



Why is waste management important?

Hotels generate large volumes of solid and hazardous waste. By proactively managing these wastes, a hotel can reduce operating costs, preserve local nature attractions such as coral reefs and beaches, and reduce odors and pest infestations.

Recent studies have shown that in some regions of the Caribbean, hotels and resorts produce more solid waste than all of the local residents combined (CAST/CTO, 1999). In some cases, poor disposal practices on the part of hotel management have led to the garbage washing up onto the beaches and contaminating the coastal waters, threatening to destroy the very attractions that lure visitors.

Effective waste management helps ensure the long-term sustainability of fragile coastal ecosystems and preserve the natural beauty of beaches, coral reefs, forests and rivers that tourists come to enjoy. In addition to these long-term benefits, hotels that practice effective waste management will achieve benefits such as:

- ☑ reduced manpower requirements for waste handling and disposal,
- ☑ reduced haulage and landfill tipping fees (for example, Half Moon Hotel in Jamaica has been able to reduce its garbage hauling cost from US\$1,700 to US\$620 per month)
- ☑ revenue from the sale of recyclables,
- ☑ protection from insect and rodent infestations,
- ☑ reduction of fire hazards,
- ☑ improved community relations
- ☑ compliance with government regulations and codes,
- ☑ reduced odors and improved aesthetics and sanitation, and
- ☑ increased guest satisfaction.

Case Studies

Concordia Eco-Tents, St. Johns, USVI:

- ☑ Composting low-flush toilets use minimal water and produce valuable fertilizing materials.
- ☑ Aluminum recycling receptacles are located next to ALL trash bins.
- ☑ Upon departing, guests leave food, suntan lotion, etc. on the "Help Yourself Shelf" where they are available to incoming guests.

Casuarina Beach Club, Barbados:

- ☑ Yard waste is put through a Chipper Machine in order to be used in the hotel's composting facility.
- ☑ Toilet tissue is a recycled product.
- ☑ Many drinks are on tap as opposed to individual bottles, and the use of straws is restricted. Reusable plastic glasses are also used in preference to disposables.
- ☑ The use of plastic bags, plastic wrap and foil is minimized, and 100% biodegradable plastic bags used when necessary. Garbage bags are replaced only when soiled and reusable cloth bags are available in the Mini-Mart.
- ☑ "Ends" of soap are taken to the Salvation Army and old furniture/soft furnishings are given away to the needy.



Composting of vegetable left-overs in old car tires at Casuarina Beach Club.

Risks of Poor Waste Management

- Odors.
- Garbage on beach or reefs.
- Unsanitary conditions leading to rat and other vermin infestation (e.g. leptospirosis).
- Pools of stagnant water which breed mosquitos (e.g. dengue and malaria).
- Physical injury to workers/guests (e.g. broken glass, jagged metal edges, used syringes).
- Fire hazards.



solid waste washed up on a beach

Small hotels should therefore seek to develop a solid waste management plan that follow three practical steps.

Step 1: Evaluate your waste management practices.

Step 2: Set priorities and take immediate action.

Step 3: Continue to make improvements and investments.

Step 1: Evaluate Your Waste Management Practices

For small hoteliers, there are three options available for assessing your solid waste situation:

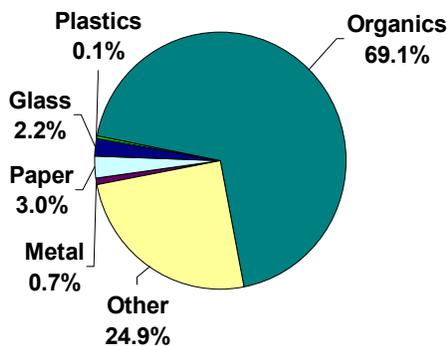
A **Self-Evaluation** may be done at any time without need for outside help. This involves looking critically at all the areas in the hotel where waste is produced and deciding what steps may be taken to make operations more waste-efficient. An example of a checklist to follow is located on page 3.

The **Environmental Walkthrough** is a tool developed especially for small hotels in order to provide accurate and useful information on ways to save water, energy and materials, thereby reducing operating costs. The process takes from 4 to 8 hours to complete and costs US\$200 to \$600, depending on the size of the hotel and the complexity of its facilities.

The **Small Hotel Environmental Assessment** involves a team of two trained experts working on property for 2-3 days. The team reviews facilities, operations, and baseline performance¹ and evaluates the property against a comprehensive list of best practices. The team then delivers a report that lists the best opportunities for reducing, reusing, and recycling waste and provides guidance on how to implement them.

Whichever method you use, make sure to measure the amount of waste you generate, and identify the primary sources. As the graph at left shows, the bulk of the material discarded by hotels consists of organic matter, i.e. biodegradable food, yard and beach wastes, that can be largely controlled by individual properties. In a recent case study of hotel operations in Barbados, the Dominican Republic and St. Lucia (CAST, 2000), organic wastes generally accounted for more than 75% of the waste stream.

Percent Waste Composition at Bay Gardens, St. Lucia (50 rooms)



Source: Activity Report No. 68, Environmental Health Project

¹ Utility and product use during the 12-month period prior to the assessment.

Checklist for Doing a Waste Management Self-Evaluation

A property conducting a waste management self evaluation should ask the following questions:

- Does the property have an effective recycling program for items that can be recycled locally?
- Is waste collected and kept in tight-fitting containers and in an enclosed area?
- Are items reused on property when possible, given to staff or donated to charities instead of being thrown away? What about unserved leftover food?
- Does the property minimize its use of individually bottled guestroom amenities and plastic bags?
- Does the property compost garden and kitchen waste?
- Does the property minimize its use of disposable items (e.g. plastic bags, plastic tableware, disposable cups, cook caps and aprons, paper napkins) and single serving food packages (e.g. butter, sugar, cream, jams, condiments, milk, juices and cereals)?
- Does the property have an effective program to collect and/or recycle used cooking oil?
- Does the property clean the grease trap frequently and without harsh chemicals?
- Does the property purchase chemicals such as cleaning agents, laundry chemicals, and dishwashing chemicals in bulk containers?
- Does the property ask chemical suppliers to take back empty chemical containers?
- Are housekeeping, laundry, and kitchen cleaning agents and chemicals dispensed using automatic chemical dispensing systems?
- Does the property use environmentally friendly chemicals and minimize its use of hazardous chemicals in its maintenance operations (e.g., drain cleaners, descaling acid, solvents)?

REUSABLE MATERIALS

Graywater
Beverage bottles
Office paper
Containers from suppliers
Soap bars from guest rooms
Old linens
Damaged furniture
Ink cartridges for printers



Used wine bottles are re-used to demarcate planting beds at Hotel Mockingbird Hill, Jamaica.

RECYCLABLE MATERIALS

Organic waste (kitchen and yard scraps)
Paper
Glass bottles and jars
Aluminum cans and foil
Steel cans and steel scrap
Used cooking oil
Motor oil



Glass recycling at Negril Cabins, Jamaica

Example - 2002 Action Plan for Waste Management		
Action	Staff Lead	Completion date
1. Eliminate the use of plastic bags for landscaping/yard waste	Jones	April 1, 2002
2. Install housekeeping chemical dispensing system.	Smith	May 1, 2002
3. Implement recycling program for glass and PET bottles	Smith	July 15, 2002
4. Implement composting program for yard and kitchen waste	Clark	April 1, 2002
5. Reduce use of bleach in guestroom servicing	Jones	April 1, 2002
6. Ask chemical suppliers to take back empty chemical containers.	Smith	May 1, 2002
7. Discontinue use of disposable fuel canisters on buffet line	Clark	October 15, 2002
8. Discontinue use of plastic bags for laundry and linen transport	Clark	October 15, 2002
9. Discontinue practice of serving staff meals in styrofoam boxes	Clark	October 15, 2002
10. Install bulk amenity dispensers in guestrooms	Smith	October 15, 2002

Step 2: Set Priorities and Take Immediate Action

After identifying opportunities for improving waste management, the property should identify the most attractive measures, prioritize them, and develop a simple implementation schedule or action plan that assigns responsibilities and sets target dates. An example action plan is shown at left. The main guidelines to remember when managing waste in order of priority are:

- 1) **Reduce the generation of waste at the source:** Reducing the generation of waste is the first option that should be considered. This approach promotes the efficient use of resources and reduces the volume of waste material that must be handled by employees and hauled away from the property. Responsibility for reducing waste generation generally lies with management, who decides what is brought into the property and, thereby, determines what eventually leaves the property as waste.
- 2) **Reuse all possible items:** Whenever possible, hotels should reuse items in their original form for the same or a different purpose rather than discarding them. If an item cannot be reused on site, the property should investigate the possibility of selling it or donating it to employees, charitable organizations, schools, businesses or other interested parties.
- 3) **Recycle all possible items:** Recycling consists of processing and transforming wastes into new, marketable products. This is the least favorable of the three waste management options and should be considered only if the reduce and reuse options are not applicable to specific waste streams. It is also the waste management option that is most difficult to implement in Caribbean islands that lack a strong industrial base.

“No Cost” Steps towards Proper Waste Management

Develop purchasing policies or guidelines that help the property reduce solid and hazardous waste.

- Purchasing housekeeping chemicals in bulk and in concentrated form, rather than in small, ready-to-use containers, reduces packaging waste and purchasing costs. As a general rule, the unit cost of most chemicals (in terms of \$ per liter or \$ per kg) is inversely proportional to the size of the containers in which they are sold. The smaller the container, the greater the unit price.
- The unit cost of food items purchased in single-portion packages is generally significantly higher than its bulk purchase cost. Hotels often pay a 100% surcharge or more for single-portion items that could be readily purchased in bulk and served to guests in reusable containers or dispensers. For example, sugar sold in single serving packages can cost up to 5 times more than bulk sugar as shown in the below example from a Caribbean Hotel.



Example of an elegant presentation of bulk sugar at a 5 star Caribbean hotel.

	Sugar in bulk US\$/kg	Sugar in 0.1 oz packs US\$/kg	Premium for single portion
White sugar	.52	2.60	465%
Brown sugar	.53	1.46	275%

- Reduce the purchase of products with excessive packaging and avoid styrofoam packaging altogether. Wherever possible, or return boxes, crates, bottles and containers to suppliers. For example, Hotel Mockingbird Hill in Jamaica purchases bulk milk in their own 80-liter container from the College of Agriculture.
- Write a letter to suppliers to communicate the hotel's environmental policy and identify preferences.
- Buy locally produced goods and fresh food where possible.
- Use soda fountains or carbonators as opposed to glass or plastic bottles for refreshments.

Reduce the use of hazardous chemicals, and ensure staff use and dispose of chemicals properly.

Many properties improperly store, use and dispose of chemicals (and the same generally goes for the independent contractors who work on property). These careless practices waste money, pose unnecessary hazards to staff and guests, and threaten the long-term health of the local environment. In order to avoid these problems, the property should consider implementing the following measures.

- Train the staff in the safe and proper handling, use and disposal of chemicals.
- Provide protective equipment such as gloves and eye protection to staff when appropriate.
- Insist that contractors follow proper procedures when handling, using and disposing of their chemicals.
- Obtain the MSDS (Material Safety Data Sheets) for all chemicals used on property. Use the information contained in the MSDS to inform area supervisors and staff on the potential risks posed by the chemicals used in each department.
- Hazardous wastes (if used) should be carefully handled and bagged/boxed separately from regular garbage.

Reuse items on property, donate them to a charity or recycle them.

- Use scrap paper for notes and make it office policy to make double-sided copies if possible.
- Use refillable pens and toner cartridges, and re-inkable ribbons.

Cost-effective alternatives to hazardous chemicals

Pesticide: Use a mild solution of soapy water. This can be derived from stubs of used guest soap.

All Purpose Cleaner: Mix 1/3 cup ammonia, 1/3 cup washing soda, 1 gallon warm water. Or 2 tablespoons borax, 1 teaspoon soap, 1 liter water.

Air Freshener: Plants, citrus peel, essential oil or fragrance.

Furniture Polish: Use one part white distilled vinegar and three parts olive oil. Add a little lime juice.

Glass Cleaner: Plain club soda or mix 3 tablespoons vinegar with 1 liter of water. Can be applied with newspaper.

Common examples of improper chemical use and disposal

Using the wrong chemical product for a particular task (e.g., the use of a "inert surface disinfectant" spray as an air freshener).

Using chemicals for problems that can generally be solved by non-chemical means.

Excessive and improper use of insecticides.

Using chemicals in concentrated rather than dilute form.

Mixing incompatible chemicals (e.g. ammonia and chlorine bleach).

Using more product than what is needed to get the job done. This problem occurs frequently when housekeepers don't use pump bottles to dispense their chemicals.

The use of hazardous chemicals (e.g., drain cleaning acid) without following the manufacturer's instructions or using the required



An easy to use hand- operated steel can crusher. Cans and plastic containers should be crushed before disposal in order to decrease the volume of waste that needs to be dealt with.



Use baskets or cloth bags to return guest laundry



Use cloth bags or wheeled bins to collect yard waste instead of plastic bags.

- Donate or sell outmoded furniture or equipment and old crockery, cutlery, magazines, linen.
- Reuse damaged linens and towels. For example, Costa Linda Beach Resort in Aruba makes reusable linen bags from old sheets and eliminated the use of plastic bags for transporting linens.
- Reuse slivers of soap. These can be mixed with warm water to make soapy insect spray for indoor and outdoor plants, or shred and use as presoak solution in laundry.
- At Mockingbird Hill Hotel, Jamaica, glass bottles are given to a local bee-keeping cooperative for honey production and vegetable oil is collected and given to a local soap manufacturer.
- Reuse bags to reduce the use of disposable plastic bags. At Casuarina Beach Hotel, Barbados, gardeners reuse onion and potato bags from the kitchen for yard waste. This initiative has reduced the use of plastic bags from 150 to 50 bags per day.
- Remove partially used amenities from guest bathrooms only at check-out. These products should then be reused around the property (e.g., soap bars can be used to pre-soak or hand-wash laundry) or given away to charities.
- Replace the plastic liners that are used in guestroom garbage bins only when they are soiled or unsuitable for further use.
- Collect and recycle items such as glass and PET bottles, used cooking and motor oil, steel and aluminum cans, paper, and printer cartridges.

Step 3: Continue to Make Improvements and Investments

The Best Low Cost Practices in Solid Waste Management

Reduce unnecessary waste by using, durable, reusable and bulk items rather than disposable or single-use products. Hotels can save considerable amounts of money by purchasing reusable products rather than disposable products. Although reusable products sometimes have a slightly higher initial cost, they offer substantial savings over the long-term.

- Reduce or eliminate the use of single-use items such as paper napkins and disposable plates, cups, cutlery, place mats, aprons and cook hats. In most cases, disposable items can be easily and cost-effectively replaced with durable items. For example, use durable coasters instead of paper napkins that must be replaced with every drink.
- Reduce the use of plastic film by purchasing durable plastic containers to store food in refrigerators and freezers.
- Where possible, use cloth cleaning rags instead of disposable paper towels or disposable J-cloths.
- Replace paper napkins and table coverings with linen.

- Use cloth bags or baskets instead of plastic bags to collect and return guest laundry and guestroom towels and linens.
- Use refillable amenity dispensers in guest bathrooms.
- Collect yard waste in canvas bags, wheelbarrows or carts rather than in disposable plastic bags.
- Use electrical resistance heaters, refillable alcohol or LPG burners instead of sterno (Handy Fuel) to keep food warm in buffet lines.
- Purchase and install bulk dispensing systems for guest amenities and cleaning products instead of using disposable individual containers. At Casuarina Beach Club, shampoo and conditioner dispensers have replaced individual bathroom amenity bottles, which has reduced the amount of plastic in the waste stream and reduced costs on these items by 50 percent.



A shampoo and soap dispenser at Hampton Inn, Puerto Rico

Develop a comprehensive system for garbage separation, recycling, and composting

Garbage should be separated into items which can be reused, composted, or recycled, and the remaining portion for the dump or landfill. La Cabana Beach Resort in Aruba has reduced the amount of garbage they send to the landfill by over 80% through garbage separation, composting and recycling.



A grease (frying oil) collector

- Purchase bins for separation of solid waste into recyclable, compostable, discard, etc. Bins for recycling or reuse should be provided across the hotel, and a recycling bag installed on housekeeping carts to hold recyclable materials from guestroom wastebaskets. Bins for collecting compostable materials should be located in the kitchen.
- Keep garbage receptacles covered and remove them frequently. Ensure that containers are thoroughly washed, disinfected and dried. Avoid burning garbage. Burning contributes to air pollution and odors.



Garbage separation bins at the Hilton Cartagena.

Composting

Composting is the natural decomposition of organic material, such as yard waste and vegetable and fruit waste, by naturally occurring microorganisms. Composting is a simple process that requires only a modest amount of effort and can significantly reduce a property's solid waste stream and eliminate the need to purchase fertilizer or mulch.

The key to a successful composting program is separating compostable materials (e.g., yard waste, vegetable cuttings, fruit peels) from non-compostable waste (e.g., plastics, meat and fatty food waste, metals) as they are generated. It is much easier to keep wastes separate from the beginning than to separate them after they are mixed. There is a range of methods for composting, from simple "no-tech" methods, to windrow methods, to specialized bins that accelerate the composting process. Generally, the simpler methods are cheaper and slower, while the engineered systems are faster, require less space, and afford more control over the composting process, reducing risks of odors.

What should go in a compost pile?

Use

- Tea leaves/bags and coffee grounds
- Over-ripe vegetables/fruit and peelings
- Grass, leaves and tree trimmings

Do Not Use

- Meat and bones (they cause odors)
- Oil and grease (they kill good bacteria)
- Plastic, rubber, glass, styrofoam, cigarette butts (they add impurities and reduce the quality of the compost)

Where Do I Get More Information and Assistance?

About the Small Hotels Toolkit Series

This toolkit is one of a series of booklets designed to help small hoteliers improve their business operations, marketing and environmental performance. They are available in both printed and electronic format (STEP Resource Centre or www.caribbeaninnkeeper.com). Toolkits emphasize proven “best practices” appropriate to the Caribbean region, and include numerous case studies and real examples. Toolkits are supported by STEP Coordinators and experienced “coaches” to help hoteliers solve problems, implement desired actions, and secure additional expertise and information.

About STEP

The Small Tourism Enterprises Project (STEP) for the Caribbean provides support and assistance related to marketing, better business management, effective technology adoption, and improved environmental performance. Major funding comes from the Organization of American States, the United States Agency for International Development, and the governments of participating Caribbean countries.

STEP Walk-in Resource Centres

Walk-in Resource Centres include publications, videos, and other materials related to small hotels and the environment. They also have a computer work station and internet access. Each centre has a trained STEP Coordinator to help you find what you need. STEP will also be making available experienced professionals to provide “coaching” assistance on a number of topics. Contact your STEP Coordinator for information on coaching currently available.

Contact CAST:

The Caribbean Alliance for Sustainable Tourism (CAST) offers technical services (walk-throughs, environmental assessments), lists of products and services, as well as videos and publications. CAST is located in San Juan, Puerto Rico and may be contacted by phone (787) 725-9139, fax (787)-725-9108, e-mail: cast@caribbeanhotels.org, or visit their web site www.cha-cast.com
The following materials are available from CAST:

- *Environmental Technologies in Caribbean Hotels: Buying Specifications and Lessons of Experience*
- *Case Studies: Water, Energy and Solid Waste Management in the Hotel Industry*
- *Various publications from The Green Bookshelf*
- *Environmental Management Toolkit for Caribbean Hoteliers*

Have an Environmental Walk-through Completed:

To schedule an environmental walk-through (which will look at energy, water, solid waste and purchasing practices) contact your country STEP Coordinator or CAST.

Visit Your Virtual Walk-in Resource Centre:

The [caribbeaninnkeeper](http://www.caribbeaninnkeeper.com) website (www.caribbeaninnkeeper.com) is a virtual walk-in assistance centre, with copies of most of the materials available walk-in centres, as well as additional services and resources.

Visit Other Useful Websites

www.greenpeace.org.au/actnow/house.html: Green Peace has information on natural cleaner recipes.

<http://outreach.missouri.edu/polsol/hotel.htm>: Pollution solutions for hotels/motels.

www.rco.on.ca/factsheet/fs_aa02.html: Recycling Council of Ontario Fact Sheets: Waste Reduction.

www.ciwmb.ca.gov/BizWaste/factSheets/Hotels.htm: Waste reduction in hotels and motels