



*Zero Waste
Alliance*

GREEN HOTELS: Opportunities and Resources for Success

**Written by
Sarah Alexander
and
Edited by
Carter Kennedy**

Zero Waste Alliance

September 2002

Contents

Background	2
A Zero Waste Approach- going beyond best practices	2
Energy Efficiency	3
Water Conservation	5
Solid Waste	6
Certification and Benchmarking Recommendations	7
Conclusion	8

Zero Waste Alliance
One World Trade Center
121 SW Salmon St., Suite 210
Portland, OR 97204
Tel: 503-279-9383
Fax: 503-279-9381
info@zerowaste.org
<http://www.zerowaste.org/>

Green Hotels

Background

Tourism is one of the leading growth sectors of the global economy, bringing in billions of dollars annually in [developing countries](#) and transporting [millions of people internationally](#). But the tourism industry's growth through the years has created an increasing amount of stress on the environment. For example, as a result of increasing tourism in Goa, India, developers built several hotels. The hotels soon drew up to 66,000 gallons of water per day from wells and other local sources. Many of the wells and rivers the community had relied on went dry. This is a common problem in many areas where tourism runs into the limits of natural resources.

Today ecotourism—tourism that is nature-oriented and environmentally focused—is growing rapidly. In the United States alone, 43 million tourists consider themselves to be ecotourists. This represents a growing market for environmentally friendly options in the tourism industry.

Ecotourism aside, many in the hotel industry have recognized the negative impact their business activities have on the environment and have taken action to alleviate those impacts.

Environmentally responsible business practices dovetail well with the newfound popularity of ecotourism. They harmonize tourism and environmental sustainability.

The term "green hotels" describes hotels that strive to be more environmentally friendly through the efficient use of energy, water, and materials while providing quality services. Green hotels conserve and preserve by saving water, reducing energy use, and reducing solid waste. They have seen benefits such as reduced costs and liabilities, high return and low-risk investments, increased profits, and positive cash flows. Identifying these benefits and incentives has allowed the popularity of green hotels to grow.

Hotels are consistently becoming greener. The most costly and wasteful use of resources in hotels are usually in the consumption of nonrenewable energy, excessive water use, and the generation of waste.

A Zero Waste Approach- going beyond best practices

This report discusses several topics and case studies that illustrate ways hotels are becoming greener. Although implementing the best practices saves money, we show you how to go beyond best practices. The goal of being a green hotel is to eliminate as much as possible your negative impacts on the environment both by reducing your consumption of resources and by changing your practices so that the waste you do produce can be used as raw material by someone else.

Some of the examples listed are programs that resulted in savings through increased efficiency or reduced cost. While recognizing that an incremental improvement may be the first step in the

process of greening a hotel, it is important to keep in mind the ultimate goal of zero waste.

The Zero Waste Alliance, a non-profit organization that provides a forum for those interested in zero waste strategies, shows that a zero waste approach can increase efficiency, provide cost savings, reduce the burden of extraction from and waste to nature, and allow more resources to be available. This philosophy and strategy can be incorporated by small businesses, governments, schools, and communities, and is recommended to hotels for consideration in developing their green programs.

Becoming a zero-waste hotel does not necessarily mean the elimination of all by-products. It means using resources efficiently, using renewable resources, and when generation of by-products is unavoidable, using those by-products as the raw material for other processes. The biological by-products of hotel activities should be able to be safely assimilated into natural systems by bacterial processes in soil or water. These materials are biological nutrients. Substances that can be recycled and are not biological nutrients can be reused as technical "nutrients" and recycled with ongoing value. You can find more information on this "cradle-to-cradle" approach, from one of the pioneers of zero-waste chemistry, [McDonough, Braungart Design Chemistry](#).

Energy Efficiency

Tourist accommodations can have large, expensive energy requirements, especially for space heating and cooling systems. However, there are many options for conserving energy. Strategies from designing for passive solar heating to something as simple as providing good insulation can help reduce or eliminate the need for costly heating and cooling. Simply changing thermostat settings can make a big difference.

Hotels worldwide are recognizing opportunities to implement energy-efficient projects in space heating and cooling systems. For example, The Hyatt Regency International Hotel in New Zealand understood that guests often left appliances and heating and cooling systems on when they were out of their rooms. The hotel developed a project to link energy use with room occupancy. Now when a guest leaves the room, all energy appliances shut down, with the exception of refrigerators, alarm clocks, and other essential appliances. The project costs were \$16,000, while the payback period was only 14 months, with savings of \$14,000 annually.

In another case, the Sheraton Auckland Hotel and Towers realized that the daily washing of sheets, towels, flannels, tablecloths, and other linens accounted for 35% of the energy consumed in the laundry process, while drying consumed 65%. The hotel simply changed the temperature of the wash from 85 degrees Celsius to 65 degrees Celsius. This change saved \$2,000 in energy costs in the first 3 months alone, and the linens came out just as clean. This project, in addition to reducing energy costs, reduced the use of washing chemicals and decreased pollution of the hotel wastewater. Also, allowing the hotel guests the option of having linens washed every other day

rather than daily can significantly assist in energy and water conservation.

Lighting is the second largest energy-using system in a hotel, and is probably the easiest and most cost-effective area for reducing energy costs. According to the Alliance to Save Energy, fluorescent lamps produce four times as much light per watt than incandescent lamps, and they can last eight to ten times longer. A compact fluorescent light used in place of an incandescent light that is left on continuously for 12 months, all 8,760 hours of the year, will pay for itself in less than one year.

The Sheraton Tacoma Hotel developed a project to transition to compact fluorescent light fixtures. The staff replaced 2,000 incandescent light fixtures with quadruple-tube compact fluorescent light bulbs in various areas of the hotel such as the guest rooms and the lobby. The cost saving was calculated at up to \$15,000 with a payback rate of 18 months.

Solar power is being recognized more and more commonly as a limitless natural resource with economic and environmental benefits. In contrast, gas and oil are non-renewable resources and contribute emissions of greenhouse gases.

Today solar power is being harnessed in many new systems providing thermal and light power to hotels in innovative ways. For example, the Sanga Saby Hotel in Sweden installed solar panels on the roof of the sauna area, which supplement heat for the pool and sauna. These natural power supplies are becoming a popular means of saving energy and, consequently, money. One of the most common ways of harnessing solar power is to use photovoltaic panels. Photovoltaics assist facilities in getting off the power grid, with the resulting decrease in both utility costs and vulnerability to market fluctuations in energy prices.



Architectural solar panel at the Aurum Lodge in Alberta, Canada. The panels provide shade during summer months and heat during the winter season.

At the [Aurum Lodge](#) photovoltaics produce more than 50% of the electricity. The lodge also has solar collectors for heating and cooling the hotel.

Water Conservation

Water-efficient practices use improved technologies that deliver equal or better service using less water. Water conservation encourages hotels to better manage how and when water is being used, addressing both the technical and human side of water management issues. It is estimated that by 2010, water use will increase to approximately 475 gallons per day for each room in high luxury facilities. However, in other accommodations, water use is still a cost and an important stress on the local environment.

In many cases water conservation can be a matter of purchasing and using the proper systems and tools. Choose products that have standardized replaceable components for the best long-term performance. Factors to include when considering water sources may include renewability, potential impacts on the environment and water supplies as well as the economic benefit. In many developing countries hotel water use may impact the water supplies of the local people.

Identifying where water use is excessive is important to luxury hotels and hotels in developing areas. In one case a study completed on tourism in Palawan, Philippines, it was estimated that in the early stages of tourism development in Busuanga West, the amount of water required for a single high-standard hotel-room would be 396 gallons per day. This was enough water to support 14 local people at their current standard of living.

Low-flow shower heads and faucet aerators are some options for water conservation, which are becoming common among hotel facilities. The payback period for their use can be 3-4 years depending on the extent of the project.

In one example, the Houston-based Green Hotels Association observed water use in the San Antonio-based La Quinta Inn. Through a one-month period, the hotel showed an average of 100 gallons of water being used per guest per billing period. The chain totaled more than a billion gallons in the first nine months in 1996. La Quinta Inn then installed low-flow shower heads and aerating faucets in each room, resulting in a saving of \$1.50 per room per month. Replacing all toilets with ultra-flow toilets at a cost of \$3,250 showed a payback in 2.1 years and annual water saving of 180,000 gallons per year.

In many water assessments, urinals and automatic flushing toilets are found to consume a great deal of water. The THC Rotorua Hotel in New Zealand had urinals that flushed automatically every nine minutes. Each flush used 10 liters of water. This added up to 66 liters per hour, or 1,580 liters per day, regardless of whether the urinals had been used or not. The total consumption for three urinals was 4,740 daily.

The hotel then installed detectors that sense when the urinals are being used and allow flushing to occur at a specified time after use. This program reduced water consumption in the three urinals from 66 liters per hour to 40 liters during the day and 20 liters in the evening. In addition

to installing the urinal sensors the hotel installed low-flow shower heads at a cost of \$3,060. The annual cost savings for the water conservation came to \$5,244, with a payback of only seven months.

As toilets and urinals are being recognized as high consumers of water, options are becoming available that have lower flush volumes, and systems are being introduced that separate solids from the fluids.



This is an example of a water filtration unit from [Ecolab](#) that can operate in hotel facilities. Filtration systems are expected to filter out solids and oils from sources such as laundry waste water and allow the water to be reused.

Another target for hotels is water consumption in washing machines and air-cooling systems. The Saunders Hotel Group, for example, had to reduce water use due to high water rates and use restrictions. The hotel chain includes the Boston Park Plaza Hotel, the Copley Square Hotel, and the Lenox Hotel.

The hotel group's [S.H.I.N.E. program](#) annually saves four million gallons of drinking water, 225,000 kilowatts of electricity, and more. They installed new and efficient laundry systems, switched from water-cooled to air-cooled ice machines, and eliminated water-cooled air conditioning equipment. These projects saved the hotel 1.5 million gallons of water annually.

Solid Waste

Solid waste in hotels has many components, including paper, food, various metals, plastics, aluminum, and glass. In a [recent waste generation study](#), wastes from 25 hotels were examined. The statistics showed that from 1991-1993 the hotel waste consisted of 46% food waste, 25.3% paper, 11.7% cardboard, 6.7% plastics, 5.6% glass, and 4.5% metals. This gives a picture of the variety of waste that can be produced by only a small number of hotels in a city. When looked at with a zero-waste attitude, these figures show the opportunities for both resource recovery and waste reduction.

Implementing a solid waste reduction program in a hotel can create significant cost savings in

waste hauling fees while creating a more environmentally friendly hotel. This is especially true as solid waste becomes a more significant environmental issue and landfill fees increase.

Often hotels hesitate to establish programs in solid waste management because of the coordination and cooperation needed among management, employees, and guests. However, the cost benefit is an incentive.

The Westin San Francisco Airport Hotel implemented their recycling program in 1994. The hotel practices such waste-reducing steps as purchasing recycled content products, providing environmental education to their employees, donating their excess food to local food banks, and recycling paper, aluminum, and plastics.

The hotel has been recognized for its waste reducing efforts, and it participates in organizations with others who share an interest in green practices. The hotel is a member of the Recycled Paper Coalition and the Sustainable San Mateo County Business Council, and received an award from the [Waste Reduction Awards Program](#) in 2000. Annually, they recycle 22 tons of materials and save \$6,000.

Another aspect of a solid waste reduction program is dealing with food waste, which can frequently be a large portion of the waste produced in hotels and lodging facilities. Overpreparation, table scraps, cooking losses, and packaging failures lead to accumulation of food waste. Because spoiled food and even leftover plate scrapings can be [composted](#), hotels are increasingly recognizing that composting is a better use of organic materials than trucking them to landfills.

Creating a food waste reduction program may involve several steps. The Totem Pole Restaurant at the Thunderbird Hotel in Bloomington, Minnesota began a food waste reduction program by having the head chef monitor the food inventory, the amount of food per meal, and the percent of waste per meal. This did not eliminate food waste completely, but it reduced the quantity.

The head chef also reduced food waste by regularly checking the amount and type of food commonly disposed in the recycling containers. By doing this, the chef determined what foods were reusable and helped to decide how to revise the food preparation procedures to reduce food waste. This resulted in a 20% reduction in food waste. The cost saving of \$451.25 per month was offset by the \$128.00 per month cost to have these materials picked up for recycling, resulting in a total saving of \$323.25.

Certification and Benchmarking Recommendations

So how do you know when you have become a green hotel? How will you know how you rank among other hotels? There are green hotel certification opportunities and benchmarking tools available to help chart your progress in becoming a green hotel. Here are some:

[Benchmark Hotels](#)

This site contains a Web-based tool specifically intended to help hotels assess their environmental performance.

[International Hotel Environmental Initiative \(IHEI\)](#)

The IHEI promotes improvements in the hotel industry. It provides a benchmarking tool and a has a variety of suggestions from recommended products to environmental hotel magazines.

[CERES Green Hotel Initiative](#)

This organization provides an online best practice survey checklist. This is a great way to assess or monitor your progress in becoming a green hotel. Questions vary from water conservation and energy efficiency practices. And, like the IHEI, they provide suggestions for product purchasing and a step-by-step process in starting a green hotel.

[Green Hotel Association](#)

The Green Hotels Association provides more information on green hotels and some general steps for greening your hotel. It also provides suggestions for less-toxic product substitutions. It provides the hotelier with an opportunity to receive a catalog on greening lodging facilities, and become a member.

[Green Leaf Program](#)

The Hotel Association of Canada's Green Leaf Eco-Rating Program uses a 1-5 scale to help a hotel track its progress toward becoming green.

[Cool Companies](#)

This organization offers tools for looking into energy efficiency in everything from your hotel to your home. It offers case studies, policy information on energy, a "how-to" guide on saving energy, and much more.

[Oregon Metro Donation Resources](#)

More than 650,000 people in Oregon use the services of food banks each year. And each year the Portland metro region landfills nearly 190,000 tons of food, half of which may be edible. Metro's Food Donation Resource Guide connects businesses with food rescue programs in the tri-county area. Your business can easily donate good-quality leftover food items that cannot be sold.

Conclusion

For a hotel to change its traditional ways of operating takes time and the ability to look past the expectation that if something is sustainable is will be more costly and will have a slow payback rate. A hotel can begin its green hotel process by something as simple as setting out recycling

bins or asking guests to turn off the lights in their rooms when they leave. The staff may ask guests if they would like their room to be cleaned daily if their stay is longer than one day. These steps are simple, and are less costly than many other green approaches, and they do make a difference in developing a green hotel. A very important factor in becoming green is to realize that, while some steps may be small, none are insignificant.

Another suggestion and important step that green hotels are taking across the globe is to set up monitoring systems and standards for each area of the hotel. This system may be used for monitoring water, energy, or solid waste areas. This can be very useful if, for example, a hotel wanted to see where the most energy was being used in the facility. The hotel can target the lighting in those areas where the energy use is highest. Then they might set a goal of lowering their energy use by 20% over a one year period, or replacing the current lighting fixtures with compact fluorescent lighting. Setting goals and targets and monitoring results are great tools for observing your progress in energy use as well as your declining energy costs