



Sustainable Tourism and Environmental Practices (STEP)

GUIDELINES FOR HOTELS



DR

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FOREWARD

The Guam Hotel & Restaurant Association (GHRA) serves as an industry liaison and leader for the tourism industry. GHRA strives to be an active corporate citizen in the community and works with others to improve the overall quality of life on the island of Guam. Since 1972, GHRA:

- Promotes the highest standards of service and quality in the hotels and restaurants on Guam;
- Advocates just legislation and governmental regulations governing the conduct of business;
- Improves business-community relations through positive interactions with Guam's citizenry; and
- Publicizes the value and benefits of the island's visitor industry to the territory's economy.

GHRA's Engineering & Environmental committee is one of seven committees for the non-profit, non-government organization. The committee's mission is to support tourism by promoting the island as a healthy, safe, clean, and environmentally friendly holiday destination offering quality services to our visitors. Through the committee, GHRA provides leadership and addresses environmental, infrastructure and utility issues while maintaining facilities in excellent and safe conditions.

By implementing the Sustainable Tourism and Environmental Practices (STEP) program, GHRA will provide best practices and guidelines to serve as an important tool for the committee, GHRA members and businesses on Guam. STEP will create a benchmark and set standards for the industry. By incorporating STEP, businesses will minimize and avoid environmental damage while ensuring compliance with regulatory agencies, work towards a more sustainable future and increase efficiency, effectiveness and profitability.

GHRA plays an important role in educating and training industry employees, providing tools and best practices, serving as a catalyst and agent for change, and leading the industry on issues. By providing a safer and healthier environment for employees and visitors, businesses will benefit from implementing conservation programs and sustainable practices that reduce the impact to the environment on land and in the water.

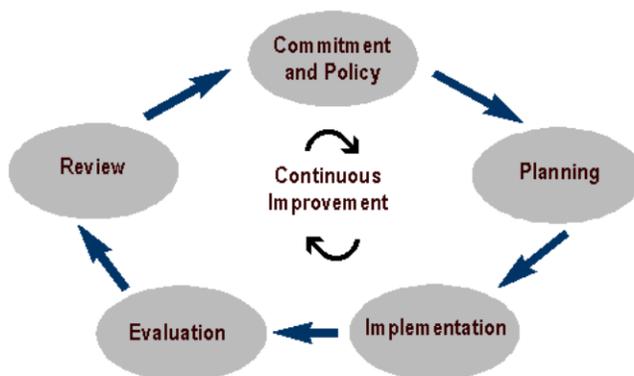
Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

International Organization for Standardization 14001

The US Environmental Protection Agency suggests using the five steps in the International Organization for Standardization (ISO) 14001, established in 1996, as a system to help an organization continuously improve its environmental practices and performance.

- 1. Commitment and Policy** - Top management commits to environmental improvement and establishes the environmental policy.
- 2. Planning** - Management identifies environmental aspects of its operations. For example, air pollutants or hazardous waste that can have negative impacts on people and/or the environment. An organization then determines which aspects are significant by choosing criteria considered most important by the organization. Once significant environmental aspects are determined, develop an action plan with objectives and targets that includes designating responsibilities, establishing a schedule, and outlining clearly defined steps to meet the objectives and targets.
- 3. Implementation** - Follow through with the action plan using the necessary resources (e.g. human capital, financial, consultants) to implement the program. Include important components such as create awareness, conduct audits, train employees, measure results, update operating procedures, and communicate to internal and external stakeholders.
- 4. Evaluation** - Evaluate program whether objectives and targets are being met. If not, take corrective action and continuously improve.
- 5. Review** - Analyze results of the evaluation and determine if the environmental policy is consistent with the organization's values. Revise the plan (if necessary) to optimize effectiveness, increase efficiencies and improve results. Share best practices with the industry and repeat the cycle!



BENEFITS

- Create a safer environment
- Improve employee performance and morale
- Enhance image
- Increase employee awareness of environmental issues
- Initiate employee and corporate responsibilities
- New customers/markets
- Exceed guest expectations
- Find efficiencies and improve operations
- Reduce costs
- Comply with environment laws and regulations
- Reduce resource use
- Pollution prevention
- Resource conservation
- Improve occupational health and safety standards in the workplace
- Establish key performance indicators for success
- Practice sustainable tourism
- Develop corporate social responsibility

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

Commitment and Policy

- Establish an environment policy and develop a program including all departments;
- Identify team members and leaders;
- Assign responsibilities;

Planning

- Review current and impending rules, regulations and legislation;
- Assess environment performance and current practices;

Implementation

- Administer environment policy and programs;
- Develop procedures, establish new standards and implement a program;
- Train employees and communicate new program and standards;
- Tie in employee performance with key objectives of the program;

Evaluation

- Analyze procedures and standards while recognizing and documenting inefficiencies;
- Monitor and document program results;
- Evaluate performance based on key objectives of the program;

Review

- Conduct an audit and identify resource inputs and waste outputs;
- Modify objectives for continuous improvement and establish new procedures;
- Compare performance to prior year;
- Continue training and education with employees;
- Document performance and maintain records;
- Communicate program and results to internal and external stakeholders; and
- Report environment performance to guests.

PROGRAMS

GHRA's STEP program includes Environmental Management Systems (EMS) identifying key areas such as water and energy conservation; food, hazardous and green waste, noise, air quality and emissions; reef conservation; purchasing; and event management.

WATER CONSERVATION

Water is considered a valuable resource in communities and can be quite costly for hotels.

Considered to be an essential commodity, water is usually stored on-site and distributed throughout the property for different areas.

Water conservation efforts include:

- Maintaining water quality and managing water supply;
- Avoiding the build-up of bacteria (e.g. legionella pneumophilia);
- Reducing water use and wastewater output;
- Purifying and treating water for swimming pools;
- Monitoring water consumption;
- Install sub-meters in different areas to better monitor water consumption;
- Managing drinking and non-drinking water supplies;
- Placing inlet and outlet valves to avoid the build-up of stagnant water;
- Controlling flow, reduce pressure and optimize cost savings with vacuum breakers and calibrated systems;
- Maintaining and upgrading insulation on hot water tanks and pipes;
- Repairing leaks and dripping pipes;
- Using location-specific water heaters to increase temperatures for boilers and storage tanks;
- Running washing machines and dishwashers only when fully loaded;
- Cleaning tanks regularly, check for leaks and remove build up;
- Managing storage tanks ensuring coverage and protection from dust, pests, and other sources of contamination;
- Encouraging employees and guests to conserve water;
- Inviting guests to reuse towels and linens;

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

- Minimizing solids in waste water by placing grease traps and filters in kitchen, bathroom and laundry outlets;
- Reusing treated wastewater;
- Collecting and reusing rainwater for irrigation and other non-drinking uses;
- Installing water collection tanks on the roof or at the ground level; ; Putting plastic containers filled with water in toilet cisterns to reduce flush water volume;
- Directing flow to the root of the plants when watering gardens;
- Placing volume reducers in toilet cisterns;
- Installing pressure flush valves on toilets and urinals, which can reduce flush water;
- Retrofitting taps and showers with aerators to reduce water volume;
- Installing photoelectric cells in public washstands;
- Installing chemically purified urinals that do not use water;
- Installing hot and cold-water mixers in all outlets;
- Replacing baths with showers;
- Fitting low-flow showerheads and toilets;
- Using ionization to purify swimming pool water, which releases metallic ions into the water and reduces chlorine use by and eliminates eye stinging and bleaching effects; and
- Using ozone to purify swimming pool water, which passes air through UV lamps using a photochemical method that turns the oxygen molecules into ozone.

ARE YOU MANAGING YOUR WATER AND WASTEWATER?

- ✓ *How much hot and cold water is used in the hotel, pool, garden, etc?;*
- ✓ *Is water consumption and conservation being monitored?*
- ✓ *What is the water cost as a proportion to operating costs? Has it risen over the years?*
- ✓ *Have sub-meters been installed to monitor water consumption by department or area?*
- ✓ *Are there signs of corrosion? Are there high levels of scale or other deposits?*
- ✓ *How often do you check for leaks, pressure control changes, pH increases, and other issues?*
- ✓ *Is there adequate turnover in water storage tanks to prevent the forming of bacteria?*
- ✓ *Is waste water treated before discharge?*

ENERGY CONSERVATION

Energy is considered the largest resource utilized in hotels, which represents a large share in the operating cost and includes lighting, power, heating, cooling, ventilation, and fuel. Majority of the energy is provided by main grid managed and operated by the Guam Power Authority. Most hotels utilize standby generators, boilers, solar panels, natural gas or propane, fuel, and bio-fuels to generate alternate forms of energy.

Energy conservation efforts include:

- Installing renewable sources such as solar, bio-fuels, wind, and geothermal energy;
- Monitoring degree-day thresholds to provide guidance on heating and cooling levels;
- Repairing, retrofitting and refurbishing equipment; ;
- Installing insulation that help prevent condensation, mold and reduce costs;
- Insulating all hot water tanks, pipes and boilers;
- Sealing gaps in walls, windows, doors, roofs, and floors to control cooling loss, humidity and penetrating damp;
- Using weatherproof covering and coatings (e.g. sun-reflecting paints, pale shades) to reduce heat gain and increase light reflection;
- Training staff to use less hot water and switch off equipment when not in use;
- Inviting visitors to switch off equipment and lights when not required;
- Opening and closing curtains to minimize heat gain;
- Reducing heat loss by installing double-glazed windows or low-emissivity glass;
- Using translucent lampshades to optimize light;
- Purchasing and installing low-energy lighting, which can reduce costs;
- Controlling light output by using dimmer switches;
- Selecting energy efficient cycles for dishwashers and washing machines;
- Defrosting food at room temperature and not in hot water;
- Maintaining hot water in taps at 50 degrees Celsius;
- Using link panels and key fob panels to activate and set temperatures when occupied;

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

- Using motion detection or infra-red occupancy detectors to turn systems during occupation;
- Setting timers and controllers to the degree-day thresholds outside the property;
- Maximizing efficiency by regularly servicing boilers and chillers;
- Setting automatic load-shedding control systems;
- Investigating the cause of loading;
- Avoiding the use of some appliances and equipment during peak periods;
- Monitor electricity use and consider choosing appliances to operate during non-peak periods;
- Applying sealing and stripping materials such as silicon strips, PVC, aluminum, rubber, etc.;
- Installing insulation for walls, roofs and floors to avoid loss of cooling;
- Using low energy lighting and controlled ventilation;
- Installing controls for heating and hot water systems;
- Using heat exchangers to separate the heat and transfer the heat to be reused from the kitchen, laundry, boiler flues, and pool systems.
- Replacing old equipment and looking at renewable energy options;
- Matching the size of appliances to demand and not using equipment that wastes energy;
- Acquiring exact calorific values of fuels and equipment from suppliers to ensure accuracy of data;
- Maintaining good housekeeping of facilities and equipment;
- Shutting down power in sections of the building that are not in use;
- Using room thermostats to set temperatures, which switch off boilers;
- Setting zone controls for different areas that have various levels of activity;
- Controlling ventilation to reduce condensation and the resulting damp, stale air;
- Using rapid ventilation systems such extractor fans;
- Relying on trickle vents for background ventilation systems;
- Installing programmer and timer switches to change space and water heating at required times; and
- Inviting visitors to switch off equipment and lights when not required.

CASE STUDY: HOTEL NIKKO GUAM

Hotel Nikko Guam is one of five hotels owned by P.H.R. Ken Micronesia. In its continuous efforts to find efficiencies, conserve energy, reduce costs, and improve its carbon footprint, Hotel Nikko Guam worked with the Guam Power Authority and Siemens to retrofit the ??? year hotel with new, advanced electrical equipment to improve total energy output.

The joint effort is the first of many projects available through the public-private partnership programs that aims to introduce new technology designed to improve emissions, prevent pollution and reduce the impact to the environment.

State the problem

Analyze the situation

Introduce the alternative solution

Explain the benefits

In addition to new technology, Hotel Nikko Gam is committed to improving its environmental performance through other programs that minimizes and manages waste. The hotel will identify and implement practices to optimize energy and water outputs without affecting the quality of services provided to guests. The Hotel Nikko Guam will also put measures in place to regularly monitor and implement changes to its operations and purchasing decisions tha impact the hotel and its surroundings, employees and guests.

PROVIDE SIEMEN’S INFORMTION AND GPA PROGRAM

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

FOOD, HAZARDOUS & GREEN WASTE MANAGEMENT

Reducing and reusing is one of the easiest areas for improvement. Conduct waste assessments annually to determine if additional measures can be implemented; Efforts should be made to:

- **Avoid** waste at the source and purchasing items that cannot be reuse, reduced or recycled;
- **Reduce** or replace waste with alternatives to avoid waste or generate less;
- **Re-use** materials for the same or another purpose; and
- **Recycle** by collecting, sorting and properly disposing materials.

Avoid waste at the source and purchasing items that cannot be reuse, reduced or recycled

- Purchasing products with less packaging or with recyclable materials;
- Asking suppliers to take back packaging (e.g. boxes, crates, pallets);
- Buying in bulk rather than small packages;
- Installing air hand dryers instead of paper towels;
- Avoiding washing cars, equipment, floor mats or other items where run-off water flows straight to the storm drains;
- Installing a catch basin filter to evade overflow in parking lot storm drains;
- Avoiding Dumping by labeling all storm water inlets;
- Checking and maintaining drains while keeping them clean annually before the first rain and on a regular basis to ensure storm drain openings and basins are not being obstructed;
- Keeping spill kit handy to catch and clean spills complete with adequate absorbent materials from hazardous waste, grease and leaks;
- Cleaning spills that minimizes water use (e.g. sweeping, mopping) and enters the sanitary sewer rather than storm drains;
- Keeping dumpsters covered and impermeable to rainwater;
- Managing the overflow of dumpsters;
- Placing leftover beverages and wet food in the garbage cans or dumpsters;
- Disconnecting garbage disposals;
- Maintaining green waste and food composting areas to prevent leaks or spills to storm drains;;
- Avoiding solids that can be composted by placing baskets in sink drains to catch waste and/or materials that should go in the trash;

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

- Preventing solids from going into wastewater and run off by using drain plugs or screens in all floor and sink drains that allow for drainage of water;
 - Sweeping dirty water in clean parking lots or using equipment to ensure collection and disposal to the sanitary sewage system;
 - Misunderstanding of property practices by posting signs at trouble spots (e.g. loading docks, dumpster areas, outside hoses);
 - Passing grease from the trap to the sewer; Do not use biological or chemical additives to grease traps or interceptors;
 - Keeping kitchen grease from washing down sewer drains by scraping trays, grills and pans and depositing kitchen grease into waste grease cans; when installing grease traps, consider upkeeping traps and keeping a maintenance log;
 - Identifying hazards and locating all potential pollutants from food preparation, service and storage areas where sewer and storm drains exist;
 - Using landscaping to minimize erosion programs with storm drains especially during construction and demolition projects; During construction, confine, contain and properly dispose of refuse from sites or demolitions to protect storm drains, workers and the public;
 - Locating all hazardous materials and waste storage away from storm drains to prevent contamination; To capture spills, install secondary containment around areas where liquids are stored and transferred;
 - Placing leftover beverages and wet food in the garbage cans or dumpsters;
 - Deterring cigarette butt disposals by providing outdoor ashtrays or cans;
 - Supporting vendors with green initiatives; and
 - Other
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Reduce or replace waste with alternatives to avoid waste or generate less

- Discontinuing use of disposable cutlery and crockery except biodegradable products;
- Using Mulch and compost garden and kitchen waste;
- Sending food waste to pig farms as feed;
- Discontinuing using individual food portions;
- Replacing individual toiletries in guestrooms with refillable fixed dispensers;
- Donating old furniture and linen to non-profit organizations;
- Donating old uniforms and linens to shelters and non-profit organizations;

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

- Making double sided printing and copying a standard practice and use both sides of copier paper before disposal;
 - Switching from disposable to reusable laundry bags; and
 - Other
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Re-use materials for the same or another purpose

- Re-using old linen as cleaning rags;
 - Using stained or old guest towels for cleaning rags;
 - Donating partially used amenity bottles and donate to local shelters, nursing homes and halfway houses;
 - Re-using laundry bags;
 - Donating left over paint to local art programs (e.g. anti-graffiti campaigns) or paint exchange program with artists);
 - Re-using packaging containers for holding and storing other materials (if appropriate);
 - Purchasing hats that can be reused for kitchen employees instead of disposables;
 - Re-using Styrofoam for packaging needs;
 - Re-using glass or plastic bottles as toilet dams in cisterns;
 - Keeping a stack of previously used paper near printers for drafts or internal memos;
 - Re-using envelopes for intra-office or inter-office mail and use labels to cover up old addresses and postage;
 - Purchasing re-treaded tires for the fleet of vehicles;
 - Washing napkins and other linen; Do not use paper or disposable napkins;
 - Re-using leftover guest stationery and literature in the back office; and
 - Other
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Recycle by collecting, sorting and properly disposing materials

- Establishing in house procedures for recyclable waste such as:
 - Glass
 - Plastic
 - Paper

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

- Cardboard
 - Wood pallets
 - Aluminum
 - Food Waste
 - Green Waste
 - Electronic Waste (e.g. Computers, Batteries)
 - Condiment containers
 - Packaging materials
 - Non-deposit containers
 - Chemicals
 - Other Hazardous Materials
- Contacting local recycling centers and dealers for the sale of waste for recycling and disposal;
 - Using Non-alkaline batteries;
 - Purchasing mulch, soil amendments and compost;
 - Leaving grass clippings on the grass as part of grass cycling;
 - Using motor oil through a reputable program or businesses and avoid export of oil;
 - Purchasing recycled oil and/or antifreeze for fleet of vehicles;
 - Sending fluorescent tubes to a mercury recycling company avoiding export of the tubes;
 - Recycling Toner cartridges for copiers and printers; and
 - Other

HOW CAN THE SEPARATION OF WASTE BE INCORPORATED AT THE HOTEL?

- *Place labeled and separated waste containers in public areas and guest rooms;*
- *Install housekeeping carts with separate waste containers;*
- *Make available separated waste containers in kitchens, restaurants, outlets, and offices;*
- *Post signs encouraging separation of waste*
- *Train employees in all departments to separate waste and place in appropriate containers.*

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

WASTE MANAGEMENT – Resources

Cardboard

- **Guahan Waste Control
a.k.a. Mr. Rubbishman**
Harmon
646-5183/5
- **Dewitt Moving and Storage
Harmon**
646-4442, 646-1877



Paper

- **Guahan Waste Control
a.k.a Mr. Rubbishman**
Harmon
646-9465/4687
- **Guam Transport & Warehouse
(Security Documents)**
Harmon
647-7873, 646-9465/6



Newspapers can also be donated to your local pet shop or veterinarian for re-use as liners in their pet cages.

Aluminum cans, copper, brass, metallic waste, etc.

- **Bali Steel**
(metallic waste only)
Apra Harbor
635-1123
- **FSM Recycling**
Harmon
649-2400
- **Guam Metal Development**
Harmon
688-5171
- **Isla Recycling**
(steel/ferrous only)
Dededo
637-9805/6
- **Island Scrap Yard**
Barrigada
637-1687
- **Pyramid Recycling**
Harmon
646-8130
- **Formosa Recycling**
(steel only)



Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

Harmon
646-3731

- **Triple Star Recycling**
Harmon
648-2910/11
- **Xiong's Recycling**
Harmon
649-4514/15

Electronic recycling

- **Pyramid International**
Harmon
646-8130
- **Island Scrap Yard**
Barrigada
637-1687
- **Xiong's Recycling**
Harmon
649-4514/15



White goods

- **Bali Steel Guam LLC**
Apra Harbor
635-1123
- **FSM Recycling Inc.**
Harmon
649-2400
- **Isla Recycling**
Dededo
649-4398
- **Island Scrap Yard**
Barrigada
637-1687
- **Triple Star Recycling**
Harmon
648-2910/11



Plastic (Types 1 & 2 only)

- **Pyramid Recycling**
Harmon
646-8130



Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

Oil, paint, thinner, hazardous waste

- **Pacific Env. Resources**
Santa Rita
565-7473
- **South Pac. Environment**
Harmon
649-7609
- **Unitek Environmental**
Agat
565-3151



Used cooking oil

- **Lucky One Pumping**
Anigua
472-8280

Batteries

- **Bali Steel Guam LLC**
Apra Harbor
635-1123
- **Island Scrap Yard**
Barrigada
637-1687
- **GRESKO**
Santa Rita
565-7473
- **Triple Star Recycling**
Harmon
648-2910/11
- **Unitek Environmental**
Agat
565-3151



Reusable household goods, clothing, furniture, toys, books, etc.

- **Salvation Army, Thrift Shop**
Camp Watkins Road, across Onward Beach Hotel
Tel: 647-1569
Hours: Mon-Sat 9:30am to 4:30pm
- **Catholic Social Services**
Tel: 653-8855/57
- **Guam Rehab Center**
Marine Drive in Tamuning, across J.F.K
Tel: 649-0884
Hours: Mon-Sat 8:00am to 4:00pm

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

Hardfill: Greenwaste

- **Eddie J. Cruz, LLC**
DBA Eddie Cruz Hardfill
363 Gayinero Drive in Yigo across from the D.L. Perez Elementary School.
Office: 989-7645, Cell: 482-1600 or 488-7702
Email: eddie.cruz@ymail.com



Greenwaste

Trees, Bushes, Leaves, Stumps, Grass Clippings, and other vegetive waste etc.

- **South Pacific Environmental**
Robert Willis
GotWaste@gmail.com
671-747-1351 and 671-649-7609

Construction Material

Pallets, Scrap Lumber (2X4's Plywood etc.)

- **South Pacific Environmental**
Robert Willis
GotWaste@gmail.com
671-747-1351 and 671-649-7609

CASE STUDY: FIESTA RESORT GUAM

Fiesta Resort Guam is one of four hotels owned and operated by Tan Holdings. In its continuous efforts to find efficiencies, conserve energy, reduce costs, and improve its carbon footprint, Fiesta Resort Guam repurposed vegetable oil....

State the problem

Analyze the situation

Introduce the alternative solution

Explain the benefits

Insert Narrative for the Golden Latte Sustainability Awards

Insert best practice using vegetable oil by Fiesta Resort Guam

In addition, Fiesta Resort Guam limits waste and recycles when possible, limits the use of harmful materials, optimizes use of resources, and meets government requirements, rules and regulations.

REEF CONSERVATION

It is extremely important to educate employees and guests on the value of reef conservation. By doing so, businesses can promote responsible marine use and sustainable tourism when interacting with the marine ecosystem. Understanding and managing the impacts of human use and pollution on our reefs help preserves and protect the coral reefs and the many fish and animals that depend on them. Guam has five marine preserves, which attract tourists and increase economic value of the tourism industry and fisheries.

Through invaluable programs such as the NOAA Coral Reef Conservation Program and University of Guam Sea Grant, GHRA has provided community and business outreach opportunities to educate employees and create an awareness in the industry with the following programs:

- Overview of Guam's coral reefs (stats) -ecologic, economic, social, and cultural value;
- Overview of impacts of tourism and recreational misuse
- Information about Hotels FOR Guam;
- List of relevant, on-island clubs/agencies/community groups and programs
- Benefits of greening a business and adopting reef-safe practices
- List of relevant theme days/weeks/months to promote with slides for kiosks
- Guidance on conducting beach clean-ups and algae removal events
- Sustainable and reef-safe recommended products
- Recommended reef-safe marine tour operators (from workshops)
- Update the Tumon Bay/House reef guide book with actual pictures from Tumon Bay, reef guide is emailed upon booking
- Other resources list – link to local weather data, tidal info, other hotel checklists, etc.

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

DEPARTMENT CHECKLIST FOR REEF CONSERVATION

Department	Action	Justification/Why this matters
Food and Beverage	Buy pelagic fish from sustainable fisheries (Mahi Mahi, etc). Avoid herbivorous reef species (parrotfish, rabbitfish, surgeonfish, etc.).	Habitat destruction. Many fishing practices are highly destructive to the marine environment and coral reefs. Fishing gear directly damages reefs when dragged on the benthic habitat, and it becomes a common source of ocean pollution. Herbivorous fish, or fish that naturally eat algae, have important ecological roles. Populations are needed to maintain a delicate algae-coral balance on coral reefs.
Food and Beverage	No straws initiatives; straw upon request; paper straws	Plastic pollution.
Food and Beverage	Increase vegetarian and vegan options on menus. Use local ingredients and avoid imported fruits or vegetables.	Climate change Meat and poultry production contribute greatly to climate change through the emission of methane and greenhouse gases, deforestation for farming, and extensive use of water resources. Use of local ingredients contribute to the local economy and reduce greenhouse gases needed for transport, while enhancing the local and cultural experience for the customer. Imported goods also require significant fossil fuels used for shipping or air freight.
Food and Beverage	Compostable or biodegradable paper cups in lobby and fitness center; Use metal instead of plastic in employee dining; Employee water dispenser	

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

Food and Beverage	PATA Buffet Campaign	https://www.pata.org/food-waste/ BUFFET campaign Building and Understanding for Food Excess in Tourism
Rooms, Front Office and House-keeping	Install product dispensers in showers instead of single-use body care products.	Plastic pollution.
Rooms, Front Office and House-keeping	Water savings programs – reuse towels, change sheets upon request.	Water. Reduces runoff which may find its way into the ocean and onto the reef. Reduces energy required for transport and treatments of wastewater. Reduce costs of water.
Rooms, Front Office and House-keeping	Install water dispensers in room instead of providing individual water bottles daily.	Plastic pollution. According to the MacArthur Foundation, there will be more plastic than fish in the ocean by 2050 at the current consumption rate of plastic and seafood. Additionally, recycling on Guam is expensive and requires fossil fuels to ship recyclables off-island.
Engineering	Use recycled vegetable oil instead of diesel to heat water.	Climate change.
Engineering	Use natural vegetation for shoreline protection as opposed to seawalls.	Erosion. Natural barriers keep the sand localized, rather than contributing to scouring along a seawall. Also, cement seawalls break down over time leaving behind concrete litter, an ecological and safety hazard. Reduces seawall maintenance costs over time because shorelines are dynamic and seawalls tend to erode.
	Use native plants for landscaping.	Runoff. This promotes local culture, saves money on pesticides, and reduces harmful runoff onto adjacent reefs. Native plants reduce need and costs of fertilizers or pesticides.

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

<p>Human Resources</p>	<p>Co-host Eyes on the Reef Marianas or Coral Monitoring trainings for staff. Consider joining Hotels FOR Guam.</p>	
	<p>Hire a marine biologist or sustainability coordinator to identify opportunities for reducing impacts to reefs and the marine environment.</p>	
	<p>Include coral reef education in all employee onboard training, despite specific job function or department. Solicit recommendations and facilitate the ability for employees to share ideas.</p>	<p>Identification of solutions. Employees are the boots on the ground on a daily basis. With knowledge and education, they can easily identify solutions to protect the ocean that may not be as recognizable to someone outside of their individual role. This also increases employee job-satisfaction when they feel empowered and ownership over their role.</p>
	<p>Organize beach clean-ups in front of hotel for staff and family members. Consider surveying collected material to identify primary sources of trash.</p>	<p>Plastic pollution.</p>
	<p>Go paperless in all trainings, onboarding, and leave forms.</p>	

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

<p>Marketing</p>	<p>Source reef-safe sunscreens for gift shops and encourage purchase of sun-protective active wear such as branded long-sleeved rash guards and hats. Include information on shelving.</p>	<p>Harmful sunscreen. Common ingredients in sunscreens have been found to cause coral bleaching and disease. Some studies show they are also harmful to human health. Increased revenue from sales of branded sun gear and new sunscreen products.</p>
	<p>Avoid selling souvenirs produced from marine life</p>	
<p>Marketing</p>	<p>Display coral reef outreach messages. Consider display of information on lobby kiosks, hotel rooms, or elevator. Make sure signage is translated, visually-stimulating, clear, and simple.</p>	<p>Enhances brand value.</p>
	<p>Display high tide and low tide information, and recommend guests stay out of water during low tide. Promote pool or other activities during low tide to keep guests off the reef.</p>	
<p>Concierge</p>	<p>Only recommend tour operators that have</p>	

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

	been certified or trained in safe and sustainable operations.	
	Suggest alternatives to balloon releases for weddings – flower petals (plumeria from the grounds), bubbles, compostable confetti, bird releases, butterflies, etc. Sky lanterns are now illegal pursuant to Guam Public Law 34-31.	
	Develop a reef education center like <u>Marriott Thailand</u>	
Kids Club	Design ocean related kids club activities and do beach scavenger hunts.	

- Reef Conservation section was authored by Mallory Morgan, National Coral Reef Management Fellow with NOAA and the Bureau of Statistics and Plans

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels



POLLUTION & EMISSIONS

Air, Water, Soil, Light, and Noise pollutions and emissions are unwanted sources that affect the quality of life. Providing a safe and healthy environment is of great importance to the comfort and well-being of our island residents and guests. Monitoring the levels of concentration in indoor and outdoor environments can help with managing emissions control and quality. Continuous exposure can have adverse effects, therefore, regular maintenance checks should be conducted, equipment should be cleaned and maintained, data should be reported and analyzed, and testing should be completed before control devices are installed.

Air emissions may include combustion gases and emissions such as carbon dioxide, nitrous oxide, hydrocarbons, tobacco, smoke, asbestos, mold, dust, ozone, radon, particles, and CFCs from refrigeration and air conditioning. Adverse effects from poor air quality can range from short term exposure (e.g. nausea, headaches, respiratory irritations) to long term exposure (e.g. asthma, allergies).

- Burning of fossil fuels used for water heating and cooking;
- Providing adequate ventilation to renew oxygen, remove micro-organisms and excess heat moisture;
- Keeping exterior sections of the ventilation system clean and free of obstructions to airflow;

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

- Integrating heat, light and ventilation systems for greater efficiency;
- Regulating changeover of air according to the number of occupants;
- Fitting filters and scrubbers to exhaust fans;
- Cleaning and maintaining exhaust fans;
- Reporting data and regularly maintaining boilers and generators;
- Servicing appliances and equipment on a regular basis;
- Conducting air sampling and monitoring;
- Testing for mold, lead and asbestos;
- Remediating any issues with air sampling;
- Monitoring over a long period to ensure a good range of data is collected;
- Understanding that external elements might affect estimates of air monitoring such as different times of the day and year, weather conditions and activity levels;
- Reducing emissions based on performance the prior year;
- Identify patterns or sources when analyzing data;
- Managing Ozone-Depleting Substances (ODS) such as refrigerators, freezers, min-bars, ice and vending machines, cold display cabinets, fixed and portable fire extinguishers, dry cleaning equipment, and plastic foams;
- Replacing older equipment with new equipment using low- or zero-ODS refrigerants;
- Retrofitting by replacing refrigerants with more environmentally-suitable alternatives;
- Preventing refrigerant leaks with containment as a means to maintain and optimize equipment;
- Working with suppliers to facilitate solvent recycling and recovery;
- Working with suppliers to promote zero-ODS alternatives;
- Replacing fixed and portable fire extinguishers with dry carbon dioxide powder and foam appliances;
- Installing zero-ODS walk-in cold rooms, deep freezers and refrigerators;
- Replacing aerosols with pump-action or refillable spray cans with zero-ODS alternatives;
- Discontinuing the use of Styrofoam packing or products;
- Using low-VOC paints, adhesives and varnishes when redecorating;
- Avoiding formaldehyde building insulation; and
- Maintaining fossil fuel operated equipment to minimize carbon dioxide emissions.

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

Noise pollution may be derived from many different sources and causes stress related illnesses, high blood pressure, speech interference, hearing loss, sleep disruption, and lost productivity. Individuals can take many steps to protect themselves from the harmful effects of noise pollution by wearing Personal Protective Equipment for the ears like ear plugs especially where employees are being exposed to noise on a consistent basis or high levels of noise that can directly damage the ear.

- Requiring waste-removal and delivery vehicles to switch off engines while loading and unloading;
- Using rubber mountings to soundproof isolated machines;
- Ensuring employees working in noisy areas are wearing ear Personal Protective Equipment;
- Minimizing exposure to areas that reduce the value of the property or leads to a loss of business;
- Managing noises in delivery and service areas, mechanical rooms, fans ,compressors, boilers, generators, bars, clubs, garages, kitchens, function rooms, lobbies; laundries, and lounge areas;
- Managing high traffic areas such as meeting rooms, offices, function rooms, and banquet rooms;
- Closing all doors especially in noisy areas and installing automatic door closing in guest rooms;
- Installing quiet toilet-slush tanks that also use less water;
- Installing double-glazed windows and using sound-absorbing building materials and devices;
- Applying noise-controllers on air-cooling openings;
- Installing reinforced foundations for heavy equipment;
- Installing or retrofitting quieter motors and fans in equipment; and
- Encapsulating machinery with damping materials (e.g. elastic panel mounting).

NOISE AREAS FROM WITHIN AND OUTSIDE THE PROPERTY

- ✓ *Have steps been taken to reduce noise?*
- ✓ *Do employees complain about noise? Does it come from inside or outside the property?*
- ✓ *Do guests complain regularly about noise? Does it come from inside or outside the property?*
- ✓ *Have employees reported health programs that could be linked to noise?*
- ✓ *Is it possible to identify times of the day where noise is a nuisance?*
- ✓ *Is noise regularly monitored and documented?*
- ✓ *Is it possible to pinpoint days and times of the year where areas are particularly noisy?*
- ✓ *Do you know the noise limit in OSHA rules and regulations?*

Sustainable Tourism and Environmental Practices (STEP)

Guidelines for Hotels

PURCHASING & EVENT MANAGEMENT

The tourism industry represents more than 60 percent of the Gross Domestic Product on Guam, which means businesses represent the largest purchasers and providers of consumer goods and services on the island. The use of environmentally friendly products can make incremental changes to avoid and reduce waste. It is important for businesses to communicate with suppliers the interest and need for alternative solutions that are more cost-effective in order to change purchasing behavior and practices.

- Buying and supporting locally-sourced produce and other products from local vendors;
- Promote the use of environmentally friendly materials in the hotels;
- Creating food based on what is available by local farmers and by season;
- Using sustainable items in displaying or serving food to reduce water and energy costs;
- Considering each input and output for waste management at events;
- Buying products with less packaging that reduces waste;
- Using products made entirely or partly with recycled materials;
- Cleaning with biodegradable and cruelty-free products;
- Preferring products that use less energy during manufacturing and use;
- Purchasing products that are multi-use, more durable and last longer;
- Use materials with reduced toxicity (e.g. water based paints, non-solvent cleaners).
- Supporting cleaner production processes (e.g. unbleached paper);
- Reusing or recycling products;
- Repurposing items for the same or another purpose;
- Adjusting lighting and using less energy;
- Changing purchasing practices in collaboration with suppliers;
- Conducting an audit of which items can be replace with environmentally friendly products;
- Knowing which suppliers have an environment policy;
- Donating items that are never used;
- Eliminating the purchasing of unused or barely used items; and
- Implementing sustainable procurement guidelines for purchase and the use of products.