Achieving sustainability through sound environmental management
Environmental impact of the hotel industry

- How significant is the environmental impact of a hotel?
- Why be concerned with the environmental impact of the hotel industry?
Why be concerned?

- Tourism lives off the environment
- Resources are not unlimited
- Competitiveness and profitability of companies
- Climate change
Financial impact of environmental management

- Sound environmental management calls for:
  - The efficient use of resources - water, energy, chemicals, materials
  - Pollution prevention rather than control, treatment and disposal

- Environmental management is a profitability tool
Financial impact of environmental management

- Environmental management assessment conducted in a 300-room, 5-star hotel:
  - 115 recommendations focused mainly on:
    - Energy and water conservation
    - Efficient use of chemicals and materials
    - Waste reduction
  - Benefits
    - 35% reduction in domestic water consumption
    - 70% reduction in irrigation water consumption
    - 30% reduction in electricity consumption
    - Significant reduction in off-site solid waste disposal
  - Financial savings from the 30 quantifiable recommendations
    = €150,000 /year
Financial impact of environmental management

- What did it take to achieve those savings?
- “Top 6” recommendations
  - Reduce the output of showerheads to 9 L/min
  - Repair toilet leaks
  - Reduce the wattage of exterior decorative lights and turn them off at 1:00 AM
  - Improve the towel reuse program
  - Irrigate the grounds early in the morning
  - Optimize the backwashing of pool filters

- Financial savings = € 78,000/year
- Implementation cost = € 8,000
- Return on investment > 900%
Financial impact of environmental management

Breakdown of recommendations by implementation cost

- > € 30 per room: 25%
- € 5-30 per room: 7%
- < € 5 per room: 68%
Benefits of environmental management

- In addition to saving resources and money, environmental management can:
  - Increase the service life of existing equipment
  - Reduce future expenditures in equipment
  - Reduce the hotel’s workload
  - Reduce the generation of waste and pollutants
  - Reduce waste handling, treatment and disposal requirements
Monitor your performance

- You can’t control what you don’t measure
- Many hotels track their expenditure in energy and water but overlook their energy and water consumption
- Expenditure = (unit cost) x (consumption)
- Monitoring consumption allows a hotel to measure changes in its energy and water use performance

What should you monitor?
- Total consumption
- Consumption index = (total consumption) / (occupancy)
Monitor your performance

Total consumption

Consumption index
Use energy efficient lamps

<table>
<thead>
<tr>
<th>Incandescent lamp</th>
<th>Equivalent CFL</th>
<th>Savings over an 8000-hour CFL life</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 W</td>
<td>10 W</td>
<td>240 kWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>€ 24</td>
</tr>
<tr>
<td>60 W</td>
<td>15 W</td>
<td>360 kWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>€ 36</td>
</tr>
<tr>
<td>75 W</td>
<td>20 W</td>
<td>520 kWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>€ 52</td>
</tr>
<tr>
<td>100 W</td>
<td>25 W</td>
<td>600 kWh</td>
</tr>
<tr>
<td></td>
<td></td>
<td>€ 60</td>
</tr>
</tbody>
</table>

** For a cost of € 0,10 /kWh
Ensure lighting fixture are efficient
Use decorative lighting wisely

- 1 x 80W, 7 h/day
- 2 x 80W, 7 h/day
- 32 x 50W, 6 h/day
- 12 x 300W, 7 h/day
Lighting - General considerations

- In most cases, the same effect can be achieved with energy efficient lighting

- Architects and interior decorators don’t pay your electricity bills
Minimize solar heat gain in air conditioned areas

- Power density of direct sunlight = 800 to 1000 W per square meter
- Only a small portion of the energy contained in direct sunlight is blocked off by standard windows
Minimize solar heat gain in air conditioned areas

- To reduce the heat load in air conditioned rooms, ensure South- and West-facing windows and glass doors are protected from direct sunlight.
- During the warmer months of the year, block out direct sunlight but allow diffuse daylight in.
Maintain a reasonable temperature setting in air conditioned areas

- Comfort temperature for air-conditioned areas = 24°C
- Air-conditioned public areas are often maintained at much less than 24°C

- Example: energy consumption of a restaurant chiller which is set to maintain an indoor temperature of:
  - 20°C
  - 24°C
Reduce the laundry’s workload

- 80-room, 5-star hotel in Portugal

Recommendations

- Optimize laundry operations
- Modify property’s linen change policy
- Put in place a voluntary towel reuse program
- Use laminated place mats

Results

- Reduced the workload on the laundry by 10,000 kg/year
- Eliminated 510 washer loads/year
- Eliminated 1,350 dryer loads/year
Final thoughts ...

- Get the information you need on efficiency improvements and environmental management
- Evaluate and monitor your performance
- Evaluate the cost and impact of inefficiencies
- When needed, get advice from qualified professionals
Thank you

chris@greentigerlimited.co.uk