to positive direction

^aDimensional scale means in bold/italic α Cronbach's Alpha Reliability

We conducted an independent sample t-test to examine differences between each dimensional index and study location (Table 2). Scores for the institutional dimension were statistically higher ($t = 3.27, p < .001$) for Chongdugou ($M = 2.8$) than the Hoge Veluwe NP ($M = 2.5$). Scores for both locations, however, indicated a general dissatisfaction with respondents' ability to participate in decision-making concerning tourism. Resident scores for the ecological dimension were higher ($t = 6.75, p < .001$) and positive for HVNP ($M = 3.5$) versus Chongdugou ($M = 2.8$). The Dutch residents did not view tourism to the HVNP as a threat to the environment while the Chongdugou village residents viewed tourism development negatively. Mean scores for the economical dimension were relatively positive for each location, however, higher for HVNP ($M = 3.9$) than Chongdugou ($M = 3.7$) ($t = 2.57, p < .01$). Residents from both locations believed tourism offered economic benefit. There were no differences ($t = .16, p < .87$) for the socio-cultural dimension; mean scores were the same ($M = 3.3$) and slightly positive with regard to the socio-cultural aspects of sustainable development.

A greater percentage of the Dutch residents (79%) than the Chongdugou Village residents (37%) were satisfied with tourism (Table 3). For HVNP, a majority of local residents (79%) were not directly involved with tourism for their livelihood; 21% of respondents were restaurant/hotel owners. Residents of the four sub-villages of Chongdugou all live within the boundaries of the agri-tourism project destination. Their daily lives are more directly influenced by tourism than residents near HVNP.

A logistic regression was conducted to determine the construct validity of each dimension to resident satisfaction. The logistic regression for Chongdugou Village correctly classified 70 percent of the responses (68% - No, 73% - Yes, Table 4). The model for Hoge Veluwe correctly classified 81% of the respondents (79% - No, 82% - Yes).

Table 2.—Mean comparisons between Hoge Veluwe NP and Chongdugou Village on each dimension of tourism sustainability

Dimensions	Hoge Veluwe Chongdugou		<i>t</i> -value	<i>p</i> -value
	NP ^a	Village ^a		
Institutional	2.5	2.8	3.27	.001
Ecological	3.5	2.8	-6.75	.001
Economical	3.9	3.7	-2.57	.01
Socio-cultural	3.3	3.3	.16	.87

^aCell entries are means. Original variables coded on 5-point scales ranging from "strongly disagree" (1) to "strongly agree" (5).

Table 3.—Satisfaction with tourism

Satisfaction	Hoge Veluwe NP		Chongdugou Village	
	Frequency	Percent	Frequency	Percent
No	27	21	192	63
Yes	102	79	112	37
Total	129	100	301	100

Table 4.—Classification table—prediction of resident satisfaction with tourism

Satisfaction with Tourism	Study Location	
	Hoge Veluwe NP	Chongdugou Village
	% Correct	% Correct
No	78	68
Yes	82	73
Overall	81	70
Nagelkerke R^2	.55	.30

Two dimensions were statistically significant for the Hoge Veluwe NP (Nagelkerke $R^2 = .55$) and all four dimensions for Chongdugou Village (Nagelkerke $R^2 = .30$) (Table 5). For HVNP, the socio-cultural ($\text{Exp}B = 5.76$) component was the strongest predictor followed by the institutional ($\text{Exp}B = 3.34$). For the Chongdugou Village, the institutional ($\text{Exp}B = 3.17$) index was the strongest predictor followed by the economic ($\text{Exp}B = 2.38$), ecological ($\text{Exp}B = 1.73$), and socio-cultural ($\text{Exp}B = .519$) dimensions.

Table 5.—Predictors of resident satisfaction with sustainable tourism

Dimensions	B	S.E.	Wald	df	Exp(B)	p-value
<i>Chongdugou China</i>						
Institutional	1.15	0.21	30.18	1	3.17	<.001
Ecological	0.55	0.18	9.04	1	1.73	<.003
Economical	0.87	0.25	12.24	1	2.38	<.001
Socio-cultural	-0.66	0.18	13.40	1	0.52	<.001
<i>Constant</i>	-6.45	1.21	28.16	1		<.001
<i>Hoge Veluwe NP</i>						
Institutional	1.20	0.57	4.50	1	3.34	<.034
Ecological	0.87	0.58	2.27	1	2.39	<.132
Economical	0.46	0.49	0.90	1	1.59	<.342
Socio-cultural	1.75	0.56	9.89	1	5.76	<.002
<i>Constant</i>	-11.54	2.75	17.57	1		<.001

5.0 Conclusions

Taken together, our findings support the hypothesis that all four dimensions *can* contribute to resident satisfaction with sustainable tourism as found for Chongdugou Village. As suspected, the relative contribution of each component varied depending on the situational specifics. The two study sites (Holland vs. China) represent distinctly different cultural environments. The institutional dimension was the strongest predictor of tourism satisfaction in the Chongdugou study, while the socio-cultural concept was the strongest at Hoge Veluwe. Examining the predictive contribution of each dimension at a tourism destination highlights which dimension has the greatest influence on resident attitudes about tourism development.

From a theoretical perspective this study shows the importance of the institutional dimension versus the usual focus on the economic, ecological and social dimensions; thereby supporting Eden et al.'s, (2000) claim. Results clearly show that local resident ratings of their satisfaction with tourism depend on the institutional dimension, especially for the Chongdugou study. In this context (the importance of the institutional dimension), this study builds on Cutumisu's (2003) research arguing that sustainable tourism indicators

depend on the specific social and institutional context of each study location. While encouraging, our findings point to the need for (1) refining the items used to measure institutional support; and (2) developing a more sophisticated set of indicators for resident satisfaction with sustainable tourism. Items for the institutional dimension were primarily participation in decision making measures. The institutional dimension encompasses several sub-dimensions: access to decision making, communication processes, politics, and democracy (Cutumisu 2003; Spangenberg 2002; Valentin & Spangenberg 2000). Further research is necessary to clarify an appropriate array of institutional indicators beyond our investigation. In addition, resident satisfaction with tourism was limited to a yes-no response. More precise levels of measurement are necessary to identify underlying aspects of satisfaction with tourism. Following the development of a valid and reliable set of sustainable tourism indicators, it is equally necessary to develop standards for each indicator. For example, what percent of local residents need to be satisfied with each dimension to claim that sustainable tourism has made a positive contribution to society? Development of indicator specific standards is only possible with continued monitoring of tourism development.

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