



Impacts of Sustainable Tourism

Best Management Practices in Sarapiquí, Costa Rica





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Executive Summary

The certification of tourism operations to established sustainability standards has emerged as an important way for hotels, tour boats and other tourism operators to demonstrate that their practices help the environment and ensure the well-being of staff and local communities. To assist tourism operations in meeting certification standards, the Rainforest Alliance created the sustainable tourism Best Management Practices (BMP) program, which provides tourism operations with dynamic workshops and seminars, training materials, technical assistance and diagnostic evaluations. These diagnostic visits are aimed at identifying areas where an operation is not in compliance with the 'baseline criteria,' a generic set of sustainable tourism practices created using the requirements of several national-level certification programs. The baseline criteria include environmental aspects such as wastewater treatment and protection of endangered wildlife species, social aspects such as worker safety and interactions with local communities, and economic aspects such as profitability and quality.

At five hotels in the Sarapiquí region of northern Costa Rica, the Rainforest Alliance's assessors measured compliance with sustainable tourism baseline criteria before implementing BMP program activities and again 18 months after to

determine whether hotels participating in the BMP program were making significant changes to their practices. A Rainforest Alliance assessor also conducted interviews with owners and/or managers of the five hotels to supplement the quantitative analysis with a richer and more nuanced understanding of the BMP program's costs, impacts and limitations.

We found that:

- On a scale of 1 to 10, with 1 being non-compliance and 10 being full compliance, overall hotel performance increased from an average of 4.5 before BMPs training and technical assistance, to 7.8 after training and technical assistance.



- Areas with the highest levels of improvement were 'Sociocultural Activities,' 'Monitoring and Corrective Action' and 'Solid Waste.' Areas with the fewest improvement were 'Laws and Regulations,' 'Advertising Materials,' and 'Suppliers.'
- For the criteria related to 'Sociocultural and Community Aspects,' the average hotel score increased from 4.7 to 8.6. Examples of changes made by hotels while implementing the BMPs include:
 - Teaching local schoolchildren and teachers composting techniques and purchasing the resulting compost.
 - Training local youth in hotel management and offering them jobs when they complete school.
 - Sponsoring a community fair that allows local businesses and artisans to sell their products and interact with visitors and hotel staff.



- For criteria related to 'Solid Waste,' the average hotel score increased from 3.7 to 9.0. Examples of changes made by hotels while implementing the BMPs include:

- Creating a recycling program, with recycling containers distributed throughout hotel grounds and regular pick-up of recyclable items by a local business for resale.
- Changing to a milk supplier that can recycle empty tetrapak packaging.
- Converting from disposable batteries to rechargeable ones.

- For the criteria related to 'Energy Use,' the average hotel score increased from 4.5 to 8.0. Examples of changes made by hotels while implementing the BMPs include:

- Converting from incandescent light bulbs to energy-efficient fluorescent ones,
- Maximizing natural light by installing skylights in guest rooms and painting walls light colors,
- Installing an anaerobic digester to convert hotel sewage and gray waters to electricity, which is then used to power clothes dryers.
- Relocating the hotel's water tank to the top of a hill to eliminate the need for an electric pump.



- For the criteria related to 'Water and Contamination' the average hotel score increased from 3.6 to 6.5. Examples of changes made by hotels while implementing the BMPs include:

- Installing a water-dosing system in the laundry room and water-measuring gauges at the entrances of different sections of lodge.
- Encouraging guests to reuse towels, reducing the amount of water needed for laundry.
- Converting from non-biodegradable, high-perfume soaps and detergents to biodegradable, non-scented ones.

- For the criteria related to 'Environmental Education,' the average hotel score increased from 3.5 to 8.5. Examples of changes made by hotels while implementing the BMPs include:

- Creating decorative books for guest rooms that provide guidance on appropriate behavior in natural areas, water conservation measures, rules about flora and fauna extraction, and other BMP-related information.
 - Installing labels around the hotel grounds describing the ecology of edible plants, recipes made from them, and information on related indigenous traditions.
 - Training staff not only on practical conservation measures but also on the ecological and social rationale behind them.
 - For the criteria related to 'Monitoring and Corrective Action,' the average hotel score increased from 1.8 to 7.4. Examples of changes made by hotels while implementing the BMPs include:
 - Installing measuring gauges at wells and other water sources to determine water consumption.
 - Creating written policies, registers and documentation relating to all aspects of hotel management and organization.
 - The financial costs and benefits of BMP implementation are not yet clear. The primary expenses faced by hoteliers were infrastructure (e.g. solar panels), recycling containers, fluorescent light bulbs, soaps and detergents, and informational books and labels. Compensating staff for time spent in training and implementation efforts was an important indirect cost of BMPs.
 - Financial savings observed or expected due to BMP implementation include reduced electricity bills, income from the sale of recyclable materials, and reduced purchases of cleaning products and batteries. When discussing motivations for BMP implementation, hoteliers generally appear to be motivated by the program's environmental and social benefits and not financial ones.
 - Hotels reported that one of the most difficult aspects of BMP implementation was simply taking the first step. No single aspect of the BMPs appeared to be especially difficult to implement. Interestingly, many hotels reported that breaking longstanding habits and beliefs (e.g. the belief that bathrooms cannot be effectively cleaned without chlorine soaps) was difficult for many staff.
 - Hotels appear to be extremely satisfied with their experience in the BMP program, and the interactions with Rainforest Alliance staff and assessors. On a regional level, participation in the BMP program by members of La Cámara de Turismo de Sarapiquí (in English, The Sustainable Tourism Association of Sarapiquí) was an important part of the Association's successful strategy to establish itself as a premier global sustainable tourism destination.
- Our results indicate that training and technical assistance on sustainable tourism BMPs can dramatically improve the level of hotel compliance with sustainability criteria. Whether or not hotels go on to pursue certification with a national-level program, the BMP program is having a positive impact on the way hotels interact with their guests, local communities and the environment.





Introduction

The tourism industry is growing steadily, from 25 million travellers in 1950 to 760 million in 2004, with projections of 1.56 billion by the year 2020¹. Sustainable tourism, defined as responsible travel that conserves the environment and improves the welfare of local people², is growing at a rate three times faster than the tourism industry as a whole³. Because sustainable tourism destinations are typically areas of high biodiversity and cultural significance, hotels' impacts in these regions can be especially destructive.

The certification of tourism operations to sustainability standards has emerged as a way to help mitigate these impacts. Sustainable certification programs develop standards that cover all aspects of a tourism business, covering environmental aspects such as wastewater treatment and the protection of endangered wildlife species, social aspects such as worker safety and interactions with local communities, and economic aspects such as profitability and quality. Candidate tourism operations are independently audited to ensure that their practices meet these standards. Once compliance is confirmed, tourism operations can use the certification

program logo on their advertising materials, and tourists can support conservation by seeking out these operations.

By 2002, 70 tourism certification systems had emerged all over the world. In an effort to encourage dialogue and provide a clearinghouse for certification information and tools, 12 systems in the Americas joined together in 2003 under the umbrella of the Sustainable Tourism Certification Network of the Americas. To date, nearly 220 hotels, tour boats and other tourism operators have been certified by Network members. Since the Network's inception, the Rainforest Alliance's sustainable tourism program has served as secretariat, using training and technical assistance to strengthen member certification programs' administrative capacity, financial systems and marketing efforts.

In an effort to identify commonalities among national-level certification standards and ease communication among programs, in 2003 the Rainforest Alliance spearheaded an effort to create a set of 'baseline criteria' that would reflect the standards of all programs within

1 TIES Ecotourism Fact Sheet – Global. www.ecotourism.org

2 Ibid

3 Ibid

the Network. Working with standards from Costa Rica, Ecuador, Brazil, the United States and Guatemala, along with the Green Globe International Standard, a core team of representatives from the Rainforest Alliance and other Network members developed a database to systematically categorize the different standards. Based on this information, the team created a first draft of the baseline criteria. This draft was revised twice based on feedback from Network members; the third and current draft of the baseline criteria was completed and approved by Network members in 2006.

In 2003 the Rainforest Alliance also initiated its Sustainable Tourism Best Management Practices (BMP) program, which was designed to provide hotels with practical solutions and actions to help them meet the standards of their respective national certification programs. Designed with the baseline criteria in mind, the BMP program provides interested hotels with 1) training materials and services that provide background information and practical suggestions for improving sustainability in all areas covered by the baseline criteria, including workshops on topics such as designing a hotel-specific BMP program, an introduction to clean technologies or green marketing, and 2) technical assistance with co-financing from the Multilateral Investment Fund of the Inter-American Development Bank. Part of this technical assistance involves diagnostic visits in which Rainforest Alliance assessors measure hotel performance against the baseline criteria before BMPs are implemented, as a way of identifying areas requiring improvement. After the diagnostic visits, Rainforest Alliance assessors

work with hotels to create and implement a sustainable BMP plan that focuses on areas identified during the diagnostic as requiring the most improvement.

Approximately one year after the BMP program was launched, the Rainforest Alliance began revisiting the participant hotels and conducting a second set of diagnostic visits. During these visits, assessors re-measured performance using the same set of indicators that had been examined before participation in the BMP program. Comparing the two sets of performance scores – one before BMP training and technical assistance, and the other after – allows us to better understand how the sustainable tourism BMPs affect hotel workers, local communities and the ecosystems around hotels.

The 'before' and 'after' performance of five hotels in the Sarapiquí region of Costa Rica is the subject of this report. A well-known sustainable tourism destination, Sarapiquí is located near the Atlantic Ocean in a forested region that buffers the Braulio Carrillo National Park and the Barra del Colorado Wildlife Refuge. This area has a long history of efforts to balance resource exploitation with conservation activities: rampant deforestation and cattle farms characterized the region





20 to 30 years ago; over the past decade the area has been transformed, and many of its remaining biodiversity-rich forests have been converted to private forest reserves while many farmers are offering nature-based activities for tourists.

This transformation to one of the premier international sustainable tourism destinations was the result of a strong cooperative effort by hoteliers in the region, who joined together under La Cámara de Turismo de Sarapiquí, or the Sustainable Tourism Association of Sarapiquí. As part of its successful

strategy to differentiate itself from other tourism regions and better access national and international markets, association members made strong efforts to implement sustainable tourism BMPs.

Given the importance of sustainable tourism in Sarapiquí, and the significant efforts put into sustainable tourism BMPs training and technical assistance by the Rainforest Alliance, we asked the follow research questions:

1. Does the environmental and social performance of hotels change after the implementation of the Rainforest Alliance's sustainable tourism BMPs?
2. What are the economic costs and benefits of implementing the BMPs?
3. Do hotel owners and managers feel the BMP implementation process was worthwhile?

In this study, we answer these questions using both quantitative and qualitative methods. We compare hotels' level of compliance with the sustainable tourism baseline criteria before and after implementation of the sustainable tourism BMPs, to quantitatively measuring improvement. We complement this data with a series of in-person interviews with hoteliers, done to gain a richer and more nuanced understanding of the changes each hotel made to implement the BMPs, to learn about the financial implications of BMPs, and to determine the hoteliers' overall satisfaction with the BMP process.





Methods



The five hotels included in this study are located in the Sarapiquí region of Costa Rica. They are Ara Ambigua, La Quinta Country Inn, the Organization for Tropical Studies – La Selva, Pozo Azul and Selva Verde. These five hotels were part of a larger project funded by the Multilateral Investment Fund of the Inter-American Development Bank, Global Environmental Fund, Overbrook Foundation, Karstens Foundation, Citigroup, and Ford Foundation, among others. This project provided 263 small- and medium-sized hotels in Costa Rica, Guatemala, Belize and Ecuador with training and technical assistance on sustainable tourism BMPs. At the time this report was written, these five hotels were the first to have both sets of diagnostic visits completed and were therefore included in this analysis. The locations of the hotels are shown in the map to the right and hotel profiles can be found in the next section.

The study describes the changes in hotel performance using two different methods. The first method is a quantitative comparison of hotel performance before and after implementation of sustainable tourism BMPs, and the second is qualitative, using interviews with hotel owners and/or managers.



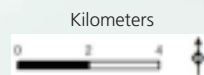
Lodges included in the Assessment of Tourism Best Management Practices

Legend:

- ★ Enterprises included in study
- Private Forest reserves
- Public protected areas/reserves
- Rivers
- Roads
- ▲ Communities

Private Reserves

- | | |
|------------------|------------------|
| 1 La Selva (OTS) | 9 Starke Forest |
| 2 Rojomaca | 10 Starke Forest |
| 3 Tres Rosales | 11 Tirimbina |
| 4 La Marta | 12 Tigre |
| 5 Gavilán | 13 Bijagual |
| 6 Selva Verde | 14 Selva Tica |
| 7 El Vejuco | 15 Rara Avis |
| 8 Selva Verde | |



Rainforest Alliance
Includes datasets from OTS.
1/May/2008



Component 1:

Measuring Hotel Performance Before and After BMP Implementation

Assessors measured hotel performance against 85 specific baseline criteria. Criteria were grouped under 20 broad principles, shown in Table 1. For a full list of the baseline criteria see Appendix A.

Table 1. List of 20 principles measured for each case study hotel, with an example of a baseline criterion from each.

PRINCIPLE	EXAMPLE OF BASELINE CRITERION
ENVIRONMENTAL	
Water	Steps have been taken to save water (fresh, irrigation, swimming pools) and use water more efficiently.
Energy Use	In areas with heating or air conditioning, measures have been adopted to minimize the loss of heat or cold.
Flora and Fauna	Endangered species and products grown or harvested unsustainably are not consumed, sold, displayed or exchanged.
Natural Areas	The company supports and participates in efforts to preserve and manage natural areas, both state- and privately-owned, within their region of influence.
Solid Waste	Waste is separated for recycling, reuse and adequate disposal.
Contamination	Water bodies are not polluted by toxic, dangerous or eutrophic substances.
Environmental Education	The company supports existing environmental education programs in the region or supports the creation of such programs if none exist.

PRINCIPLE	EXAMPLE OF BASELINE CRITERION
SOCIOCULTURAL	
Sociocultural Activities	The company supports cultural, sport and recreational activities in the neighboring communities.
Contribution to Local Development	The company encourages the production and purchase of handicrafts and other local products.
Respect for Local Cultures and Communities	The company takes concrete actions to promote a better understanding of and respect for indigenous cultures of and traditions.
ECONOMIC	
Policies and Planning	The company does not adopt or support any kind of sexual, social or racial discrimination.
Administration	Programs and mechanisms exist that encourage staff participation in company management and operation.
Laws and Regulations	The company complies with environmental laws, norms and regulations.
Quality	The size of visitor groups is appropriate and complies with regulations in the area being visited.
Advertising Materials	The company provides visitors with information on the history, culture and natural environment of its surroundings.
Worker Training	There are policies and concrete actions to train employees on the company's quality control systems and other operational aspects.
Design and Construction	The design and construction of company facilities respects the landscape and is of appropriate scale.
Health and Safety	The company has a contingency plan for health and safety emergencies.
Suppliers	The company favors suppliers or companies that are certified or employ good social and environmental practices.
Monitoring and Corrective Action	The company has a mechanism to receive evaluations, complaints and comments from its clients, and keeps a register of this feedback and of corrective actions taken.



On the initial visit in late 2005 and early 2006, independent assessors hired by the Rainforest Alliance measured each hotel's level of compliance (full, partial or non-compliance) with each of the 85 baseline criteria. This was done by giving hotels a numerical score of '0' for non-compliance with the indicator, '5' for partial compliance, and '10' for full compliance. Hotels were also given feedback on the results of their assessment and made aware of areas in which their compliance with the baseline criteria was weak. Assessors worked with hotels to provide training materials, technical assistance and workshops, with a focus on the specific areas needing most improvement.

Approximately eighteen months later, Rainforest Alliance assessors revisited the five hotels and again measured compliance with each of the 85 baseline criteria. The difference between the performance scores on the first and second visits represents changes that we attribute in large part to the implementation of sustainable tourism BMPs.

To determine differences in performance scores before and after BMP training and technical assistance, we first created a single before and after score for each hotel, created by averaging the scores hotels achieved for each of the 20 principles.⁴ To examine the performance of hotels as a group, we combined the scores of all five hotels and averaged their before and after performance scores by principle (e.g. we averaged all five hotels' before and after scores for 'worker training' or 'wastewater treatment').

4 Since the number of baseline criteria per principle varied greatly (ranging from 1 to 9), simply averaging the scores of all 85 baseline criteria would have given too much weight to those principles with a higher number of baseline criteria. To avoid this, we first calculated the score for each principle, and then averaged those scores.



Component 2:

In-Person Interviews

After the second set of data on performance indicators was collected, we conducted in-person interviews with hotel owners and/or managers at each hotel. Interviews were conducted by the second author in Spanish, following the interview protocol shown in Appendix B. The goal of these interviews was to supplement the 'before' and 'after' performance data with concrete examples and detail, to determine the costs and savings associated with BMP implementation, and to better understand the hoteliers' motivations and satisfaction with the BMP process.



Hotel Profiles

In this section we introduce the five hotels in the study, describing the history of each, how hoteliers became interested in sustainable tourism BMPs, and their motivations for participating in the Rainforest Alliance's BMP program.

Ara Ambigua

Ara Ambigua is a family-owned and run hotel close to the town of Puerto Viejo de Sarapiquí and surrounded by pastures with cattle, horses and goats, forest plantations and rainforest. The roots of the hotel run back fourteen years, when Lisbeth Corrales and her husband Delfín moved to the region and rented a small place where they sold fried chicken during the banana plantation fever. Soon they managed a restaurant, bought land and built a house, restaurant, cabins for guests, ponds for crocodile and frog watching, a swimming pool and a sauna. Their resort currently has 53 beds, but will nearly double capacity when their current expansion is completed.

Lisbeth first heard of the Rainforest Alliance and sustainable tourism BMPs at a Cámara de Turismo meeting at the Organization for Tropical Studies (OTS). Says Lisbeth, "We decided

to be part of the experience, believing that it would help our marketing and operation." Ara Ambigua does not yet include information on the BMPs in its marketing materials, but is eager to do so soon. Although they are still working to implement many aspects of the BMPs, the owners plan to apply for the 'Certification for Sustainable Tourism Program' (CST).



La Quinta Country Inn

La Quinta is a family owned and operated business with 31 cabins and 67 beds. When purchased by Beatriz Gamez and Leonardo Gómez in 1993, what is now a thriving and diverse ecosystem was a tract of overworked land with impoverished soils and a long history as pastureland, an oil palm plantation and an orange farm. Dedicated to conservation through reforestation, education and good practices, Beatriz and Leo worked slowly toward their vision, converting the degraded land into a secondary forest, vegetable garden, ponds, bungalows, restaurant, reading areas, educational trails and habitats to attract butterflies, frogs, birds and tourists.

La Quinta was one of the first hotels in Sarapiquí to pursue sustainability standards, having enrolled in the 'Certification for Sustainable Tourism Program' (CST) of the Costa Rica Tourism Institute in 1998. Later, the Rainforest Alliance approached La Quinta about its BMP program and provided training and technical assistance.

La Quinta's philosophy about Best Management Practices in relation to marketing and sustainability is different from that of many other resorts. In general, the owners are not expecting financial profits from BMP implementation, and are not doing it as a marketing tool aimed

at increasing the number of visitors. In fact, the guests that La Quinta targets are not 'eco-tourists' with a high awareness of sustainability issues. To the contrary, the owners would like to attract all kinds of tourists, the less educated in sustainability issues the better. They feel that they can make the biggest difference when these tourists learn about sustainability and go back home ready to talk about and apply the practices they have observed. La Quinta strives to build awareness in its staff and guests, and to be part of global change by taking local action.



Organization for Tropical Studies - La Selva

The Organization for Tropical Studies (OTS) is a nonprofit consortium that includes 63 universities and research institutions from the United States, Latin America and Australia. Its mission is to 'provide leadership in education, research and the responsible use of natural resources in the tropics.' To achieve this mission, OTS conducts graduate and undergraduate education, facilitates research, participates in tropical forest conservation, maintains three research stations in Costa Rica, hosts tourists and conducts environmental education programs.

One of OTS's research stations is La Selva Biological Station, located in the Caribbean foothills near Sarapiquí. The Station has 3,988 acres (1,614 hectares) of tropical rainforest, 73 percent of which is undisturbed old growth forest. The species diversity in this forest is spectacular, with over 1,850 species of plants, 350 species of trees, 448 species of birds and around 500 species of ants.

OTS La Selva was originally established in 1954 by Dr. Leslie Holdridge as a farm dedicated to experimentation for the improvement of natural resource management. It was purchased in 1968 by OTS and declared a private biological reserve and station. A few years ago, in a move to become more autonomous and economically sustainable, La Selva began conducting activities for tourists in and outside the Station. One of their larger investments was the creation of a 37 mile (61 km) network of trails (of which 9 miles – or 16 km – are paved).



Photos by: Estación Biológica la Selva

OTS La Selva staff first heard about the Rainforest Alliance through a guide they employed who had ties to the Selva Verde resort, which was already working with the Rainforest Alliance. La Selva began participating in the BMP program with the goal of being a model for BMP implementation. The Green Ethics Committee of La Selva has the goal of eventually obtaining certification by the CST, and the OTS Board is fully committed to this goal.

Hacienda Pozo Azul

Hacienda Pozo Azul is a 642-acre (260-hectare) resort owned and operated by the Quintana family near the Sarapiquí River. It offers a variety of activities such as horseback and mountain bike rides, hikes, forest canopy tours, white water rafting and rappelling down the Sarapiquí River canyon. The numerous hacienda trails traverse different habitats, crossing through pasturelands, young reforested areas, secondary forest, rivers and waterfalls. A butterfly farm and garden are on the resort grounds, and the resort's 60-cow dairy farm provides milk that is used in the resort's restaurant and will soon be made into cheeses and other products for sale in the resort's shop. An on-site anaerobic digester uses the cows' manure to produce electricity and high-quality organic soil, which is then used to grow organic black pepper.

The principles and approach of the BMPs are in full accordance with those of Alberto Quintana, a retired chemical engineer who previously worked for Coca-Cola. Alberto believes that, in time, certification will be essential to running a profitable business that is also environmentally and socially responsible.



Photo by: Deanna Newsom



Photo by: Claudine Sierra



Selva Verde Lodge and Rainforest Reserve

In 1985, Selva Verde owners Juan and Giovanna Holbrook bought 494 acres (200 hectares) of pristine rainforest in Sarapiquí, in an effort to promote conservation through preservation of the forest and, later, through the sustainability of their operation. They created the Selva Verde lodge and preserved most of the land as the Rainforest Reserve. Their mission is to 'bring the experience of the rainforest to all visitors through interpretation, adventure and interaction with the community.' Selva Verde offers 148 beds in rooms or bungalows, homemade meals and activities like bird watching, white water rafting, guided nature hikes, boat rides and horseback riding. Surrounding land uses include pasture and agriculture.

Around 2003, Selva Verde owners felt external pressure from tourism brokers to achieve sustainability certification. They were first certified by the CST program in 2004, and achieved the certification level of two leaves (out of a possible five). They felt that the market required improvements, and if they wanted to remain in the market they had to transform.

In December 2005, the Rainforest Alliance offered Selva Verde training on sustainable tourism BMPs, and in January 2007 began providing direct technical assistance on BMP implementation. This input stimulated a significant improvement, and subsequently the lodge achieved four CST leaves. Presently, they are working toward the maximum five leaves.



Photos by: Selva Verde Lodge and Rainforest Reserve

Results

Overall Performance Before and After BMP Implementation

The five hotels we studied each improved their compliance with the baseline criteria after receiving training and technical assistance on sustainable tourism BMPs. On a scale of 0 to 10, with 0 being non-compliance and 10 being full compliance, hotel scores increased from an average of 4.5 before BMP implementation to 7.8 after implementation. The change in compliance score for each hotel is shown in Figure 1.

Before BMP implementation After BMP implementation



Figure 1. Average level of compliance with baseline criteria before and after training and technical assistance on tourism Best Management Practices, for five hotels in the Sarapiquí region of Costa Rica. Score shown on a scale of 0 to 10, with 0 being non-compliance, 5 being partial compliance and 10 being full compliance. Hotels are in random order and names are not used to ensure confidentiality.



We examined the magnitude of change made for each of the 20 principles, and found that hotels had the largest improvement in the areas of 'Sociocultural Activities,' 'Monitoring and Corrective Action,' and 'Solid Waste' (Table 2). The principles with the fewest improvement were 'Laws and Regulations,' 'Advertising Materials,' and 'Suppliers.'

We are encouraged by the results shown in Table 2, in particular by the increase in compliance scores for the environmental principles, since a previous analysis of the first set of compliance scores (the scores before BMP implementation) for all of Costa Rica showed that hotels in the Sarapiquí region scored lowest in environmental performance.⁵ As will be described in the sections to follow, hotels in Sarapiquí made extensive efforts to reduce their environmental impact, ranging from the installation of solar panels to the implementation of recycling programs to the conversion from incandescent to fluorescent light bulbs.

5 Hurtado, P. and V. Villalobos. 2007. Implementación del sistema de Monitoreo y Evaluación (M&E) para medir los efectos de las mejores prácticas de manejo en turismo sostenible sobre la biodiversidad: Informe 003, Análisis de resultados primer diagnóstico de las empresas piloto de Ecuador y Costa Rica. Report to the Rainforest Alliance.



Table 2. Compliance scores for 20 principles, before and after BMP training and technical assistance, averaged for all study hotels. The principles are listed from most improved to least improved. Score is shown on a scale of 0 to 10, with 0 being non-compliance, 5 being partial compliance and 10 being full compliance.

PRINCIPLE	SCORE BEFORE TRAINING AND TECHNICAL ASSISTANCE	SCORE AFTER TRAINING AND TECHNICAL ASSISTANCE	IMPROVEMENT
Sociocultural Activities	2.0	9.0	7.0
Monitoring and Corrective Action	1.8	7.4	5.6
Solid Waste	3.7	9.0	5.3
Respect for Local Cultures and Communities	3.7	8.7	5.0
Environmental Education	3.5	8.5	4.9
Administration	4.3	9.0	4.7
Water	2.2	6.5	4.3
Contribution to Local Development	4.1	8.4	4.3
Natural Areas	5.0	8.8	3.8
Policies and Planning	4.9	8.6	3.7
Energy Use	4.5	8.0	3.5
Quality	5.8	9.3	3.5
Health and Safety	5.2	7.3	2.1
Flora and Fauna	4.6	6.6	2.0
Worker Training	4.5	6.4	1.8
Design and Construction	7.4	9.2	1.8
Contamination	4.9	6.5	1.6
Laws and Regulations	4.1	5.3	1.3
Advertising Materials	7.2	8.3	1.1
Suppliers	6.8	7.0	0.2



The next section describes in detail the changes made by hotels in the areas of 'Sociocultural and Community Aspects,' 'Solid Waste,' 'Energy Use,' 'Water and Contamination,' 'Environmental Education' and 'Monitoring and Corrective Action.' These areas were chosen for detailed examination because 1) they showed large quantitative changes after BMP training and technical assistance, and 2) they were discussed in the most detail during interviews with the hoteliers.

Sociocultural and Community Aspects

Hotels interact with local communities and cultures in many positive ways: they tend to hire local employees and they attract guests who may purchase goods and services from local businesses. However, hotel guests can also have negative impacts, such as consuming a region's limited natural resources and bringing in different cultural norms and values. As the interface between the local communities and visitors, hotels have a responsibility to minimize the negative impacts on local communities and cultures, and maximize the benefits. Table 3 shows the baseline criteria required under the three principles that relate most closely to 'Sociocultural and Community Aspects.'



Table 3. Sustainable tourism baseline criteria related to Sociocultural and Community Aspects.

PRINCIPLE	BASELINE CRITERIA
Sociocultural Activities	The company supports cultural, sport and recreational activities in the neighboring communities.
	Visitors are encouraged to visit local businesses and communities, if desired by the businesses and communities.
Contribution to Local Development	The company participates in or otherwise supports development activities in neighboring communities.
	The company uses the services of micro-, small- or medium-size local businesses, particularly those that have adopted sustainable practices.
	The company hires and trains local people.
	The company encourages the production and purchase of handicrafts and other local products.
	The company has a contingency plan that is known to visitors, staff and communities.
	The company does not participate in the purchase, trafficking or exhibit of archaeological pieces.
Respect for Local Culture and Communities	The company takes concrete actions to promote a better understanding and respect for indigenous cultures and traditions.
	The operation of the company does not threaten the provision of basic services to neighboring communities.
	The company adopts, follows and publicizes policies against sexual exploitation, particularly of children and adolescents.



The sustainable tourism BMP training materials encourage hotels to take their social environment into account and become a part of it. They urge hotels to respect and support the development process of neighbouring communities by purchasing local products and hiring local staff, by encouraging guests to behave in culturally appropriate ways, and by preventing the removal or sale of items with special archaeological or cultural significance.

The five hotels in our study have worked hard to develop and nurture their relationships with local communities by, for example, supporting local schools and annual festivals. Figure 2 shows how hotels' performance in the three principles related to 'Sociocultural and Community Aspects' changed after BMP training and technical assistance.

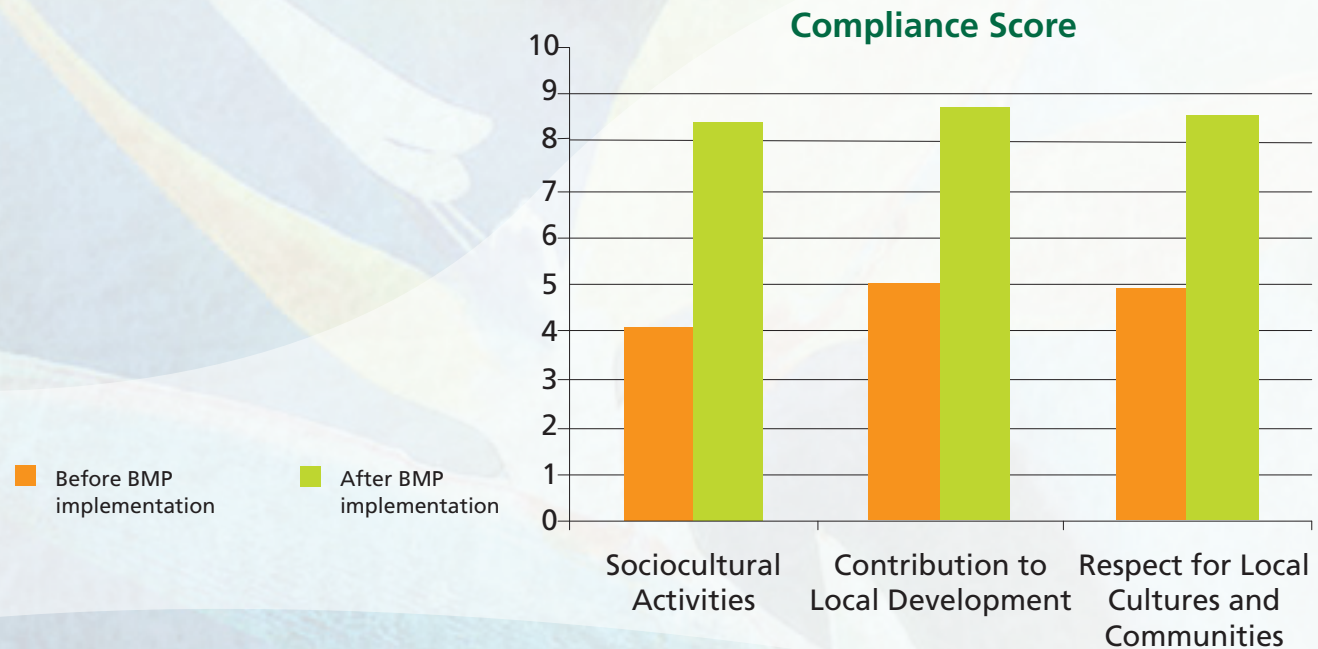


Figure 2. Average level of compliance with baseline criteria related to Sociocultural and Community Aspects, before and after training and technical assistance on tourism BMPs, for five hotels in the Sarapiquí region of Costa Rica. Score shown on a scale of 0 to 10, with 0 being non-compliance, 5 being partial compliance and 10 being full compliance.

Local Schools

Three hotels have reached out to neighboring communities by creating innovative programs to support local schools. OTS La Selva has begun donating its organic waste to three local schools and teaching the children composting techniques. Once the organic material is composted, OTS La Selva then buys it back from the schools for use at the Station, providing students with both a fundraising and educational opportunity. Selva Verde Lodge provides financial support to two local schools and also supports the Sarapiquí Conservation Learning Center (SCLC), a nonprofit organization founded by the Holbrook family and Selva Verde Lodge. The SCLC has the mission of linking communities and conservation through education and ecotourism in the Sarapiquí region. Pozo Azul works with community youth by selecting students from the local high school, training them in different aspects of the operation and offering them jobs when they complete school. Pozo Azul understands that it is a business embedded within the local landscape, and as such it tries to strengthen local communities by offering jobs.



Annual Community Fairs and Events

In 2007 OTS La Selva organized its first annual environmental and cultural fair.

Each year's fair will be dedicated to a local 'celebrity' and this year the honored person was Dr. Claudia Charpentier, a well-known biologist. OTS La Selva invited at least 300 individuals from the surrounding communities, along with local artisans and businesses. The researchers used the opportunity to inform the community about their work, and local businesspeople set up shops and sold their products. Entertainment included a puppet show and actors, singers and dancers. The fair was a success, with increased communication and sharing of values between OTS La Selva and the communities.

At least two of our case study hotels work with other hotels and local people to carry on a tradition that began before BMP implementation: the annual 'Clean the River' day. This is a yearly event that is dedicated to the cleaning of the Sarapiquí river, where locals, staff, researchers, volunteers, boatmen and others collect discarded waste and recyclables.



Promotion of local artists

Most hotels consider it a priority to promote the work of local artists, either by decorating the hotel with local artwork, providing guests with contact information for local artists or providing artists with opportunities to sell their work at hotel-sponsored fairs and events, such as OTS La Selva’s annual community fair.



Solid Waste

Solid waste is all refuse that is produced by the hotel, including household wastes, food residues and packaging. Solid waste harms the environment on multiple levels: disposal of waste requires the creation of garbage dumps and landfills, toxic chemicals in landfills can sometimes leach from waste and accumulate in groundwater, and the manufacturing process for items that are later discarded typically produces carbon dioxide and other pollutants. The baseline criteria relating to solid waste are shown in Table 4.

Table 4. Sustainable tourism baseline criteria related to solid waste.

PRINCIPLE	BASELINE CRITERIA
Solid Waste	Concrete actions to separate waste have been implemented.
	There is a program to minimize the purchase of items that produce waste.
	Waste is separated for recycling, reuse and adequate disposal.
	Organic waste produced by the company is composted or used for the creation of liquid fertilizer. The compost or mulch is then utilized in green areas, orchards and gardens.
	The company participates in and supports recycling programs where they exist.

The BMP training materials and technical assistance focus on four approaches to reducing solid waste: reducing consumption of products, reusing products to delay or prevent disposal, recycling waste items whenever possible, and repairing items rather than purchasing new ones. Specific suggestions were given on how to apply these approaches to different areas of the hotel, such as product purchasing, guest rooms and storage areas.

Every hotel we examined implemented measures to improve their waste management system: they made structural changes to improve the ease of recycling for staff and visitors, they changed purchasing habits to buy more biodegradable and/or recyclable products, and they composted organic waste. Figure 3 shows how compliance with the baseline criteria after BMP training and technical assistance increased from 3.7 to 9.0.

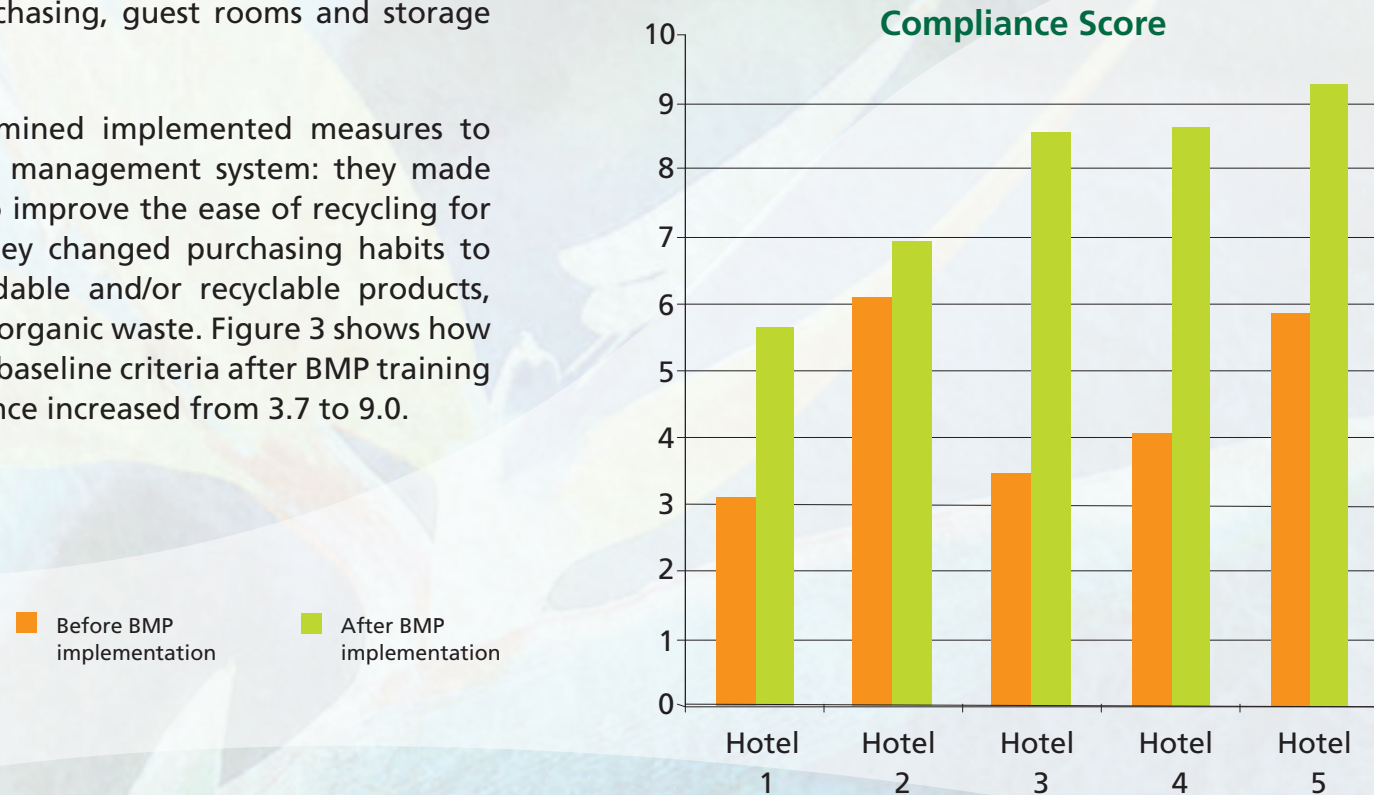


Figure 3. Average level of compliance with baseline criteria related to Solid Waste, before and after training and technical assistance on tourism BMPs, for five hotels in the Sarapiquí region of Costa Rica. Score shown on a scale of 0 to 10, with 0 being non-compliance, 5 being partial compliance and 10 being full compliance.



Each hotel has taken multiple steps to improve recycling rates. At OTS La Selva, this involved the creation of a storage room, and the purchase of scales and dozens of recycling containers, which were put in guest rooms, the restaurant, kitchen, labs and along trails. OTS La Selva also expanded its recycling program to include used laboratory chemicals. Ara Ambigua has implemented a recycling program with a focus on unique recycling containers. As part of their compliance with the BMPs, La Quinta implemented a recycling program with a redesigned storage area and a staff person designated as responsible for program enforcement. The separation of recyclables is done by La Quinta staff, making the system especially user-friendly for the guests, who simply deposit all recyclable items in a single container. Hacienda Pozo Azul built a storage room out of Forest Stewardship Council-certified wood for its recyclable items. Most hotels deliver the recyclable items to a local person for further sale.

Hotel efforts to reduce solid waste have also focused on the preferential purchase of recyclable items. In an effort to foster recycling, La Quinta changed milk suppliers, choosing to buy from a supplier that could recycle the empty tetrapak containers. OTS La Selva uses many batteries, primarily in flashlights, and as part of their BMP implementation converted to batteries that are rechargeable and/or recyclable. A special container is designated for empty batteries, and the guests and staff are encouraged to buy the brand of batteries that La Selva staff determined could be recycled by the local company that sells them. That brand is the now the only one bought by OTS.

A strategy to reduce the amount of plastic waste created by visitors was devised by Pozo Azul together with the Rainforest Alliance. Visitors drink a lot of water, which is typically consumed from disposable plastic bottles that are used once and thrown away. With this in mind, Pozo Azul designed plastic water bottles that can be reused and taken home. The bottles are sold to the visitors and can be filled with purified water from the well at no cost. The proceeds from the bottle purchases are used to provide local students with fellowships to go to school. Pozo Azul's goal is to support a total of 25 students with this project.

Finally, two hotels have created worm composting facilities to keep organic wastes from being disposed of in the landfill. Both Selva Verde and Pozo Azul use this system to convert organic waste from the kitchen into a dark, nutrient-rich, natural fertilizer that can be added to garden soil. Eventually, the operations manager at Selva Verde would like to sell the hotel's excess worms as a source of income to invest in the implementation of other BMPs.



Energy Use

For hotels, energy is typically the second highest operating cost after staff salaries. Hotels consume large amounts of energy in the areas of lighting, air conditioning, laundry rooms, kitchens and swimming pools. Conserving energy benefits hotels by lowering electricity

bills, but a reduction in energy use also has important environmental benefits. Costa Rica's abundant mountains and rainfall mean that the vast majority of the country's energy is produced by hydroelectric dams; therefore, conservation efforts reduce the demand for more dams. The baseline criteria related to energy use are shown in Table 5.

Table 5. Sustainable tourism baseline criteria related to energy use.

PRINCIPLE	BASELINE CRITERIA
Energy Use	Energy consumption is measured periodically and the results recorded.
	The company has a plan for the use of energy that includes goals for its efficient use.
	When possible, renewable energy sources are utilized.
	Measures have been taken to take maximum advantage of natural light.
	Written rules or special equipment are used to turn off lights and equipment when not in use.
	When possible, equipment and special arrangements are in place to use energy efficiently (i.e. air conditioning, heating and engines)
	When feasible, vehicles with high performance and efficiency are used.
	In areas with heating or air conditioning, measures have been adopted to minimize the loss of heat or cold.



Hotels participating in the BMPs program receive detailed guidance on reducing energy use. Suggestions are given on ways to increase efficiency of light fixtures and strategies are given to maximize existing light. Ideas for increasing efficiency of appliances are very specific, with sections covering air conditioning units, washers, dryers, refrigerators, computers and more. In addition, the training and technical assistance materials contain important information about reading electrical meters, the detection of electrical leaks, and basic safety when doing repairs.

Hotels reduced their energy consumption in ways that touched nearly all aspects of their operations. Figure 4 shows that the average compliance score in Energy Use

increased from 4.5 to 8.0. As described in detail below, hotels replaced energy inefficient light bulbs and appliances with more efficient ones, created alternative energy sources, such as solar panels or anaerobic digesters, and identified no-energy alternatives to electricity where possible, such as air drying bed sheets rather than using a dryer. In all cases, these efforts have been enhanced by staff training on energy conservation.

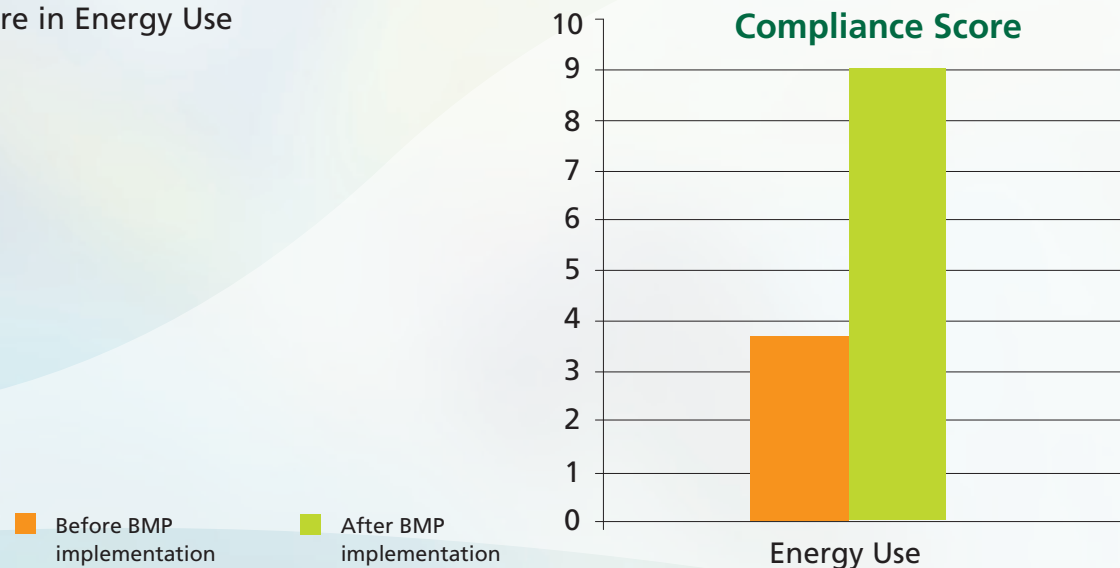


Figure 4. Average level of compliance with baseline criteria related to Energy Use, before and after training and technical assistance on tourism BMPs, for five hotels in the Sarapiquí region of Costa Rica. Score shown on a scale of 0 to 10, with 0 being non-compliance, 5 being partial compliance and 10 being full compliance.

Higher Efficiency

All hotels in our study have replaced incandescent light bulbs with low-wattage fluorescent ones. In nearly all cases, hotels also installed signs reminding guests to turn off the lights when they are not needed. Some hotels devised additional ways to reduce the need for electric light: for example, Ara Ambigua painted rooms with light colors, and Selva Verde installed translucent roof panels to allow more sunlight to enter guestrooms.

Some hotels have replaced older equipment with newer, more energy-efficient models. OTS La Selva is gradually replacing old air conditioning units – which are constantly running in some offices and research facilities – with new ones that are efficient and ozone free. Pozo Azul owners bought an energy-efficient washing machine for the neighbor who does their laundry, and also installed a timer on the pump that brings water from their well to the hotel to ensure that it is not constantly running.



Alternative sources of electricity: anaerobic digesters and solar panels

Anaerobic digesters are large, sealed tanks that use anaerobic bacteria to break down sewage (human or livestock) and gray waters. This biological process produces methane, which is then converted to electricity. The anaerobic digester at Pozo Azul is fueled on cow manure and produces enough energy to cover nearly all of the electrical needs of the resort's dairy operation: it powers the fans in the barn, sprays the cows to keep them cool, and runs the pumps that transport the manure. A byproduct of the process is a rich, biodegradable fertilizer. La Quinta has also recently installed an anaerobic digester that has eliminated the need for septic tanks and produces energy that is used to power the clothes dryers. OTS La Selva is currently considering installing an anaerobic digester and is doing research about its efficiency and requirements.

Solar energy is another source of electricity that is captured by some of our study hotels. Solar panels were installed by Selva Verde and La Quinta to power their water heating systems, and Ara Ambigua has installed solar-powered lights on the borders of trails.

No-energy alternatives

Some hotels have been able to save energy by changing to practices that require no electrical power at all. Ara Ambigua and Selva Verde constructed laundry rooms with space to sun-dry items, rather than using electric clothes dryers. Ara Ambigua eliminated the need for an electric water pump by moving their water tank up a hill so that water could flow by gravity.



Water and Contamination

Clean and abundant water is necessary for all hotels participating in our study – not just for everyday activities, such as cleaning, laundry and cooking, but also for the water sports that are popular on the Sarapiquí River: swimming, river rafting and kayaking. Table 6 shows that the baseline criteria cover diverse aspects of water conservation and contamination.

Table 6. Sustainable tourism baseline criteria related to water and contamination.

PRINCIPLE	BASELINE CRITERIA
Water	Water consumption is measured periodically and the results recorded.
	There are written plans for the use of water and a strategy to reduce its consumption
	Steps have been taken to save water (fresh, irrigation, swimming pools) and, when possible, measures have been implemented to use water efficiently.
	Policies and measures to save and use water efficiently have been made known to clients, employees and owners.
Contamination	Residual sewage and gray water is managed to prevent pollution and impact on public health.
	Water bodies are not polluted by toxic, dangerous or eutrophic substances.
	Residual waters are reutilized or treated for reutilization.
	The company has implemented measures to channel, use and discharge rain waters.
	Measures have been adopted to minimize gas emissions, aerosol pollution, noise and strong smells.
	Soil is not polluted with petroleum derivatives or persistent toxic chemicals.
	The company uses biodegradable and non-eutrophic cleaning products and cosmetics whenever possible.

The BMPs relating to water conservation give hotels guidance on how to record and monitor water use, reduce consumption, increase water use efficiency, educate guests and staff about the importance of water conservation, and develop a preventative maintenance program. The BMPs also give suggestions on ways to minimize the contamination of groundwater and rivers, through the proper management of sewage and gray waters. The guidelines in the BMPs are very specific,

giving advice tailored to each of the areas where water is used at a hotel: cleaning, laundry, food preparation, swimming pool maintenance and landscaping.

Most of the efforts undertaken by our study hotels fall under two categories: those that reduce the amount of water used and those that reduce water contamination. The changes in hotel's performance in this area over the course of the project are shown in Figure 5.

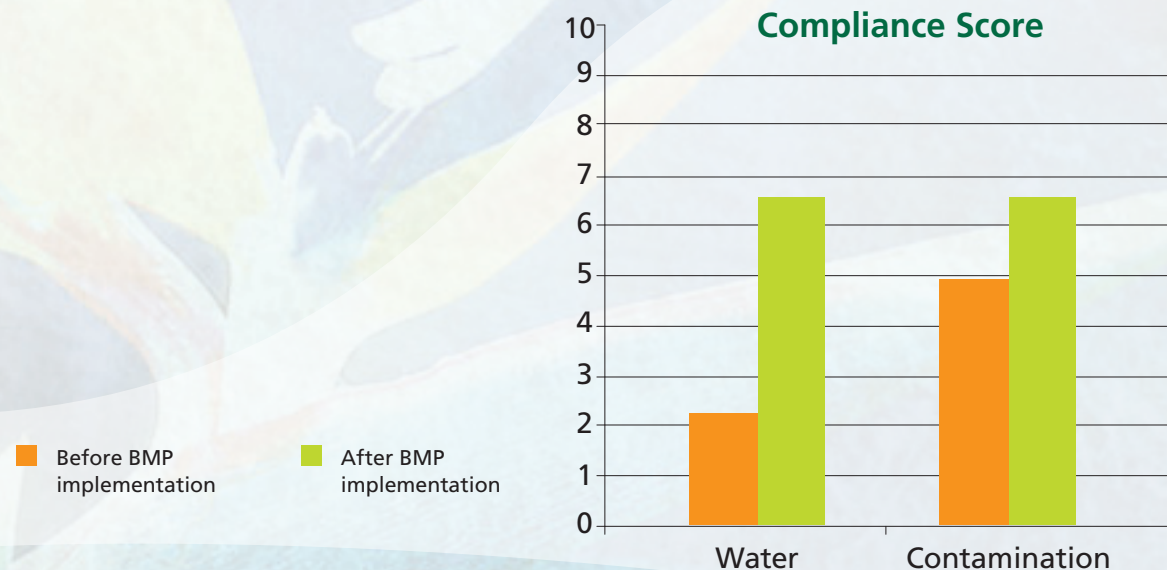


Figure 5. Average level of compliance with baseline criteria related to Water and Contamination, before and after training and technical assistance on tourism BMPs, for five hotels in the Sarapiquí region of Costa Rica. Score shown on a scale of 0 to 10, with 0 being non-compliance, 5 being partial compliance and 10 being full compliance.



Water conservation

At Selva Verde, water conservation was enhanced through the installation of a water dosing system in the laundry room and water-measuring gauges at different areas of the hotel. Pozo Azul also installed a water gauge at its well. Staff training was an integral part of these changes. At Ara Ambigua, steps toward water conservation include preventive maintenance and monitoring of taps, and a towels policy that encourages visitors to reuse their towels, reducing the amount of water needed for laundry.

Water quality

The anaerobic digester at Pozo Azul allows the hotel to run a fully functional dairy farm with absolutely no effluent or discharge into the neighboring Sarapiquí River. This is believed to have a major impact on water quality, which is important given the popularity of water sports, such as rafting, at Pozo Azul. The installation of a new anaerobic digester by La Quinta and subsequent elimination of septic tanks is also thought to prevent underground water contamination by fecal bacteria.

All hotels have worked to improve water quality by replacing non-biodegradable detergents and soaps with fully biodegradable ones. At La Quinta, this measure was accompanied by the elimination of individual soaps in guest rooms and a subsequent reduction in waste and, presumably, water contamination. At OTS La Selva, each group of visitors (e.g. students or researchers) receives a briefing when arriving at the Station, which includes information about laundry. The guests can buy

soap at the Station that is cheaper than other brands as well as biodegradable.

La Selva has also hired a company to remove discarded and/or used toxic chemicals from the labs and dispose of them, reducing the risks of human health problems, and water and soil contamination. This change in the labs is complemented by the change from non-biodegradable preservatives to non-toxic, biodegradable ones.



Environmental Education

Environmental education not only informs guests and staff about the environment surrounding the hotel, but also bolsters the hotels' BMP implementation efforts by urging staff and visitors to help. Visitors who understand the importance of water conservation will be more likely to use less water during their stay and – hoteliers hope – once they get home. The baseline criteria for environmental education are shown in Table 7.

Table 7. Sustainable tourism baseline criteria related to environmental education.

PRINCIPLE	BASELINE CRITERIA
Environmental Education	Environmental education activities are accessible to neighboring communities, clients, employees and owners.
	The company supports existing environmental education programs in the region or supports the creation of such programs if none exist.
	The company encourages responsible behavior among visitors.
	Visitors receive information about the regulations that apply to protected areas in the region.
	Visitors receive information about neighboring protected areas and are encouraged to visit them.
	Visitors receive information about native plant and animal species in the region.
	Visitors receive information about water and energy conservation efforts, and are encouraged to conserve water and energy.
	Visitors receive information about waste management efforts, and are encouraged to manage waste adequately.
	Reference and educational signs are present for clients and employees.

The BMP training materials provide exhaustive background on environmental education: what it is, why it is important, its history, and the different teaching strategies and methods that have emerged. Guidance is given to hotels on how to design environmental education activities and materials, how to design interpretive trails, and how the effectiveness of their efforts can be improved depending on the characteristics of the audience (age, level of knowledge, motivation, etc.).

Interviews with hotel owners provided detail about the specific programs and efforts they have developed to educate visitors and staff. The level of change in this area is shown below in Figure 6.

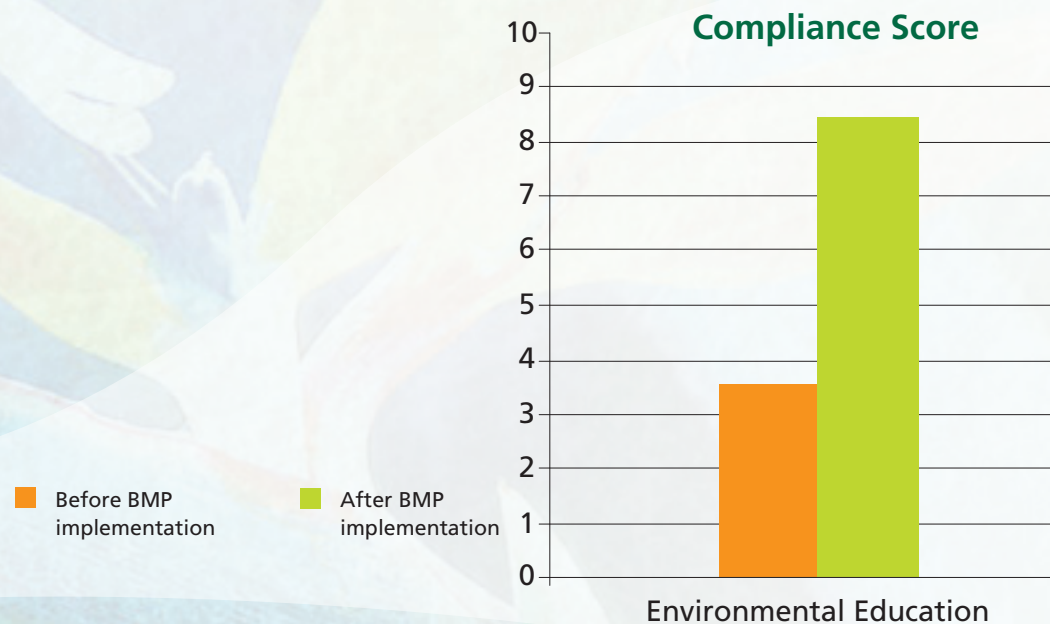


Figure 6. Average level of compliance with baseline criteria related to environmental education, before and after training and technical assistance on tourism BMPs, for five hotels in the Sarapiquí region of Costa Rica. Score shown on a scale of 0 to 10, with 0 being non-compliance, 5 being partial compliance and 10 being full compliance.

At Ara Ambigua, guests are informed about the sustainable tourism BMPs and hotel policies and practices in charming guest books located in each room and made from recycled newspapers. These books give guests guidance on appropriate behavior in natural areas, water conservation measures, and rules about flora and fauna extraction, among other topics. At La Quinta, each room contains a large folder that provides exhaustive information on the operation's history and owners, the surrounding area, local activities and the BMPs.

Aiming to educate guests and staff, many hotels have made a major effort to label items and activities around their grounds that are related to BMPs. These labels are often artistic, conspicuous and inspiring. One label at La Quinta informs guests and staff about the ecology of an edible plant and gives recipes that use the plant; another, at Ara Ambigua, indicates a medicinal plant garden. Pozo Azul has a series of educational signs explaining the biochemical reactions occurring in the anaerobic digester, while La Quinta has a sign describing the construction of the anaerobic digester and another with information on indigenous crafts and traditions.

Since implementing the BMPs, Pozo Azul has expanded its guest education efforts, creating informative and entertaining programs to teach about environmental issues. The resort has also extended its training efforts to the local community by training local students on many aspects of the operation and hiring them when they complete school.

Staff training activities have also occurred at every hotel. At La Selva, staff has been trained on waste management, emergency preparedness, the purchase of local products, and legal working conditions, among other topics. The staff training on recycling is repeated every six months, as staff tend to get 'soft' on separation after awhile and need a refresher course. The staff also received special emergency training from fire fighters and the National Institute of Insurances. What is novel about La Selva's training program is that in addition to the practical information about implementing the BMPs, La Selva also teaches about the environmental and social issues behind the practices being taught. This ensures that staff members are aware of the broader implications of the BMPs and will take their new habits and knowledge back to the local community.



Monitoring and Corrective Action

A hotel typically has many goals, including high customer satisfaction, good facilities maintenance, effective advertising, compliance with quality standards and compliance with external and internal environmental standards. To determine whether or not these goals are being met, hotels require a monitoring system that is specific, quantifiable and based on documentation and unbiased audits. The baseline criteria that address monitoring and corrective action are shown in Table 8.

Table 8. Sustainable tourism baseline criteria related to monitoring and corrective action.

PRINCIPLE	BASELINE CRITERIA
Monitoring and Corrective Action	The company has a program or system of records to identify and monitor its environmental impact.
	The company has a mechanism to receive evaluations, complaints and comments from its clients, and keeps a register of this feedback and of corrective actions taken.
	The hotel conducts monitoring, corrective action and continuous improvement of its management.

The Sustainable Tourism BMPs on monitoring and corrective action begin with guidance on how to set up and implement an environmental monitoring system. Hotels are encouraged to begin with an environmental policy – a statement of intent and principles regarding its overall environmental behavior – and then to conduct an inventory of all potential impacts that the hotel might have on the environment, such as air emissions, discharge into water, waste management, soil pollution and resource consumption. With this information in mind, hotels then developed a plan to reduce or eliminate these impacts, with a monitoring system in place to determine the plan's effectiveness.

In its guidance on establishing a monitoring system, the BMPs discuss the importance of adequate training, communication, monitoring equipment, recordkeeping and documentation. Audits by neutral third parties are also encouraged. When an area of non-compliance is identified through monitoring, the BMPs suggest identifying the cause of non-compliance, identifying and implementing the necessary corrective actions, revising the controls needed to prevent future non-compliance and recording all changes in writing.





Before BMP implementation

After BMP implementation

Compliance Score

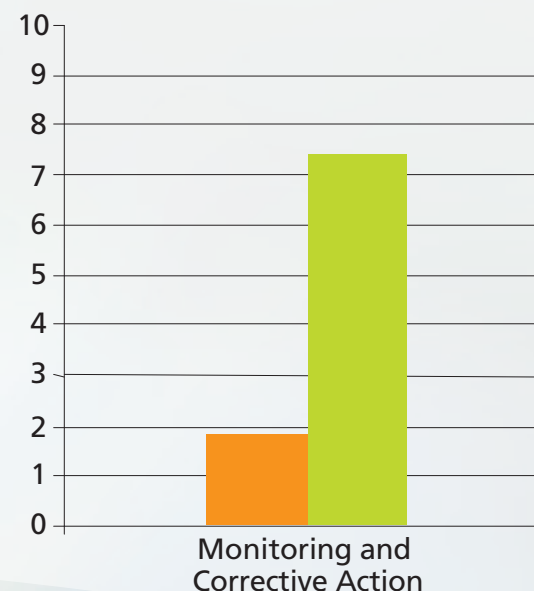


Figure 7. Average level of compliance with baseline criteria related to monitoring and corrective action, before and after training and technical assistance on tourism BMPs, for five hotels in the Sarapiquí region of Costa Rica. Score shown on a scale of 0 to 10, with 0 being non-compliance, 5 being partial compliance and 10 being full compliance.

Selva Verde's environmental policy focuses on reducing waste, underground water contamination, energy use, and on increasing staff and client environmental consciousness and awareness. As part of its monitoring efforts, it set up a system to monitor water use in different sections of the lodge. Similarly, Pozo Azul installed a water gauge at its well to determine and track water consumption levels.

La Quinta and La Selva described their extensive efforts made in the areas of written procedures, registers and the documentation of financial expenditures. Although this particular area often required high amounts of staff time and training to set up, hoteliers have seen benefits. Ara Ambigua reported that the changes to documentation and policies have helped hotel administration stay organized, and have also helped to build awareness about the BMPs to others.



Expenses and Savings Related to BMP Implementation

Comparing the financial costs and benefits of sustainable tourism BMPs is difficult since most of the costs occur during the initial implementation phase, but many of the benefits, such as lower electricity bills, accumulate slowly over time. At the time of our interviews, most hotels did not have firm numbers on the financial costs and benefits associated with implementing the sustainable tourism BMPs, but did have numerous examples of the types of expenses and savings they have observed to date and/or expect in the future.

Hotels that did have numbers available estimated that the overall cost of BMP implementation ranged from US\$6,000 (Pozo Azul) to US\$12,000 (Ara Ambigua) to US\$35,000 (La Quinta; this value includes the cost of the new anaerobic digester). With the exception of the savings gained through reduced electricity bills at some hotels, there were generally no figures available on the overall financial benefits of BMP implementation.

This lack of detailed financial cost and benefit information underscores our observation that most of the study hotels appear to be motivated by environmental benefits rather than financial ones. La Quinta and Pozo Azul are optimistic that their initial investments will pay off financially over time; however, they seem to view these potential savings as an extra perk that is secondary to the environmental and social benefits that they have observed or expect in the future.

Table 9 summarizes the types of expenses and savings reported by each of the hotels. In the section below we explore each of these items in more detail.



Table 9. Expenses and savings associated with implementation of sustainable tourism BMPs for each study hotel.

	SELVA VERDE	LA QUINTA	OTS LA SELVA	ARA AMBIGUA	POZO AZUL
EXPENSES					
Infrastructure	✓	✓	✓	✓	✓
Recycling containers	✓	✓	✓	✓	✓
Fluorescent light bulbs	✓	✓	✓	✓	✓
Biodegradable soaps and detergents	✓			✓	✓
Guest information and labeling	✓	✓	✓	✓	✓
Staff time	✓	✓	✓	✓	✓
SAVINGS*					
Reduced electricity bills	✓	✓	✓	✓	✓
Sales of recyclable materials			✓		
Reduced septic tank cleaning	✓				
Reduced purchase of cleaning products and batteries	✓	✓	✓		

* Includes both observed and expected savings.



Expenses

Infrastructure

The cost of adding new infrastructure – such as a new laundry room or solar panels – was typically the most expensive component of BMP implementation for the case study hotels. Each hotel took a different approach in this regard, some choosing more expensive infrastructure, such as anaerobic digesters, and others choosing more modest options. For Selva Verde, one of the most costly investments was a solar heating system, while for Ara Ambigua, infrastructure changes involved relocating the water tank and building the new laundry room with air-drying facilities.

Recycling Containers

In some cases, developing recycling programs also required significant investment. At OTS La Selva, the most costly aspect of BMP implementation was creating the waste storage room and purchasing scales and recycling containers. The initial cost of converting to rechargeable batteries was also significant. Pozo Azul's largest cost while implementing BMPs was in waste containers and a storage center.

Staff Time

In addition to the infrastructure, materials and supplies needed to implement the BMPs, there was a high cost in terms of staff time. This cost was underscored by every hotel. Staff had to be trained on new topics and techniques, sometimes requiring overtime pay. In many cases, the extra work associated with



BMP implementation had to be fit in the usual working hours, which some staff found difficult at times.

Other Costs

- Every hotel purchased fluorescent light bulbs to replace inefficient incandescent bulbs. La Quinta estimated that this conversion cost approximately US\$2,000.
- The cost of providing signs, labels and guest information books was significant in some cases, and, as noted by La Quinta, also requires ongoing mold maintenance.
- Biodegradable products were purchased by all hotels. Some hotels reported that these products cost more than traditional ones.
- Pozo Azul owners bought an energy-efficient washing machine for the neighbor who does the hotel's laundry.



Savings

Many of the savings associated with BMP implementation accrue over the long term. Hotels quantified these savings where possible, and where not, gave estimates of the types of savings they expected in the future.

Reduced Electricity Bills

The primary savings that our case study hotels report is reduced electricity bills. This was due to the use of alternative energy sources (anaerobic digesters or solar panels), the installation of low-wattage fluorescent light bulbs, and the reduction in many high-energy practices such as clothes drying.

Pozo Azul has experienced a reduction of US\$150 per month in its electricity bill. La Selva has also observed reduced electricity costs, and expects these savings to increase if they install an anaerobic digester. At Ara Ambigua, the elimination of the water pump and the reduced use of clothes dryers has brought down their electricity bill, while La Quinta attributes its reduced electricity bills to the installation of the anaerobic digester and low voltage fluorescent lights. The owners of Selva Verde anticipate a reduced energy bill due to their use of solar energy, fluorescent light bulbs and translucent roof panels.

Other Savings

- At OTS La Selva, the cost of batteries is reduced due to the use of rechargeables.
- As a way to recoup additional costs, OTS La Selva will soon begin selling the recyclable materials obtained at the Station.
- Selva Verde expects lower costs for septic tank cleaning, due to the use of biodegradable detergents and anaerobic bacteria.
- La Quinta anticipates a 50 percent reduction in the cost of soap, sugar, detergent and butter due to purchases in bulk. Since switching to biodegradable soaps and detergents, La Quinta now uses less soap and detergent per load; however, the higher prices of biodegradable soaps and detergents cancel out any cost savings gained by using less of them.
- Selva Verde expects reduced costs from plastic bags and cleaning products.





Reflections on the BMP Implementation Process

Challenges

When asked about the most difficult part of implementing the BMPs, the answers given by hotel owners varied widely. Interestingly, the monetary cost was rarely mentioned. For some hotels, simply taking the first step and beginning the process was most difficult. At OTS La Selva, a staff member described this initial phase as starting from zero and jumping into the BMPs feet first. The period of BMP implementation was characterized as a 'rush hour' when staff needed to figure out what to do and how to do it, set priorities and get support from the OTS Board, all while keeping up with their usual job responsibilities.

Some hotels found specific BMPs more difficult to implement than others. Luis Fernando, the lodge maintenance coordinator at Selva Verde, said that the most difficult part of compliance with the BMPs was the waste management program: creating a storage center, adding labels, modifying staff habits, and informing and educating guests. At La Quinta, Beatriz said the most difficult part of compliance was the design, organization and implementation of labeling efforts. Leo at La Quinta, on the other hand, felt that the most burdensome and difficult task was the design, organization and implementation of paperwork, including policies,

procedures and registers. Meeting new documentation requirements, writing down procedures and filling in forms was an adjustment for staff at many of our case study hotels.

For some hotel staff, the most difficult thing about the BMPs was not additional costs, technical implementation or extra work, but simply breaking the inertia of longstanding habits or beliefs. For example, some cleaning staff found it difficult to stop cleaning bathrooms with chlorine (which kills the bacteria in the anaerobic digester if a single drop is added to a toilet), and resisted switching from highly scented detergents to less-scented, biodegradable ones. Some cleaning staff also found it difficult to leave used towels in rooms when requested by guests (a water conservation measure) since, for them, it is a matter of pride that towels are replaced daily, and are always fresh and clean. At Pozo Azul, the conversion from river water to well water faced some opposition due to the strong local belief that 'running water is healthy, standing water is unhealthy.' Convincing some staff members to use the well was accomplished by relating it to the energy conservation aspect of the change.

Overall Satisfaction

All hotels spoke positively about their experience with the sustainable tourism BMPs and the training and technical assistance provided by the Rainforest Alliance. A La Selva staff member called the Rainforest Alliance a guide in the dark, and a reference point that showed where they were and where they should go. In his words, the Rainforest Alliance was a 'thermometer that showed whether we were too hot or too cold.' The owners of La Quinta felt that the Rainforest Alliance played a crucial role in 'translating' the BMPs into concrete actions, as if suddenly a cryptic language was easy to understand. As they put it, 'what was flying in the air was finally grounded for us.' The comments of Pozo Azul's president, Alberto Quintana, speak for themselves: "We all have our own beliefs about how to do good, but the Rainforest Alliance helps us to integrate different aspects and enhance our understanding. They explained the why, how and where."

All hotels were pleased with the changes that they had made due to the BMPs, and excited about the environmental and social benefits they had seen already or expect in the future. Some hotels even had unexpected results: for La Selva, one of the most important benefits of the BMPs was the increased consistency between its mission (to provide leadership in education, research and the responsible use of natural resources in the tropics), and its actions. This aspect is very important for the organization internally, and for the message that it sends to researchers, locals and guests.



In addition to the high level of satisfaction from hotels, the sustainable tourism BMPs are also an important part of development in the region. Relatively broad participation in the Sustainable Tourism BMPs by members of La Cámara de Turismo de Sarapiquí (the Sustainable Tourism Association of Sarapiquí) allowed the region to distinguish itself as a sustainable tourism destination on a scale that likely would not have been possible had only one or two hotels chosen to comply with sustainability standards. The transformation of Sarapiquí into an international sustainable tourism destination has benefits that extend beyond the individual hotels and out to local restaurants, artisans and other members of the community.



Conclusion

Our results show that the implementation of sustainable tourism BMPs have dramatically improved the level of compliance with sustainable tourism principles at five hotels in Sarapiquí. Clearly, the BMPs have improved the way that the hotels interact with their environment, local communities, guests and staff.

The economic costs and benefits of BMP implementation are less clear, but the range of total expenditures provided by three of the study hotels was between US\$6,000 and US\$35,000. Hoteliers are typically seeing savings from BMPs in the form of reduced electricity bills, and they expect that further savings will accrue over time. For most hoteliers, the motivation for participation in the BMP program was not financial but rather environmental and social.

Overall, hoteliers were very satisfied with the BMP program and their experience with the Rainforest Alliance. Each hotel faced hurdles to implementation, often in a single area, such as recordkeeping. The barriers created by longstanding habits and beliefs – such as the idea that bathrooms will not be cleaned properly with non-chlorine soaps – sometimes slowed staff acceptance of the process. The extra work required of staff and increased overtime payments were cited as a burden by nearly every hotel; in the future, if project co-financing funds could be made available to cover this cost it would

likely be an important motivator for hotels considering participating.

Finally, on a larger scale, the BMP program has contributed to the overall emergence of Sarapiquí as a global ecotourism destination. It has given hotels the technical knowledge and resources to back up their commitment to the principles of sustainability with concrete actions, allowing them to distinguish themselves in the global marketplace.





Appendices

Appendix A – Sustainable Baseline Criteria

PRINCIPLE	PERFORMANCE INDICATORS
ENVIRONMENTAL	
Water	Water consumption is measured periodically and the results recorded.
	There are written plans for the use of water and a strategy to reduce its consumption.
	Steps have been taken to save water (fresh, irrigation, swimming pools) and, when possible, measures have been implemented to use water efficiently.
	Policies and measures to save and use water efficiently have been made known to clients, employees and owners.
Energy Use	Energy consumption is measured periodically and the results recorded.
	The company has a plan for the use of energy that includes goals for its efficient use.
	When possible, renewable energy sources are utilized.
	Measures have been taken to take maximum advantage of natural light.
	Written rules or special equipment are used to turn off lights and equipment when not in use.
	When possible, equipment and special arrangements are in place to use energy efficiently (i.e. air conditioning, heating and engines).
	When feasible, vehicles with high performance and efficiency are used.
	In areas with heating or air conditioning, measures have been adopted to minimize the loss of heat or cold.



PRINCIPLE	PERFORMANCE INDICATORS
Flora and Fauna	Endangered species and products from non-sustainable practices are not consumed, sold, displayed or exchanged.
	There are no wild animals kept in captivity.
	Artificial feeding of wild animals is avoided.
	Measures have been adopted to limit the impact of the company's noise and lighting on wildlife.
	In sensitive areas, measures have been implemented to prevent the introduction of disease and exotic species.
Natural Areas	The company supports and participates in efforts to preserve and manage natural areas, both state- and privately-owned, within their region of influence.
Solid Waste	Concrete actions to separate waste have been implemented.
	There is a program to minimize the purchase of items that produce waste.
	Waste is separated for recycling, reuse and adequate disposal.
	Organic waste produced by the company is composted or used for the creation of liquid fertilizer. The compost or mulch is then utilized in green areas, orchards and gardens.
	The company participates in and supports recycling programs where they exist.

PRINCIPLE	PERFORMANCE INDICATORS
Contamination	Residual sewage and gray water is managed to prevent pollution and a negative impact on public health.
	Water bodies are not polluted by toxic, dangerous or eutrophic substances.
	Residual waters are reutilized or treated for reutilization.
	The company has implemented measures to channel, use and discharge rain waters.
	Measures have been adopted to minimize gas emissions, aerosol pollution, noise and strong smells.
	Soil is not polluted with petroleum derivatives or persistent toxic chemicals.
	The company uses biodegradable and non-eutrophic cleaning products and cosmetics whenever possible.
Environmental Education	Environmental education activities are accessible to neighboring communities, clients, employees and owners.
	The company supports existing environmental education programs in the region or supports the creation of such programs if none exist.
	The company encourages responsible behavior among visitors.
	Visitors receive information about the regulations that apply to protected areas in the region.
	Visitors receive information about neighboring protected areas and are encouraged to visit them.
	Visitors receive information about native plant and animal species in the region.
	Visitors receive information about water and energy conservation efforts, and are encouraged to conserve water and energy.
	Visitors receive information about waste management efforts, and are encouraged to manage waste adequately.
	Reference and educational signs are present for clients and employees.



PRINCIPLE	PERFORMANCE INDICATORS
SOCIOCULTURAL	
Sociocultural Activities	The company supports cultural, sport and recreational activities in the neighboring communities.
	Visitors are encouraged to visit local businesses and communities, if desired by the businesses and communities.
Contribution to Local Development	The company participates in or otherwise supports development activities in neighboring communities.
	The company uses the services of micro-, small- or medium-size local businesses, particularly those that have adopted sustainable practices.
	The company hires and trains local people.
	The company encourages the production and purchase of handicrafts and other local products.
	The company has a contingency plan that is known to visitors, staff and communities.
	The company does not participate in the purchase, trafficking or exhibit of archaeological pieces.
Respect for Local Culture and Communities	The company takes concrete actions to promote a better understanding and respect for indigenous cultures and traditions.
	The operation of the company does not threaten the provision of basic services to neighboring communities.
	The company adopts, follows and publicizes policies against sexual exploitation, particularly of children and adolescents.

PRINCIPLE	PERFORMANCE INDICATORS
ECONOMIC	
Policies and Planning	The company has a sustainability plan that covers environmental and sociocultural issues, as well as the quality of service.
	The environmental policies of the company are made known to visitors, employees and owners.
	The company does not adopt or support any kind of sexual, social or racial discrimination.
Administration	Programs and mechanisms exist that encourage staff participation in company management and operation.
Laws and Regulations	The company complies with labor laws (national and international).
	The company complies with environmental laws, norms and regulations.
	The company complies with norms, laws and regulations that protect the historical and cultural heritage.
	The maintenance and hygiene of facilities is flawless.
Quality	The size of visitor groups is appropriate and complies with regulations in the area being visited.
	A preventive maintenance program exists for all facilities, vehicles and equipment.
	The company adopts necessary measures to guarantee the quality of its products and services.



PRINCIPLE	PERFORMANCE INDICATORS
Advertising Materials	The company offers clear, complete and truthful information about its products and services.
	The company's promotional material is truthful and does not promise more than can reasonably be expected.
	The company provides visitors with information on the history, culture and natural environment of the surroundings.
Worker Training	There are policies and concrete actions to train employees about the environmental and cultural issues in the company's surroundings.
	The company has an employee training program focusing on regionally important sociocultural issues.
	There are policies and concrete actions to train employees on the company's quality control systems and other operational aspects.
	There are policies and concrete actions to train employees on dealing with emergencies.
Design and Construction	The design and construction of company facilities respects the landscape and is of appropriate scale.
	The company's facilities are accessible to persons with special needs.
	Construction techniques and materials are environmentally friendly.
Health and Safety	The company provides healthy and safe conditions for its employees, guests and neighbors.
	The company takes all measures necessary to ensure the safety of its visitors during outings and recreational activities.
	The company has a contingency plan for natural disasters.
	The company has a contingency plan for health and safety emergencies.
	Visitors receive information on safety measures that must be followed during their stay.

PRINCIPLE	PERFORMANCE INDICATORS
Health and Safety	The company offers insurance for visitors and employees.
	Water (including ice) for human consumption is shown to be potable.
	Rodent- and insect-control methods are environmentally friendly.
	The company has food handling program that follows adequate hygienic practices.
Suppliers	The company favors suppliers or companies that are certified or employ good social and environmental practices.
	Whenever possible, the company uses environmentally friendly inputs, such as recycled or non-traditional paper, organic food or certified wood.
Monitoring and Corrective Action	The company has a program or system of records to identify and monitor its environmental impact.
	The company has a mechanism to receive evaluations, complaints and comments from its clients, and keeps a register of this feedback and of corrective actions taken.
	The hotel conducts monitoring, corrective action and continuous improvement of its management.



Appendix B – Interview Questions

- How did the operator first hear about the Rainforest Alliance's BMPs and sustainable tourism?
- Why did the operator decide to implement BMPs (and get certified, if relevant)?
- Profile of the hotel (number of beds, type of building, history of ownership, any interesting features).
- What type of ecosystem surrounds the hotel? Please describe any interesting animals or other natural features.
- Which changes (due to the BMPs/certification) does the hotel owner feel have had the most positive impact on the environment?
- Which changes have had the most positive impact on the business?
- Which changes required the most effort and expense?
- What was the entire cost of meeting the BMPs/certification requirements? Have there been any financial gains to date? Do they anticipate any in the future?
- How have employees reacted to implementing the BMPs/certification requirements?
- How do tourists/ brokers respond when they find out that the operation is in compliance with the BMPs/certified?
- Does the hotel owner have the impression that the hotel gained any new clients because of compliance with the BMPs/certification?
- How was the experience working with the Rainforest Alliance?



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