EAST

Environmental Audits for Sustainable Tourism

Environmental Management Audit
Negril Tree House Hotel
Negril, Jamaica, W.I.

Preliminary Report
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Prepared for
EAST Project
c/o Jamaica Hotel and Tourist Association
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U S A

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1 Background

The Environmental Audits for Sustainable Tourism (EAST) Project is an activity funded by the U S Agency for International Development (USAID) that is designed to assist the tourism and hospitality industry implement effective environmental management systems (EMS)

The specific objectives of this project are (1) to develop greater awareness and understanding of the benefits of environmental management systems and audits among hoteliers, restaurateurs, allied tourism businesses, as well as in the manufacturing industry, (2) to train Jamaican consultants on EMS auditing techniques, (3) to assist a select, representative number of tourism establishments in carrying out environmental audits, and (4) to help finance, on a cost-sharing basis, specific audit recommendations in the participating establishments to demonstrate the financial benefit of the systematic application of environmentally friendly practices and, thereby, encourage others in the tourism industry to do likewise EAST is being implemented by Hagler Bailly Services (USA) under the direction of USAID/Jamaica and the Jamaica Hotel and Tourist Association

2 Introduction

The audit of the Tree House Hotel was conducted by an interdisciplinary team in September 1997 The team members included Hugh Cresser, EAST Project Coordinator, Peter Illig, Team Leader and EMS Specialist, Hagler Bailly Services (USA), Patricio Gonzalez, Environmental Engineer, Hagler Bailly Services (USA), Kimberly Moffitt, Hotel Operations Specialist, HVS International (USA), Adam Abelson, Hotel Operations Auditor, HVS International (USA), Lloyd Marsh, Senior Energy Engineer, Metrocad (Jamaica), Dinsdale Williams, Energy Engineer, Metrocad (Jamaica)

The EMS audit consisted of a detailed analysis of all departments and key service areas designed to identify the environmental aspects and impacts of the property's activities, and to formulate recommendations on how to improve the property's environmental performance and its environmental management system (EMS) This preliminary report contains a summary of the audit team's findings and recommendations, it will be followed by a comprehensive report that will provide detailed descriptions of the recommendations and specific guidance on how the property can upgrade its EMS

3 ISO 14001 EMS Gap Analysis

The audit team examined the property's policies, practices, procedures and management structure in order to determine how the existing environmental management process could be improved and brought closer to the requirement of ISO 14001 The ISO 14001 standard, which is used as the model for the property's EMS evaluation, is an internationally recognized standard that describes the basic elements of an effective and comprehensive EMS This standard does not dictate specific environmental performance

requirements, but rather describes the basic building blocks of a management system that can help a property establish and achieve its own environmental performance objectives ISO 14001 is applicable to a broad range of industrial and service sectors, including the hospitality industry The basic concept behind the ISO 14001 standard is that better environmental management leads to better environmental performance

The Jamaica Bureau of Standards has formally adopted ISO 14001, and Jamaica's Natural Resources Conservation Authority recognizes ISO 14001 as a demonstration of an organization's commitment to meeting applicable Jamaican and international environmental laws and regulations

The EMS gap analysis, summarized in Table 1, is designed to identify the discrepancies between the property's current practices and the ideal EMS model given by ISO 14001 The first two columns of this table present the main elements of the ISO 14001 EMS, the third column contains a rating which indicates how the property's current practices compare with the requirements of each element of the ISO 14001 EMS (the three ratings used in this evaluation are ● fully implemented, ◗ partially implemented, and ○ non-existent), and finally, the last column contains the audit finding upon which the ISO 14001 compliance rating is based

TABLE 1 SUMMARY OF THE EMS GAP ANALYSIS FOR THE TREE HOUSE HOTEL

ISO 14001 EMS element	Description of the EMS element and requirements	Rating	Finding
Environmental policy	The property must develop an environmental policy statement which describes its intentions and principles towards the environment This policy sets the goal for the property's environmental responsibility and performance, and the benchmark against which the achievements of the property's EMS will be judged The environmental policy must be documented, communicated to all employees, available to the public and appropriate to the scale and nature of the property's activities	○	Currently, the Tree House hotel does not have any formal and documented environmental policy
Planning - Environmental aspects and impacts	The property must establish a procedure to identify the environmental aspects of its activities and determine which of its activities have a significant impact on the environment The identified significant environmental impacts must be taken into consideration in setting the property's environmental objectives	◗	Tree House does not have an established procedure to identify and evaluate the environmental impacts of its activities However, the owners and employees are aware of many of the obvious environmental impacts of the hotel's activities
Planning - Legal and other requirements	The property must establish a procedure to identify and access the legal and regulatory requirements that are applicable to the environmental aspects of its activities	○	Tree House does not have an established procedure to identify and access the applicable environmental laws and regulations
Planning - Objectives and targets	The property must establish and document its environmental objectives and targets Whenever possible, these targets must be quantified, specific and measurable	◗	Tree House does not establish formal environmental objectives and targets However, certain environmental objectives and targets are informally set by the hotel's top management (e g , water conservation objectives, installation of low flow shower heads, replacement of old damaged toilets with water efficient toilets) These objectives and targets are verbally communicated to the relevant members of the hotel's staff

Key ● The EMS element is in place and meets ISO requirements, ◗ EMS element is in place but doesn't meet ISO requirements, ○ EMS element does not exist

ISO 14001 EMS element	Description of the EMS element and requirements	Rating	Finding
Planning - Environmental management program	The property must establish a program and designate responsibility for achieving its environmental objectives and targets It must also provide the resources and define the time-frame for achieving the objectives and targets	○	This property does not have a formal and documented program for achieving its environmental objectives and targets Although some department heads are assigned the responsibility for achieving the informal environmental objectives set by management, in many cases they are not given sufficient resources to effectively reach these objectives For example the maintenance department is so severely understaffed that it cannot realistically meet the water and energy conservation goals set by management
Implementation and operation - Structure and responsibility	The property's top management must give selected staff members the authority and responsibility for implementing the EMS Top management must also provide the necessary resources for the implementation of the EMS	○	Since Tree House does not have a formal EMS, it cannot assign the responsibility for its implementation
Implementation and operation - Training, awareness and competence	The property must identify training needs and provide appropriate training to all personnel whose work may create a significant impact on the environment	◗	Although management does provide some training to its employees, little of this training addresses the environmental impacts of the hotel's operations
Implementation and operation - Communications	The property must establish a procedure for the internal communication of issues related to its environmental impacts and EMS It must also establish a procedure for receiving, processing, documenting and responding to relevant requests from external parties on the property's environmental impacts and EMS	○	Tree House does not have a formal procedure for handling the internal or external communications related to its environmental impacts and EMS
Implementation and operation - EMS Documentation	The property must develop a document which describes the core elements of the EMS	○	Given the lack of an established EMS, Tree House does not yet posses such a document

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ISO 14001 EMS element	Description of the EMS element and requirements	Rating	Finding
Implementation and operation - Document control	The property must develop a mechanism to control, maintain, review and store all documents related to the EMS	◗	Tree House does not currently have any EMS documentation It could however extent its current document control mechanisms to include any future EMS documentation
Implementation and operation - Operational control	The property must develop written procedures for all activities which have or could have a significant impact on the environment	◗	The hotel does not have written procedures for most of its activities Procedures are generally transmitted verbally from management to the employees
Implementation and operation - Emergency preparedness and response	The property must be ready to respond to abnormal operating conditions, accidents and emergency situations which may negatively affect the environment It must establish a procedure to identify and respond to possible environmental incidents and emergencies	○	No formal procedure is in place at Tree House to identify and respond to possible environmental incidents
Checking and corrective action - Monitoring and measurement	The property must establish a procedure to regularly monitor its environmental performance and measure the main characteristics of its environmentally sensitive operations	○	Tree House keeps track of all of its bills, but it does not systematically monitor its use of electricity, LPG, water and key chemical products At the end of each month, the hotel should calculate how much electricity, LPG, water and chemicals it consumed per guest night This data will help the hotel define its normal consumption patterns and identify any unusual shifts in its energy, water or chemical consumption figures
Checking and corrective action - Nonconformance and corrective action	The property must be prepared to correct and to prevent the recurrence of problems associated with its EMS In order to do so, it must establish a procedure to define responsibility and authority for handling and investigating episodes of nonconformance with the property's EMS, and for completing corrective and preventive action	○	Since Tree House does not currently have a EMS, it has no mechanism to deal with nonconformance issues

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ISO 14001 EMS element	Description of the EMS element and requirements	Rating	Finding
Checking and corrective action - Records	The property must establish procedures for the identification, maintenance and disposition of all relevant environmental records These items include training activity records and the results of EMS audits and reviews	◗	Currently the Tree House hotel does not have a formal process for handling its environmental records This property could however extent its current record keeping mechanisms to include any environmental records generated by its future EMS
Checking and corrective action - Environmental management system audit	The property should periodically audit its EMS to insure that it conforms with the ISO standard and that it is properly implemented and maintained The results of these EMS audits should be used as a source of information for the management review process	○	Tree House does not have a formal EMS and does not therefore conduct any EMS audits
Management review	Top management must periodically review the EMS to ensure its continuing suitability, adequacy and effectiveness The management review process must address the possible need for changes to the property's environmental policy, objectives and other elements of the EMS	○	Tree House does not have a formal EMS and does not therefore conduct any management reviews of its EMS

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4 Environmental Aspects and Impacts

One of the principal requirements of the ISO 14001 EMS is that a property must examine its operations to identify the environmental aspects of its activities -- an environmental aspect is an element of an activity which interacts, in a beneficial or detrimental manner, with the environment It must be noted that this identification process must focus only on the environmental aspects which the property can control or influence the property is obviously not expected to tackle issues that are beyond its grasp Once the environmental aspects have been identified, the property must then determine the impact of these activities on the environment -- an impact is a change to the environment which results from a specific activity While environmental aspects are interactions with the environment, impacts are the changes in the environment resulting from that interaction, the relationship between environmental aspects and impacts is, therefore, one of cause and effect The identification of environmental aspects and impacts provides the property with a sense of its current environmental performance and enables the property to establish the environmental targets and objectives of its future EMS activities

During the evaluation of the property's activities, the audit team identified the property's primary environmental aspects and impacts The audit team also determined that most of the property's activities could be classified in at least one of the following environmental aspect categories

- water use,
- energy use,
- solid waste generation,
- generation of water pollutants,
- use of hazardous products,
- generation of air emissions, and
- damage to the eco-system

A description of the environmental impacts and the types of activities associated with Tree House's principal environmental aspects is given in Table 2 This table also includes a list of the possible objectives for this property's future EMS efforts

TABLE 2 SUMMARY OF TREE HOUSE'S ENVIRONMENTAL ASPECTS, IMPACTS AND EMS OBJECTIVES

Type of environ aspect of the hotel's activities	Type of activities which have these environmental aspects	Environmental impact of the activities	Objective of the property's EMS
WATER USE	- Use of guest room and public bathrooms - Laundry room and operations - General housekeeping and cleaning operation - Kitchen and bar operations - Garden upkeep	- Inefficient use of a valuable resource - Excessive consumption reduces the amount of clean water available to the Negril community	- Reduce water consumption

TABLE 2 SUMMARY OF TREE HOUSE'S ENVIRONMENTAL ASPECTS, IMPACTS AND EMS OBJECTIVES

ENERGY USE	- Operation of a/c units, water heaters, washing machines, dryers and pool pumps - Use of hot water and lighting	- Inefficient use of valuable and non-renewable resources - Generates air pollution (mainly at the power plant), greenhouse gases and acid rain	- Reduce energy consumption
SOLID WASTE GENERATION	- Office operations (paperwork) - Food purchasing, preparation and serving - Bar operations - Maintenance operations - Garden and beach upkeep	- Disposal of solid wastes in inadequate municipal dumps - Contamination of groundwater and surface water - Loss of raw materials	- Reduce the amount of solid waste generated by the property
GENERATION OF WATER POLLUTANTS	- Laundry room operations (use of phosphate based detergents) - General housekeeping and cleaning operations (excessive use of chemical cleaning and disinfecting products) - Maintenance operations (improper disposal of used oil and spent solvents) - Food preparation (disposal of grease and oil in the sink)	- Increases pollutant load discharged to surface and groundwater - Reduces the effectiveness of septic tanks and wastewater treatment systems	- Reduce the pollutant load contained in the hotel's effluent
USE OF HAZARDOUS PRODUCTS	- Laundry room operations (use of bleach, and acid or caustic cleaners) - General housekeeping and cleaning operations (use of bleach, toxic cleaning chemicals, insecticides) - Maintenance operations (use of lead paint, degreasing agents) - Grounds keeping (use of pesticides and insecticides)	- Exposes guests and employees to hazardous products	- Reduce the number and amount of hazardous products used on the property
GENERATION OF AIR EMISSIONS	- Maintenance operations (release of CFC from air-conditioning units, use of solvents) - General housekeeping and cleaning operations (use of CFC containing aerosols) - Grounds keeping (insecticide fogging)	- Release of CFCs to the atmosphere - Exposes guests and employees to hazardous air pollutants	- Phase out CFC refrigerants from the property - Reduce the use of solvents, insecticides, pesticides and other air pollutants used on the property
DAMAGE TO THE ECOSYSTEM	- Discharge of untreated gray water in the morass - Excessive use of fertilizer, insecticides and pesticides on the property's gardens	- Damages the environment and ecosystem surrounding the property	- Reduce the damage caused by the property's operations on the ecosystem

5. Environmental Aspects of the Property's Activities and Recommendations

Table 3 provides a summary of the recommendations proposed by the audit team to help the property address many of its activities that have a negative impact on the environment It is important to note, however, that this list only contains the recommendations identified during the course of a three day audit, these recommendations should therefore be viewed as only a the first phase of the property's continuous EMS process

The recommended actions listed in Table 3 are classified by department or area of activity (e g , maintenance department, housekeeping department, guest rooms, gift shop) and by the environmental aspect category addressed by each recommendation (e g , water use, energy use, solid waste generation)

An evaluation of the environmental impact, the implementation cost and the cost effectiveness of each recommended action is provided in the last three columns of Table 3 The ratings used to qualify the recommendations are defined as follows

Criteria	Rating	Description of rating
Environmental benefit of the action	High (H)	Significant reduction of the property's impact on the environment (e g , a large reduction in the toxicity or volume of generated waste, a significant improvement in the use of water, energy, chemicals or other products)
	Moderate (M)	Moderate reduction of the property's impact on the environment
	Low (L)	Low or insignificant reduction of the property's impact on the environment
Cost to implement the action	High	Significant investment of labor or capital
	Moderate	Moderate investment of labor or capital
	Low	No or negligible investment of labor or capital
Cost effectiveness of the action	High	Immediate payback (payback < 1 month)
	Moderate	Payback < 1 year
	Low	Payback > 1 year

The property's management and staff can use the ratings to select the recommendations that should be implemented first and to identify the recommendations that yield the greatest benefits -- that is, **High** environmental benefit, **Low** implementation cost and **High** cost effectiveness

The high priority actions listed in Table 3 are highlighted with the "✪" symbol These actions are those which either have an immediate payback (cost effectiveness = H) or have a high environmental benefit combined with a moderate payback (cost effectiveness = M)

TABLE 3 ENVIRONMENTAL ASPECTS OF TREE HOUSE'S ACTIVITIES AND RECOMMENDED ACTIONS

Env aspect of the property's activity	Recommended action	Environ benefit of the action	Cost to implement the action	Action's cost effectiveness
MAINTENANCE DEPARTMENT		**H = High**	**M = Moderate**	**L = Low**
General issues	❂ Make it a top priority to hire additional maintenance workers While Mr Lindo has exhibited the highest level of professional service and courtesy, the costly inefficiencies that are evident throughout the property are a direct result of a severely understaffed maintenance department The water, energy, equipment and other savings achieved with a well staffed maintenance department will easily offset the salary of the additional maintenance workers	H	M	H
	❂ Most of the equipment at Tree House is in a poor state of maintenance If provided with the necessary means and staff, the maintenance department should establish and implement a regular and effective maintenance program	H	M	M
	Enter all repairs in a log book This will allow management and the maintenance department to identify inefficient equipment and to better manage maintenance operations	M	L	Not applicable
Water use	Water consumption at Tree House (208 gallons per guest night) is much above the industry average for a water efficient property (154 gallons per guest night) Given the high cost of NWC water (200 J$/1,000 gallons), Tree House should engage in an aggressive water conservation program	H	See specific recommendations	See specific recommendations
	❂ Promptly fix all leaks in faucets, toilets, pipes and other fixtures Many of the hotel's toilets and faucets leak and waste a large volume of water and money For example, 5 out of 9 (56%) bathrooms inspected by the audit team had leaky toilets The toilet in room 53 was measured to lose 7 1 gallons per hour, corresponding to a loss of 62,200 gallons of water per year and costing the hotel 12,450 J$ per year Such leaks can fixed at a negligible cost	M	L	H
	Reduce water use in guest rooms, guest room kitchenettes, kitchen and public restrooms by installing flow aerators on all faucets that are not yet equipped with such water conservation devices	M	L	M
	Continue the installation of low flow shower heads Since the low flow shower heads installed by Tree House use on average 1 5 gpm as compared to 5 gpm for the standard shower heads, the installation of these devices is a very cost effective water conservation measure	M	L	M
	Continue replacing old and damaged toilets in guest rooms and, especially, in public bathrooms with water efficient toilets (2 gallon tanks)	M	M	M

Env aspect of the property's activity	Recommended action	Environ benefit of the action	Cost to implement the action	Action's cost effectiveness
	Install toilet dams or pop flush devices in the water tanks of all non water efficient toilets The use of these devices can reduce by approximately 1/2 gallon the amount of water used for each flush	M	L	M
	✪ Given the high cost of NWC water (200 J$/1,000 gallons), Tree House should seriously consider collecting and reusing the rainwater that falls on the rooftops of its cottages and buildings The principal uses for the collected rainwater include grounds irrigation and laundry (rainwater is naturally soft and would therefore eliminate the need for water softening chemicals)	H	M / H	M
	Install a private meter on the unmetered 1 inch main and monitor its water output Tree House is currently charged for an estimated water consumption of 150,000 gal/month from this main However, it is likely that the volume of water drawn by Tree House from the unmetered main is considerably less than the estimated value The property's other 1" main has an average metered output of only 104,000 gal/month	Not applicable	L	Not yet determined
	Monitor water consumption and calculate monthly gallons/room night or gallons/guest night figures Use this information to spot potential problems or leaks in the water supply lines and evaluate the progress of the water conservation efforts	M	L	Not applicable
	Use a sedimentation tank to pretreat the water supply A simple sedimentation tank could remove most of the sediments from the raw water flow and thus eliminate, or greatly reduce, the use of imported, disposable water filters The economic viability of this measure will depend on the amount of money currently spent by Tree House in purchasing its water filters	M	H	Not yet determined
Energy use Electricity and lighting	Electricity consumption is above industry average, the Tree House should therefore engage in an aggressive energy efficiency program	H	See specific recommendations	See specific recommendations
	The Tree House should consider improving its low power factor	M	Not yet determined	Not yet determined
	Although pool filter pumps are generally operated continuously, experience has shown that pool water quality can be maintained by running the filter pumps for 12 to 16 hours per day Tree House should therefore install timers on its filter pumps or shut them off at night, this measure will save energy and increase the useful life of the pumps	M	L	M
	There is a large number of incandescent bulbs used around this property Wherever possible, Tree House should consider replacing incandescent bulbs with energy efficient fixtures	M	M	M

Env aspect of the property's activity	Recommended action	Environ benefit of the action	Cost to implement the action	Action's cost effectiveness
	❂ Corridor and guest room terrace lighting is generally excessive (100 Watt bulbs) Using lower Wattage bulbs in these areas will save energy and improve the atmosphere of the guest room terraces (current lighting in terraces is too bright and harsh)	M	L	H
	❂ Maintenance and management should encourage staff to turn off lights and equipment that are not in use	M	L	H
Energy use Air-conditioning and refrigeration	❂ Equip all air-conditioning units with air filters Clean the filters and the cooling coils on a monthly or bi-monthly basis -- this operation is currently done only once or twice per year at Tree House Most of the a/c units inspected were clogged with dust and thereby operated very inefficiently	M	L	H
	Many of the a/c units inspected are in disrepair and need servicing Tree House should implement a regular and planned maintenance program for a/c units	M	M	M
	❂ The louvered windows and the large gaps under the entrance doors result in a significant heat gain in the guest rooms and add to the load on the a/c units Install durable weather stripping on the louvered windows and at the base of the entrance doors to reduce heat gain and the energy consumed by the a/c units	M	L	H
Energy use Hot water supply	Many hot water units are in need of servicing Tree House should implement a regular and planned maintenance program for all water heaters	M	M	M
	Install timers on water heaters -- currently, water heaters are on 24 hours per day	M	M	M
	Consider installing additional solar panels such as those currently in place on some of the suites cottages	M	H	L
	Consider using waste heat from the split a/c units to preheat water for guest rooms	M	H	L
Solid waste generation	❂ Tree House should implement a hotel-wide recycling program to segregate glass, metal, cardboard, paper and green waste from its general waste stream	H	M	M
Generation of water pollutants / Use of hazardous products	❂ Eliminate the routine use of the "degreaser" chemical (Petrotherm) for the kitchen drains and grease traps This chemical is toxic, hazardous and expensive (210,000 J$ in 1996), it should, therefore, be used sparingly and only as a last resource The use of the Petrotherm could be significantly reduced by properly maintaining the grease traps (regular skimming), installing tamper-proof strainers on all kitchen and bar sinks, and training kitchen and bar employees	H	L	H

Env aspect of the property's activity	Recommended action	Environ benefit of the action	Cost to implement the action	Action's cost effectiveness
Generation of air emissions	Implement a CFC phase-out program This program should cover the proper handling and recycling of freon from old equipment (ice-making machines, refrigerators and air conditioners) and the gradual replacement of old equipment with CFC-free equipment	H	M /H	Not applicable
Damage to the ecosystem	Tree house should stop discharging untreated gray water in the morass The discharge of sewage and noxious effluents in bodies of water is prohibited by Jamaica's Natural Resources Conservation Authority Act	H	M	Not applicable
FRONT OFFICE AND GIFT SHOP				
Solid waste generation	Discontinue the practice of writing and recording reservation on paper cards Computer entry should be sufficient to record reservation information	L	L	M
	Implement a paper reuse program Once-used paper (i e , printed on one side only) can be reused as scrap paper for taking notes, writing inter-office memos, etc	M	L	M
	❂ In the gift shop, replace the brown paper currently used to wrap breakable items with used newspaper	L	L	H
	❂ Whenever feasible, don't automatically give out plastic bags for gift shop purchases, instead ask guests if they would like one Replace plastic bags with paper bags	L	L	H
PURCHASING DEPARTMENT				
Solid waste generation	Purchase as much recycled paper products as possible (office paper, toilet paper, facial tissues, paper towels, etc) Most paper products manufacturer have environmentally friendly alternatives which contain a minimum of 20% POST CONSUMER waste The price and quality of recycled paper products are often comparable to those of virgin paper products	M	L	Not applicable
	An effort should be made to standardize and consolidate purchases between departments For example, there are several types of facial tissues used throughout the hotel - some containing 100% post consumer waste and some containing none	M	L	M
Use of hazardous products	❂ Obtain ingredient lists or material safety data sheets (MSDS) from chemical manufacturers or distributors and keep them on file This will help the property identify and possibly discontinue the use of certain hazardous products It will also allow the property to better respond to emergencies related to the use of these hazardous chemicals	H	L	Not applicable

Env aspect of the property's activity	Recommended action	Environ benefit of the action	Cost to implement the action	Action's cost effectiveness
HOUSEKEEPING, LAUNDRY				
General	❂ Tree House should implement a formal system to report malfunctioning guest room equipment to the maintenance department, this system should include written and tracked maintenance request forms Supervisors should be made more aware of the importance of reporting faulty equipment such as leaky toilets, a great consumer of water and dollars	H	L	H
Water use	❂ Let guests decide if they want to replace their linens and towels every day International and Jamaican (JHTA) experience has revealed that such an option can reduce the laundry load by up to 40% By reducing the volume of material processed through the laundry, the property can lower its water, chemicals and energy costs, lengthen the useful life of its laundry room equipment, and reduce its discharge of pollutants to the environment	H	L	H
Energy use	❂ Turn air conditioners off during room cleaning operations After cleaning the rooms, leave the a/c units off or, if requested by the guests, turn them back on at a low energy setting	M	L	H
Solid waste generation	❂ Eliminate the use of paper wrap for guest room drinking glasses Instead, store the drinking glasses upside-down	L	L	H
	Discontinue the practice of wrapping linens and towels in plastic bags Purchase durable, reusable canvas bags instead	M	L	M
	Discontinue the practice of wrapping guest laundry in plastic Instead of using plastic bags, the laundry could be folded and returned in small, reusable wicker baskets	M	L	M
	Reduce spillage and overuse of laundry detergent and chemicals by using suitable measuring cups rather than the existing spoons	M	L	M
Use of hazardous products	❂ Label all chemical containers An effort should be made to retain the labels on all chemical containers in order to avoid potential injury to employees and guests, and to prevent the misuse or unecessary disposal of these products	H	L	M
KITCHEN				
Water use	❂ Reduce unnecessary use of water in food preparation by washing vegetables in basin rather than under running water	M	L	H
Energy use	Kitchen freezers and coolers are in a poor state of maintenance and should be serviced	M	M	M

Env aspect of the property's activity	Recommended action	Environ benefit of the action	Cost to implement the action	Action's cost effectiveness
	Repair all broken temperature gauges to insure that appliances are operated at the required temperature	M	M	M
	✪ Turn off the air conditioner at night (or at least operate it at a low energy setting) in order to reduce energy consumption	M	L	H
	The stove top should be cleaned every day and the griddle should be scraped after each meal service rather than at the end of the day These practices will increase the efficiency of the equipment and reduce fire hazards	M	L	M
Solid waste generation	Purchase sealable, reusable plastic containers (e g , Tupperware) to reduce the use of disposable plastic wrap for food storage	L	L	M
	Reduce packaging waste by purchasing sugar, jellies and jams, butter and cereal in bulk	M	L	M
	Use durable plate covers instead of plastic wrap for room service deliveries	M	L	L
Use of hazardous products	Discontinue the use of bleach as a cleaning agent Purchase a citrus-based cleanser as an alternative	M	L	Not applicable
RESTAURANTS AND BARS				
Water use / Solid waste generation	At the beach bar, replace disposable plastic wares and paper plates with reusable alternatives	M	M	M
Solid waste generation	✪ Discontinue the practice of supplying guests with new paper cups or glasses for each drink they order If a guest orders the same beverage twice, offer to refill the glass as an alternative to giving a new glass This measure will cut down on water used for dish washing, chemical use, and the generation of solid waste	M	L	H
	✪ Do not give straws out automatically with drinks Guests should be asked if they would like one Replace plastic straws with paper straws	L	L	H
	Reduce packaging waste by purchasing concentrated juices as an alternative to canned juices	M	Not yet determined	Not yet determined
	Replace paper napkins with linen napkins during breakfast and lunch	L	L	L
	Eliminate the use of daily special menus at the restaurant and beach bar by using black boards or "glow boards" to announce the special menu items The board can be placed at the restaurant or bar entrance and servers can recite the special menu items at the table	L	L	L

Env aspect of the property's activity	Recommended action	Environ benefit of the action	Cost to implement the action	Action's cost effectiveness
Use of hazardous products	Discontinue the use of bleach as a cleaning agent Purchase a citrus-based cleanser as an alternative	M	L	Not applicable
POOL, BEACH AND WATER SPORTS				
Energy use	Install wind-up timer on jacuzzi to reduce energy use	M	M	M
Solid waste generation	Discontinue the use of disposable wares on the "Island Picnic" tour Reusable plastic alternatives should be considered	M	M	M
	✪ Implement a program to recycle old batteries and motor oil from the jet skis	H	L	Not applicable
Use of hazardous products	✪ Identify and use an environmentally friendly alternative to the diesel/pesticide mixture presently used to "fog" the beach	H	L /M	Not applicable
GARDENS				
Water use	✪ Irrigate in evening and early morning to reduce the amount of water lost by evaporation	M	L	H
Solid waste generation	✪ Discontinue the practice of incinerating green waste We strongly recommend that Mr Morris start a compost heap for grass, shrub trimmings, and the sea grass collected daily from the beach This compost can be used on the hotel grounds as well as Mr Jackson's' farm to replace chemical fertilizers	H	L	M
	Use durable and reusable canvas bags rather than disposable plastic bags to gather green garden waste	M	L	M
	All employees should be required to pick up any trash which may be laying around the property	M	L	Not applicable