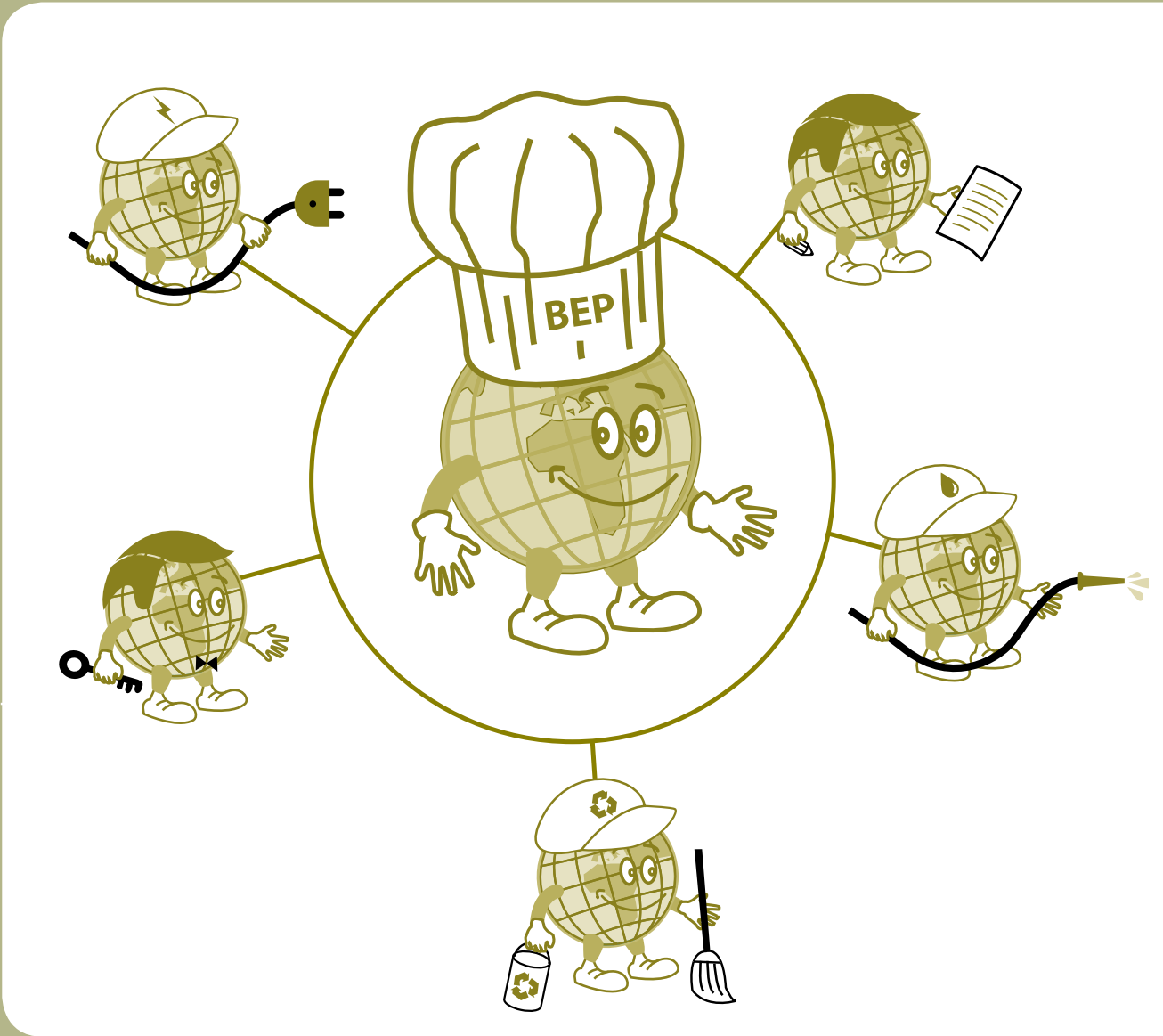


Best Environmental Practices for the Hotel Industry



FOREWORD

The tourism industry keeps growing. Worldwide tourist arrivals in foreign countries have increased by 6.5% yearly since 1950 reaching nearly 900 million arrivals in 2007. Nowadays, tourism represents 35% of the world's exports of services and over 70% in some developing countries. However, this growth often comes with unsustainable consumption practices endangering ecosystems and natural resources.

There is hence a need for greener hotels that are at the heart of the tourism industry. Hotel guests are more conscious of environmental problems and have started to consider the environment in their accommodation choice. This is also becoming valid for luxury hotels. The development of eco-labels is thus helping tourists in their choice. Without cutting on clients' comfort, many efforts can be made in the backstage by the hotel management industry through the application of best available practices and technological innovations.

The hotel industry is now conscious of this new trend and has set policies in this respect. This Guide is designed to be a practical tool for daily implementation. It fills the gap between commitments to sustainable development and the undertaking of concrete measures. By suggesting eco-efficiency practices and providing easy-to-implement tools, the Guide will enable hotel management to handle the environmental aspects related to its business. Additionally, the Guide involves hotel staff as key greening actors and provides a good basis for integrated environmental management systems.

In a few years, it is certain that environmental protection will become a legal obligation for hotels. Let's be proactive and start from this moment on! Those who act first will be able to anticipate the law and will acquire a competitive advantage. It is time for the hotel industry to accept its environmental responsibilities to reduce the environmental impact of international tourism.

M. Ruud J. Reuland

General Director | Ecole Hôtelière de Lausanne

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GLOSSARY

Action Plan	A detailed plan identifying corrective actions, means, responsibilities, resources, and the time frame necessary for their implementation.
Checklist	A list of actions that can be implemented to meet an enterprise's environmental challenges in targeted domains (water, energy, wastes, etc.). It is not claimed that the list is exhaustive. It functions as an aide-mémoire.
Cleaner Production	Cleaner production is the adoption by an enterprise of production practices and technologies that respect the environment and that consume fewer resources so that they generate less waste.
Non-hazardous waste	Any waste having a nature and composition that are similar to those of household wastes, and comprise items whose longest dimension does not exceed 60 cm. Furthermore, the handling and storage of such wastes present no particular risks. Such wastes may be generated by industry, commerce, workshops or agricultural activities.
Continuous improvement	The process of progressively enhancing the environmental management system to achieve improvements in the overall environmental performance in line with the hotel's environmental policy.
Eco-efficiency	A concept that consists in offering competitive goods and services that meet human needs and guarantee quality of life, while at the same time progressively reducing the whole-life ecological impacts and resource demands of the products, until a level at least compatible with the earth's estimated capacity is reached.
Environment	It is the natural surroundings of the enterprise, including air, water, soil, natural resources, flora, fauna and human beings, as well as their interactions.
Environmental aspect	That element of the activities, products or services of an enterprise which may interact with the environment.
Environmental impact	Any modification of the environment whether negative or positive, total or partial.
Environmental management system	Structure, organisation and management methods implemented to meet the enterprise's environmental policy. The goal is continuous improvement.
Environmental policy	An enterprise's commitments, orientations, and general objectives with respect to the environment as decided by management. Observing existing laws and regulations is an integral part of this policy, and so is the environmental improvement strategy.
Hazardous waste	Any waste containing significant quantities of substances which are especially dangerous to the life or health of living organisms (including humans) when discharged into the environment. Dangerous properties include toxicity, carcinogenicity, or mutagenicity as well as chemical reactivity and other biologically harmful properties.

Life cycle analysis

A method for assessing the impacts of a product, service or activity on the environment and on natural resources, from “*cradle*” (extraction of natural resources) to “*grave*” (waste disposal, including the product having reached the end of its life) via product use. This evaluation is also called ecobalance.

Mass tourism

A mode of tourism that appeared in the 1960s, resulting from the general provision of paid vacations in many industrialised countries, which allowed most people to travel and support the tourism industry.

Procedure

Written organisational rule describing responsibilities and sequence of tasks or activities necessary for the realisation of a product or a service.

Recycling

Recuperation of materials or products to reuse them either in their original form or as an input material in a manufacturing process.

Sustainable development

Development that meets present needs without endangering the ability of future generations to meet their own needs. Sustainable development is contrasted with other modes of development that lead to social and ecological damage, at both the local and global levels.

Sustainable tourism

Management of all resources associated with tourism activities in such a way that economic, social, and aesthetic needs are met in a way that respects the cultural and environmental integrity, biological diversity, and lifestyle of the receiving area.

I. CONTEXT AND INTRODUCTION

The Mediterranean is a holiday destination for tourism because of its historical, cultural and natural heritage. Considered an “ecoregion”, it brings together many plant and animal species, some of which are indigenous. In 2002, the Mediterranean countries welcomed 228 million visitors, a number that is forecast to rise to 396 millions in 2025, according to the World Tourism Organization’s (WTO) and Blue Plan’s projections.

The region’s climate and resources enable economic and social development that result from tourism. On the other hand, the number of tourists heading for the region represents a threat to its natural resources as well as to the balance of its ecosystems. The Mediterranean Action Plan (MAP) has stressed the existence of the risk of economic non-sustainability linked to the development of mass tourism. The consequence of this phenomenon is a decline in territorial quality and the artificial modification of coastlines. Indeed, tourism is concentrated in the coastal areas, increasing the pressure on the coastline and causing its degradation.

In order to conserve local biodiversity while sustaining the tourism industry, a new approach involving sustainable development must be implemented. To achieve this, the different components of the tourism industry need to be integrated into a global strategy of environmental protection. Since the hotel industry is at the heart of tourist activity, it is important to evaluate and assess its environmental impact. For example, targeted and efficient water management in hotels significantly reduces the damage to the environment while simultaneously and substantially reducing costs. The goal is to avoid compromising the development of the southern Mediterranean regions and placing their potential at risk.

This Guide presents eco-efficiency measures adapted to the hotel industry of the Mediterranean countries in order to reduce their impact on the environment. These measures are built on sba’s experience in the field of environmental management. Cost-efficient and easy to implement, they constitute the first step towards sustainable tourism.

The Guide’s objectives

- To integrate the environment as one component of day-to-day hotel management
- To identify significant and priority measures for hotels, enabling their implementation and ensuring sustainability over time
- To promote rational and eco-efficient use of resources
- To give hotels the opportunity to make the first steps towards an integrated environmental management system



In most cases, the corrective environmental actions represent an investment of less than US\$ 2'000 and an almost immediate payback (in less than a year).

Target audience

The Best Environmental Practices (BEP) Guide for hotels is intended for hotels of all types that wish to better manage their impact on the environment and that have the longer term ambition to implement more systematized environment management tools (such as environmental costs management, an environmental management system, environmental labelling, etc.). The Guide can be used by hotel directors and managers, as well as by technical executives and/or their teams.

II. CONCEPT OF BEST ENVIRONMENTAL PRACTICES IN THE HOTEL INDUSTRY

The use of the Best Environmental Practices (BEP) Guide for hotels is intended to be simple and practical. The Guide provides the means to identify, in the different departments of a hotel, opportunities for optimising its activities while reducing its operating costs and its environmental impacts. The proposed measures are not exhaustive and are voluntary. In addition, the reader will find practical advice that can be adapted to suit the hotel's context and expectations. To ensure adequate understanding and application of the Guide, concrete examples are provided throughout. These examples show a direct link between theory and practice. In brief, the Guide's approach aims at:

- Rationalising the use of raw materials, including water and energy
- Reducing the volume of wastes and improving waste management
- Adopting a more ecological purchasing policy and improving logistics
- Improving the quality of the hotel's internal environment
- Making the staff aware of the importance of environmental issues

In addition, the adoption of the BEP Guide's principles can also act as a profitable marketing tool for the hotel. The hotel can improve its image in the perceptions of its stakeholders and guests, who are increasingly conscious of environmental protection.

The Guide's instruments

Checklists	<ul style="list-style-type: none">• To identify the environmental problems in each of the hotel's departments• To become aware of the necessity of targeted actions• To establish priorities and to determine responsibilities
Detailed environmental assessment	To measure and monitor the hotel's activities by undertaking a thorough environmental analysis
Economic calculations	To estimate the potential savings of the identified corrective measures; to assess their return on investment and to serve as a decision-making tool
Action Plan	To summarize the chosen corrective measures within an action plan that will be communicated to the persons concerned

The combination of the Guide's tools reveals the interrelationships between the hotel, its resources, and its environment. More concretely, it helps the implementation of environmental actions that meet the hotel's expectations and preoccupations. For a more targeted approach, the action plan enables the planning and management of the corrective and preventive measures that were chosen in order to reach the environmental goals that have been set by the hotel.

Necessary means

The approach proposed by the Guide can be implemented by the management, its technical executive or a qualified resource person. Management must first adhere to the Guide's objectives and involve the relevant staff. Moreover, for a greater involvement of the staff, information concerning correct practices should be circulated to all the hotel's levels and departments. Simple and practical procedures can be developed, applied, and integrated into the daily operations of the hotel to bolster the BEP measures. Depending on the availability of information, the application of BEP requires one to two days. If internal expertise is insufficient for undertaking this task, the assistance of an external consultant for a day would be worthwhile.

III. IMPLEMENTATION OF BEP

1. THE CHECKLISTS – PRESENTATION AND USE

Checklists enable the identification of priority environmental domains and the measures to be taken. They are non-exhaustive lists of actions (such as possible corrective measures) that can be undertaken to improve the environmental performance of the hotel. Checklists also require brainstorming to promote more focused actions and to encourage the monitoring and the correct application of the corrective measures. The completed checklists should be communicated to the various concerned departments of the hotel in order to ensure their implementation.

Before each checklist is prepared, questions must be asked to assess the hotel’s environmental situation and to determine if the environmental domain in question is of importance to the hotel. Indeed, the answers given to this self-assessment allow the hotel to identify practical measures for implementation.

Environmental domains

The BEP Guide has six checklists and each is dedicated to a specific domain:

Water	<ul style="list-style-type: none">• To monitor water consumption and rationalize its use• To save and protect local resources
Energy	<ul style="list-style-type: none">• To control energy use and monitor its consumption• To save energy and reduce atmospheric pollution
Wastes	<ul style="list-style-type: none">• To reduce waste at the source and improve waste management• To implement a recovery and recycling strategy
Purchasing policy	<ul style="list-style-type: none">• To reduce the impact of consumption on the environment• To promote the development of local, ecological and social product flows
Logistics	<ul style="list-style-type: none">• To improve product handling and minimize losses and wastage• To manage and master the hotel’s supply lines
Noise, air quality, and landscape integration	<ul style="list-style-type: none">• To limit noise pollution• To improve air quality inside buildings• To reduce the impact on the local landscape

Identification of priority actions

According to the measures that are suggested in the checklist, you must select the actions that you think are significant for your activities and applicable in your hotel.



To use the checklist, you need only to:

- 1st column: tick the box corresponding to the action to be taken
- 2nd column: indicate the priority of each action chosen according to its urgency and relevance (for example, using a scale from 1 to 3: 1= not very urgent; 2 = relatively urgent; 3 = very urgent)
- 3rd column: appoint a person responsible for the implementation and monitoring of the chosen corrective measure
- 4th column: set a reasonable deadline for completion of the measure

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
Monitoring of the hotel's water consumption			
<input checked="" type="checkbox"/> Install water meters in each department	1	Mr. Benjelloun	1 month
<input type="checkbox"/> Determine monthly water consumption and costs			
<input checked="" type="checkbox"/> Identify processes and areas where consumption is high	3	Ms. Tazi	1 week
<input type="checkbox"/> Determine the water consumption costs for each department			

2. THE CHECKLISTS – ENVIRONMENTAL DOMAINS

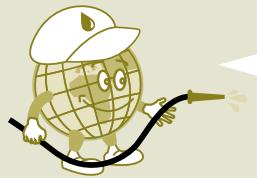
2.1. Water | management and rationalisation

The Mediterranean is among the regions that are most subject to water shortages. This region happens to be a favourite destination for tourists. This situation causes even greater concern because the consumption by tourists rises far above consumption by local residents. Indeed, a guest at an international hotel consumes an average of 300 litres a day. This situation endangers the quality and the availability of water for local communities. For this reason, actions that aim to reduce the consumption of water in hotels are necessary.

Self-assessment

- What is the total cost of the hotel's water consumption?
- What is the source of the water used by the hotel (public network, well, borehole, etc.)?
- What is the hotel's overall water consumption?
- Do you know the water consumption in each department?
- Do you implement water-saving measures in the hotel?

If you cannot answer the above questions, it is important to monitor your hotel's water consumption.



- Leaking tap | 0.1 litre / h | 1 m³ / year
- Dripping tap – occasional drips | 0.5 litre / h | 5 m³ / year
- Dripping tap – faster drips | 1.5 litres / h | 15 m³ / year
- Minor leak in toilet flush valve | 3 litres / h | 30 m³ / year
- Trickling tap | 10 litres / h | 90 m³ / year
- Serious leak in toilet flush valve | 30 litres / h | 250 m³ / year

'WATER' checklist

OBJECTIVE : TO REDUCE AND UNDERSTAND WATER CONSUMPTION

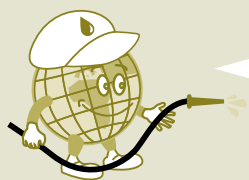
Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>General</p> <p>Monitor the hotel's water consumption</p> <ul style="list-style-type: none"> <input type="checkbox"/> Install water meters in each department <input type="checkbox"/> Determine the monthly water consumption and its cost <input type="checkbox"/> Identify activities and areas that cause high consumption <p>Minimise wastage of water</p> <ul style="list-style-type: none"> <input type="checkbox"/> Install water-saving devices in the appropriate places (flow regulators, water flow sensors, self-closing taps, low-flush toilets, etc.) <input type="checkbox"/> Avoid leaving taps open unnecessarily <input type="checkbox"/> Avoid cleaning with high pressure hoses <p>Eliminate leaks</p> <ul style="list-style-type: none"> <input type="checkbox"/> Regularly maintain plumbing fixtures and piping in order to avoid losses <input type="checkbox"/> Replace defective seals and repair damage to water pipes 			

'WATER' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Kitchen</p> <ul style="list-style-type: none"> <input type="checkbox"/> Adjust the water flow according to the type of cleaning to be done <input type="checkbox"/> Do not let water flow while cleaning or rinsing <input type="checkbox"/> Soak the dirty dishes before placing them in the dishwasher in order to shorten the prewash <input type="checkbox"/> Fill dishwashers to their maximum capacity in order to minimise the number of cycles <input type="checkbox"/> Do not defrost food in water, but leave it to defrost in the air 			
<p>Laundry</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sort the laundry according to the degree of soiling, so that only the dirtiest items are washed intensively <input type="checkbox"/> Use the washing machines in "full load" mode in order to limit the number of wash cycles <input type="checkbox"/> Eliminate the prewash (allowing a 25% reduction in water consumption) and use water-saving wash cycles <input type="checkbox"/> If possible, wash towels and linen at the request of guests rather than every day <input type="checkbox"/> Reduce water pollution by using less polluting detergents (phosphate-free, whitener-free, etc.) <input type="checkbox"/> Check the laundry room's equipment regularly to avoid leaks <input type="checkbox"/> If possible, recover the rinse water from relatively unsoiled loads for the next cycle's prewash and wash 			
<p>Room service, accommodation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Install flow regulators on the showerheads in order to decrease consumption from 20 to 12 litres/minute (40% saving) <input type="checkbox"/> Install timed (self-closing) faucets so that they do not keep running for a long time if left open inadvertently <input type="checkbox"/> Choose water saving toilets that use 6 litres for each flush (more than 30% of a hotel's total water consumption can be saved this way) or with a dual flush mechanism (offering a choice of half- or full-cistern flushes) <input type="checkbox"/> Invite – as far as possible – the guests to reuse the towels and bed-linen (70% of guests readily agree to this) <input type="checkbox"/> Train the staff to respect the instructions concerning the reuse of towels and bed-linen <input type="checkbox"/> Distribute brochures and flyers, or post stickers and posters, inviting guests to save water 			

'WATER' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Pool</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cover the pool outside of the opening hours so that the water does not evaporate or get dirty <input type="checkbox"/> Reduce the use of chlorine in the water and /or choose other treatment systems (ozone, electrolysis, salt, etc.) <input type="checkbox"/> Reuse the pool's water to wash the floor 			
<p>Gardens</p> <ul style="list-style-type: none"> <input type="checkbox"/> Choose plants that are suited to your region's climate and rainfall <input type="checkbox"/> Avoid flower beds that quickly dry up <input type="checkbox"/> Water lawns early in the morning and late at night to limit evaporation <input type="checkbox"/> Install automatic sprinkler systems and localized devices (micro-sprinklers, drip irrigation systems for roots, etc.) <input type="checkbox"/> Lay out slopes so that water infiltrates the ground without causing erosion <input type="checkbox"/> Reuse the water that was used in the kitchen to wash fruits and vegetables for watering the garden <input type="checkbox"/> Collect rainwater for watering the lawns 			



The use of flow regulators on shower heads saves 40 liters per 5 minutes shower, which amounts to more than 10% of water consumption per day and per room.

Example

Problem	High water consumption (825 litres/room/night)
Measure	Installation of faucet and shower head aerators in the rooms without altering the comfort
Investment	US\$ 7 per unit
Payback period	10 days
Environmental impact	50% reduction in water consumption

2.2. Energy | efficiency and economy

Global warming and the depletion of petroleum reserves are motivating executives to review their energy use. Moreover, supplying energy in 2030 will require an investment of US\$ 16'000 billions (UNEP). The hotel industry is also affected by this issue. Its energy demand is closely linked to the comfort of its guests. Indeed, a 300-room hotel spends, on average, US\$ 1.2 million per year on energy. This is the second highest cost after wages. To reduce the impact on the environment, it is necessary to control the consumption of fossil fuels and to turn to clean technologies and renewable energy.

Self-assessment

- What is the total amount spent by the hotel on energy consumption?
- What is the total energy consumption of your hotel?
- Do you know how much energy each department consumes?
- Do you rely on different energy sources, among which are those labelled 'clean'?
- Do you use processes that optimise energy consumption?



If you cannot answer the above questions, it is important for you to get interested in your hotel's energy use.

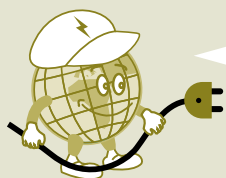
'ENERGY' checklist

OBJECTIVE : TO REDUCE AND IMPROVE ENERGY CONSUMPTION

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>General</p> <p>Monitor regularly energy consumption</p> <ul style="list-style-type: none"> <input type="checkbox"/> Check the electricity meters at least once a month <input type="checkbox"/> Install meters in each department to monitor energy consumption <input type="checkbox"/> Monitor hot water consumption as much as possible <input type="checkbox"/> Calculate the energy consumption costs for the hotel and departments <input type="checkbox"/> Determine which areas consume the most energy <p>Improve the lighting system</p> <ul style="list-style-type: none"> <input type="checkbox"/> Investigate the use of hotel lighting and observe how long the various lights are switched on each day <input type="checkbox"/> Use energy-saving bulbs, especially in high consumption areas (a traditional bulb consumes 60 W, an equivalent energy-saving one 11 W) <input type="checkbox"/> Install timers and movement detectors to reduce lighting time in selected locations (bathrooms, hallways, parking lots, etc.) 			

'ENERGY' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>General</p> <p>Reduce energy consumption</p> <ul style="list-style-type: none"> <input type="checkbox"/> Code the light switches (using labels or a colour code) so that you can switch on only those lights that you need <input type="checkbox"/> Reduce general lighting during daytime and make sure that exterior lighting is switched on only at night (you can use photoelectric cells for example) <input type="checkbox"/> Operate machines according to the manufacturers' recommendations for better energy efficiency <input type="checkbox"/> Choose high performance insulation systems to minimise heat losses and gains <input type="checkbox"/> Reduce the number of lifts that are operated during off-peak hours <input type="checkbox"/> Train the staff to do the right things, and invite guests to get involved <input type="checkbox"/> Repair or replace faulty equipment with more efficient and economic alternatives <input type="checkbox"/> Use solar panels to heat water for the guest rooms (saving 40% on the energy costs of the hotel) <p>Minimise energy losses</p> <ul style="list-style-type: none"> <input type="checkbox"/> Organise preventive maintenance of the electric network and equipment, including heating and air conditioning equipment <input type="checkbox"/> Install aerators to reduce the demand for hot water <input type="checkbox"/> Check the insulation on hot water pipes to reduce heat losses <input type="checkbox"/> Install double glazed windows <input type="checkbox"/> Shade windows from the sun to limit air conditioning needs (by means of awnings, curtains, blinds, screens, heat reflecting sheets, etc.) <input type="checkbox"/> When renovating, install revolving doors to limit drafts <p>Recover energy</p> <ul style="list-style-type: none"> <input type="checkbox"/> Recover the heat generated by the refrigeration units in order to heat the water for guest rooms or the laundry <input type="checkbox"/> Install closed loops to recover and reuse steam 			



Hot water production can represent 25% of the hotel's energy consumption. Solar energy allows a reduction of at least 40% of that consumption.

'ENERGY' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Kitchen</p> <ul style="list-style-type: none"> <input type="checkbox"/> Avoid turning on kitchen equipment without thinking when arriving in the morning (break the habit) <input type="checkbox"/> Think about the temperature of kitchen rooms when installing or relocating refrigerators and freezers (an extra 5°C increase in room temperature results in a 30% increase in energy consumption for a refrigerator) <input type="checkbox"/> Switch off equipment when it is not required (especially after busy periods) <input type="checkbox"/> Do not exceed preheating times <input type="checkbox"/> Use cooking pots whose diameters are compatible with the cookers or burners <input type="checkbox"/> Cover pots as they are cooking (to boil 1 litre of water in a covered pot requires about 25% of the energy needed if the pot is uncovered) <input type="checkbox"/> Invest in high-performance cooking units when replacing equipment <input type="checkbox"/> Open refrigerators and freezers only when necessary <input type="checkbox"/> Defrost refrigerators and clean the door seals monthly 			
<p>Laundry</p> <ul style="list-style-type: none"> <input type="checkbox"/> Fill washing machines to their maximum capacity <input type="checkbox"/> Use low temperature washing programmes <input type="checkbox"/> Choose washing machines that offer high spinning speeds in order to limit drying time <input type="checkbox"/> Avoid overloading the dryer and thereby increasing drying time <input type="checkbox"/> Plan your washing so that the dryers are continuously in use, thereby preventing heat loss <input type="checkbox"/> Plan to use the equipment during periods of low consumption (off-peak hours) <input type="checkbox"/> Allow food to cool down before placing it into a refrigerator or freezer <input type="checkbox"/> Install plastic curtains outside refrigerators or freezers to retain cold air <input type="checkbox"/> Regulate water temperature according to kitchen and cleaning needs <input type="checkbox"/> Do not wash dishes under running water (fill the sink instead) Operate dishwashers only when full 			

'ENERGY' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Room service, accommodation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Turn off air conditioning and set heating at minimum in unoccupied rooms <input type="checkbox"/> Choose thermostats that allow you to programme maximum and minimum temperatures (and so prevent guests excessively heating or cooling their rooms) <input type="checkbox"/> Make sure the lights are switched off in unoccupied rooms (magnetic cards automatically turn off the room's power when the guest leaves the room) <input type="checkbox"/> Do not leave television sets on standby (a single television set on standby can consume 193 kWh in one year) <input type="checkbox"/> Make sure that the refrigerators (mini-bars) consume less than 1 kWh/day and that they are switched off in rooms that are unoccupied for three or more consecutive days <input type="checkbox"/> While cleaning, do not air rooms for more than 15-20 minutes in order to avoid wasting energy on heating or cooling <input type="checkbox"/> Install an air conditioning system that automatically switches off when the windows are open <input type="checkbox"/> Clean and change the air conditioner filters regularly 			
<p>Administration</p> <ul style="list-style-type: none"> <input type="checkbox"/> Avoid leaving computers switched on when taking breaks longer than 30 minutes (on standby, a computer consumes 95 W) <input type="checkbox"/> Switch off equipment when not in use (a copying machine on standby can consume up to 80% of the energy it uses in working mode) <input type="checkbox"/> Use natural light rather than artificial lighting as much as possible <input type="checkbox"/> Rearrange the workplace to make optimal use of natural light <input type="checkbox"/> Avoid leaving doors and windows open to minimise energy consumption for heating or air conditioning <input type="checkbox"/> Switch off the coffee machine after each use (a coffee machine that is left switched on the whole day consumes as much energy as it uses to make 12 cups of coffee) 			
<p>Pool</p> <ul style="list-style-type: none"> <input type="checkbox"/> Retain the pool's heat by covering it with a thermal cover at night <input type="checkbox"/> Keep the water temperature at 24°C (increasing the temperature by two degrees can consume up to 25% more energy) <input type="checkbox"/> Limit the pool lighting that is not necessary for the users' safety <input type="checkbox"/> Make sure that the pool's thermostat is in working order 			

Example

Problem	High energy consumption for lighting
Measure	Installation of energy-efficient light bulbs with a lifespan 12 times greater than that of common incandescent bulbs'
Investment	US\$ 20 per unit
Payback	0.6 year
Environmental impact	Reduction in the hotel's energy consumption of 15'417'000 kWh/year

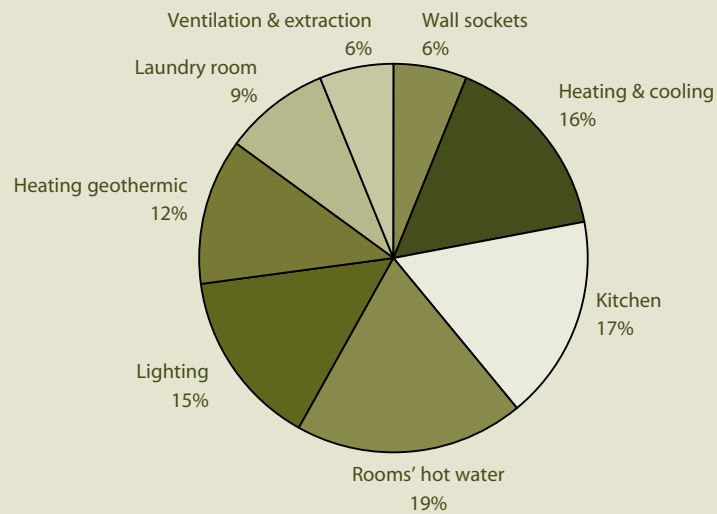


Fig.1 - Example of the distribution of energy consumption in a hotel

(Source: Intelbat, 2005)

2.3. Wastes | resource recovery

The rapid development of the hotel industry in the Mediterranean often goes hand-in-hand with a lack of sanitation and waste disposal infrastructure. It is therefore necessary to implement strategies to minimize wastes at source as well as to recycle them. Indeed, hotels produce large quantities of solid and liquid wastes, which end up in the surrounding environment due to inadequate management and handling. The resulting dirty surroundings will also harm the image of the hotel.

Types of waste in the hotel industry

<i>Non-hazardous wastes (NHW)</i>	<i>Components</i>	<i>Source</i>
Household wastes	Food/kitchen waste, used or dirty paper and wrapping, plastic wrapping or bags, composite wrappers	Hotel's different departments
Cardboard	Packaging	Hotel's purchasing and other departments
Paper	Printed documents, brochures, menus, maps, magazines, newspaper	Administration, reception, guest rooms, restaurants
Plastic	Bags, bottles (that did not contain hazardous material), household goods, individual portion wrappers for various products	Kitchen, restaurants, bars, guest rooms, administration
Metal	Tin cans, jar lids, soda cans, food containers, mayonnaise, mustard and tomato purée tubes, aluminium packaging	Kitchen, restaurants, bars, guest rooms
Glass	Bottles, jars, flasks	Kitchen, restaurants, bars, guest rooms
Cloth	Tablecloths, bed-linen, napkins, clothes, rags	Kitchen, restaurants, bars, bathrooms, guest rooms
Wood	Wooden packaging, pallets	Purchasing department
Organic waste	Fruit and vegetable peelings, flowers and plants, branches, leaves, grass	Kitchen, restaurants, bars, guest rooms, gardens

Warning, the content of the above table is not exhaustive.



A typical food portion weighing 300 g yields up to 835 grams of waste material, 780 grams in preparation and 55 grams upon disposal.

<i>Hazardous wastes (HW)</i>	<i>Source</i>
Frying oil	Kitchen, restaurants
Mineral oil	Maintenance service
Paint and solvent residues	Maintenance service
Flammable material (gas, petrol, etc.)	Kitchen, garden, maintenance service
Fertilizers and chemicals (insecticides, fungicides, herbicides)	Garden
Cleaning chemicals	Maintenance service
Ink cartridges	Administration
Disks and CD-Roms	Administration, guest rooms
Batteries	Maintenance service, administration, guest rooms
Cleaning chemicals and solvents used in dry cleaning	Laundry room
Fluorescent lights, neon tubes and long-life bulbs	Maintenance service

Warning, the content of the above table is not exhaustive



A single litre of mineral oil can pollute one million litres of water, spreading to a surface area of 2'000 m².

Occasionally, hotels produce other types of wastes, such as:

- Bulky waste (furniture – chairs, desks, sofas, etc.)
- Demolition and/or renovation wastes (concrete, stone, brick, plaster, glass wool, roof tiles, ceramic material, tiling, window glass, treated wood, pipes, etc.)
- Inert waste (broken china, chipped glasses, etc.)
- Used electronic, household and office appliances
- Discarded refrigerating equipment (refrigerators, freezers)

Self-assessment

- How much does the treatment and disposal of your wastes cost?
- Do you know how much waste is generated by your hotel?
- What are the types of wastes generated and their respective volumes?
- How do you dispose of your wastes? What proportion of the hotel's wastes is recycled?

If you cannot answer the above questions, it is necessary to establish a more efficient management of your hotel's wastes.

'WASTES' checklist

OBJECTIVE: TO REDUCE, TO REUSE, AND TO RECYCLE WASTES

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>General</p> <p>Examine the major sources of wastes</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identify the major sources of waste generation in the hotel <input type="checkbox"/> Determine the quantities and the composition of wastes <input type="checkbox"/> Determine the costs of treatment and disposal of wastes for each department <input type="checkbox"/> Check that the practices of the hotel are in compliance with current legislation <p>Segregate wastes at source</p> <ul style="list-style-type: none"> <input type="checkbox"/> Organize at-source segregation of wastes at source (segregating those wastes for which there exist local recycling networks) <input type="checkbox"/> Organize workspaces in such a way as to facilitate waste segregation <input type="checkbox"/> Distinguish containers by means of colours, labels, or symbols (pictograms) for each type of waste <input type="checkbox"/> Instruct employees in the use of the different containers <input type="checkbox"/> Check regularly if the segregation of wastes is being practised. <p>Reduce the total amount of waste</p> <ul style="list-style-type: none"> <input type="checkbox"/> Order materials according to your needs to minimise waste <input type="checkbox"/> Maintain and repair equipment in preference to replacing it <input type="checkbox"/> Choose sustainable products and use them correctly to increase their life span <input type="checkbox"/> Use refillable products instead of disposable ones <input type="checkbox"/> Limit the use of individually packaged products <p>Make the necessary arrangements for non-recyclable wastes</p> <ul style="list-style-type: none"> <input type="checkbox"/> Pre-treat liquid discharges before disposing them and respect the existing regulations <input type="checkbox"/> Dispose of non-reusable and non-recyclable wastes using appropriate methods (that comply with existing regulations) <input type="checkbox"/> Keep hazardous wastes separate from non-hazardous wastes in order to avoid contamination and to facilitate handling <input type="checkbox"/> Take the necessary precautions for the disposal of hazardous wastes <input type="checkbox"/> Do not throw away batteries and accumulators with household wastes, but collect them separately 			

'WASTES' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>General</p> <p>Reduce packaging wastes</p> <ul style="list-style-type: none"> <input type="checkbox"/> Buy materials that have the least packaging <input type="checkbox"/> Rationalise purchases to avoid ordering small quantities <input type="checkbox"/> Give preference to suppliers that take back their packaging <input type="checkbox"/> Investigate the possibility of selling some wastes to recyclers (paper, cardboard, plastic, metals, glass, organic wastes, etc.) <p>Reduce the impact on the environment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Find out about possible local means of processing waste to comply with regulations <input type="checkbox"/> Do not burn waste outdoors, do not disperse them in nature or bury them <input type="checkbox"/> Choose the products that are least polluting and most sustainable <input type="checkbox"/> Recycle electric and electronic appliances and donate unwanted appliances that are still working to local associations 			
<p>Kitchen</p> <ul style="list-style-type: none"> <input type="checkbox"/> Check expiration dates of foodstuffs and use food items in the order in which they were purchased – “<i>first-in, first-out</i>” <input type="checkbox"/> Make sure that fresh and perishable products are stored at the appropriate temperatures <input type="checkbox"/> Install containers specific to particular types of waste in the waste storage area to recover packaging and to promote segregation <input type="checkbox"/> Collect biodegradable organic wastes separately in order to compost them or reuse them as animal feed <input type="checkbox"/> Recycle PET and non-deposit glass bottles (recycling 1 ton of glass saves 100 kg of fuel oil) as well as metal packaging (tin and aluminium) <input type="checkbox"/> Do not discharge oils into sinks or toilets to avoid clogging pipes and disrupting wastewater treatment systems <input type="checkbox"/> Collect used oil and dispose it in an environmentally friendly manner <input type="checkbox"/> Store liquid wastes in adequate containers and dispose them correctly <input type="checkbox"/> Stop using disposable tableware <input type="checkbox"/> Reduce the use of individual portions (e. g. jam and butter) where this can be done without compromising hygiene 			

'WASTES' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Laundry room</p> <ul style="list-style-type: none"> <input type="checkbox"/> Sort textiles according to their degree of soiling and colour to avoid damaging them <input type="checkbox"/> Choose adequate detergents and use recommended dosages <input type="checkbox"/> Avoid leaving detergent in humid places <input type="checkbox"/> Keep clothes hangers and reuse them <input type="checkbox"/> As far as possible, reuse the laundry room's plastic bags or replace them with wicker baskets or cloth bags <input type="checkbox"/> Rather than throwing them away, transform old bed sheets into laundry bags <input type="checkbox"/> Collect chemical containers according to the manufacturer's instructions and send them back to the suppliers 			
<p>Room service, accommodation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use refillable dispensers for hygiene products (the rate of use for individual portions is often only 30%, and even less in the case of soap) <input type="checkbox"/> Organize segregation in the guest rooms with clear communication to hotel guests and by providing adequate means (baskets, etc.) <input type="checkbox"/> Improve waste collection by adding compartments to room service trolleys for different types of wastes. However, employees must never sort the contents of waste bins) <input type="checkbox"/> Reuse old bedding and napkins as rags 			
<p>Administration</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reduce the printing of documents whenever possible and use e-mail <input type="checkbox"/> Reuse the blank side of used paper as scrap paper <input type="checkbox"/> Use the two-sided printing option on printers and copying machines whenever possible <input type="checkbox"/> Use recycled paper whenever possible <input type="checkbox"/> Collect paper and cardboard wastes separately <input type="checkbox"/> Limit colour printing and copying <input type="checkbox"/> Return toner and ink cartridges of printers and copying machines to suppliers <input type="checkbox"/> Avoid using disposable tableware (plastic cups and mugs) 			

Example

Problem	Generating approximately 190 tons of recyclable wastes per year
Measure	Implementation of waste segregation in the hotel
Investment	US\$ 140'000 (annual wages of the employees hired to sort segregated wastes, and equipment costs)
Payback	7.5 months, with an additional profit of US\$ 90'000 per year
Environmental impact	Recuperation of 70% of the material that can be reused or recycled (paper, cardboard, glass, aluminium) as well as material and objects discarded in error

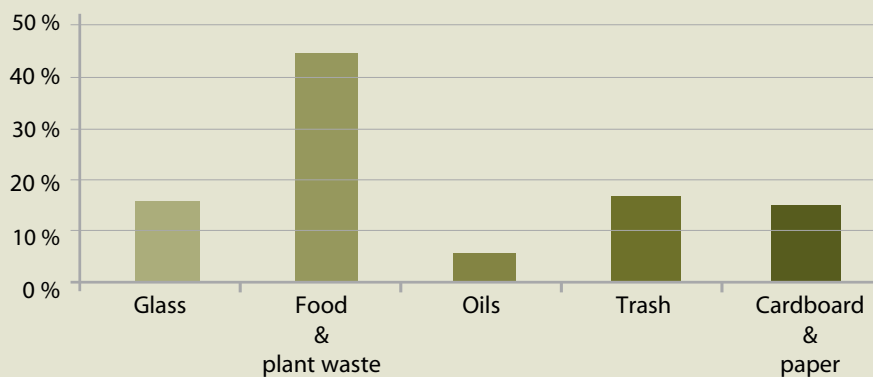


Fig. 2 - Composition of wastes generated by a restaurant serving 13'000 meals per year

(Source: RPA ingénieurs-conseils Meyrin, 2000)



One ton of used paper can be used to manufacture 900 kg of new recycled products. On the other hand, each ton of virgin paper consumes 3 m² of forest.

2.4. Purchasing policy | ecological aspects

Purchases made by hotels are linked to the need to satisfy guests' expectations and offer them quality service. Nevertheless, purchased products must be considered in their totality (life cycle). Indeed, the different stages of the life of a product – manufacturing, marketing, use and disposal – all have an impact on the environment. The purchasing of "green" products helps to minimise these impacts.

These products favour biodegradable, recyclable, non toxic and less processed materials, and their use in the context of a hotel leads to smaller water and energy consumption. Hotels can encourage the use of "green" products by raising the awareness of staff, suppliers and guests. Beyond the ecological aspect, the impact on working conditions must also be factored in when selecting products.



Since 50% of a hotel's solid wastes consist of the packaging and containers of consumed products, it is extremely important to try to reduce their quantity.

Self-assessment

- Do you favour local products whenever possible?
- Do you favour biodegradable, recyclable or reusable products?
- Do you pay attention to processes involved in the preparation of the products?
- Do you purchase appliances and other equipment that are designed for minimum water and energy consumption?
- Are you willing to spend a little more in order to protect the environment?
- Do you ask your suppliers about their practices regarding environment protection and working conditions?

If most of your answers are negative, it is important that you change your purchasing policies.



The hotel can use ecolabelled products which have a guaranteed limited impact on the environment. This is the case for ecoenergetic products that bear the 'Energy Star' label.

In addition to the ecological benefit, these products are economically advantageous. Indeed, while in use, electrical appliances cost 20 to 50% of their purchase price in energy.

'PURCHASING POLICY' checklist

OBJECTIVE: TO CONSUME BETTER, TO BUY GREEN

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>General</p> <ul style="list-style-type: none"> <input type="checkbox"/> Buy only what is needed (avoid unnecessary supplies) <input type="checkbox"/> Buy local products to reduce pollution from transportation <input type="checkbox"/> Prefer, whenever possible, products that are recycled, reusable, repairable, biodegradable, recyclable, fair trade and/or eco-labelled (such products should not be imported or transported over long distances, otherwise their ecological advantages will be lessened) <input type="checkbox"/> Use the hotel's products and equipment in a rational way <input type="checkbox"/> When purchasing new equipment, take their water and energy consumption into consideration <input type="checkbox"/> Prefer products with little packaging and that use single-material packaging (homogenous and polystyrene-free) <input type="checkbox"/> Avoid disposable (one-trip) products <input type="checkbox"/> Identify and choose suppliers that have already implemented eco-efficiency measures and who agree to take back packaging and used material <input type="checkbox"/> Replace paper towel dispensers in wash rooms with energy-saving hot air blowers <input type="checkbox"/> Involve guests in the selection of "green products" <input type="checkbox"/> Rent equipment that is seldom used by the hotel, instead of buying it <input type="checkbox"/> Purchase appropriate mercury- and cadmium-free batteries and rechargeable batteries for applications involving frequent use 			
<p>Shops</p> <ul style="list-style-type: none"> <input type="checkbox"/> If applicable, encourage the shops in the hotel to sell products that are made in ecologically- and socially-friendly ways <input type="checkbox"/> Do not allow shops in the hotel to sell souvenirs made from protected or endangered animal or plant species 			
<p>Kitchen</p> <ul style="list-style-type: none"> <input type="checkbox"/> Choose, whenever possible, organic products <input type="checkbox"/> Choose seasonal fruits and vegetables <input type="checkbox"/> Use fresh products with little or no preservatives and food-colouring and with as little packaging as possible <input type="checkbox"/> Purchase in bulk rather than individually packaged items <input type="checkbox"/> Pay attention to the origin of the foodstuffs used <input type="checkbox"/> Equip the kitchen with energy-efficient appliances <input type="checkbox"/> Choose the least polluting cleaning agents 			

'PURCHASING POLICY' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Laundry</p> <ul style="list-style-type: none"> <input type="checkbox"/> Equip the laundry room with machines in energy class A (saving at least 23% on energy consumption) and with washing machines having low water consumption <input type="checkbox"/> Buy compact, concentrated products and/or eco-refills to limit packaging wastes <input type="checkbox"/> Avoid using detergents containing bleach (products of chlorine), phosphate, EDTA (ethylenediaminetetraacetic acid), NTA (sodium nitriloacetate), etc. <input type="checkbox"/> Use active oxygen as whitener and/or use plant-based detergents <input type="checkbox"/> Prefer detergents whose components are active at low temperature (30°C) <input type="checkbox"/> Adhere to recommended dosages to avoid unnecessary pollution of water <input type="checkbox"/> Choose dry cleaning products that minimise pollution <input type="checkbox"/> If you work regularly with a dry cleaner, return the clothes hangers and replace the plastic protection covers with paper or cloth covers 			
<p>Restaurants, bars</p> <ul style="list-style-type: none"> <input type="checkbox"/> Avoid using paper tablecloths and napkins <input type="checkbox"/> Use table linen made with environmentally friendly materials, free of hazardous dyes, heavy metals and formaldehyde <input type="checkbox"/> Choose wash-resistant materials <input type="checkbox"/> Avoid using plastic cups or disposable tableware <input type="checkbox"/> Prefer draft drinks or deposit bottles 			
<p>Room service, accommodation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Prefer furniture which is easily disposable, being mostly recyclable <input type="checkbox"/> Avoid furniture made from exotic wood and, if possible, purchase products with the FSC label (Forest Stewardship Council) guaranteeing ecologically and socially responsible forest usage <input type="checkbox"/> Install refillable soap and shampoo dispensers in the rooms to reduce packaging and rationalize their use <input type="checkbox"/> Use recycled toilet paper <input type="checkbox"/> Choose concentrated, environmentally- and health-friendly cleaning agents <input type="checkbox"/> When cleaning, avoid the use of disinfectants 			

'PURCHASING POLICY' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Administration</p> <ul style="list-style-type: none"> <input type="checkbox"/> Buy reusable ink and toner cartridges which can be sent back to the supplier <input type="checkbox"/> Purchase paper with at least 50% recycled fibres, or non-whitened or chlorine-free bleached paper <input type="checkbox"/> Prefer equipment with a low energy consumption, having recycled or recyclable components and long life spans <input type="checkbox"/> Use the "energy saving" functions that switch an appliance into sleeper mode if it is not used for a certain length of time and the "cancel" function to suspend a print job in case of a mistake <input type="checkbox"/> Prefer rechargeable batteries 			
<p>Garden</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use organic or biological fertilizers and garden products 			

Example

Problem	Purchase and use of individual 22 ml jam servings
Measure	Make available to guests different jam flavours, prepared by the hotel in large and neatly presented containers
Investment	Minimal
Payback	Immediate, with a yearly savings of US\$ 19'000
Environmental impact	Reduction in wastes quantities and rationalisation of purchases

2.5. Logistics | efficient handling and management

A hotel purchases large quantities of merchandise that require specific handling and storage. When the merchandise is received, a number of steps must be taken in order to guarantee the preservation of its quality. In addition to the location of the storeroom, the human factor is also crucial. Educating employees and raising their awareness are aspects that must be considered. Moreover, making regular inventories of the stock can limit losses and avoid over-consumption.

Self-assessment

- Do you keep your stock records up-to-date?
- Do you have specific procedures regarding the handling and storing of merchandise?
- Do you give information to or educate the staff about correct procedures?
- Do you regularly carry out checks in storage areas?

If most of your answers are negative, it is important that you rethink your logistics procedures.



Better materials handling and storage limits losses. Furthermore, the staff must know and apply safety and hygiene rules when receiving, controlling and storing merchandises.

'LOGISTICS' checklist

OBJECTIVE: TO INSPECT THE STOCKS, TO MANAGE AND TO CONTROL

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Quality of delivered supplies</p> <ul style="list-style-type: none"> <input type="checkbox"/> Examine the packaging of the products delivered to you <input type="checkbox"/> Check that the contents are not damaged <input type="checkbox"/> Return the damaged materials to the suppliers <p>Storage conditions</p> <ul style="list-style-type: none"> <input type="checkbox"/> Organize the storage area systematically <input type="checkbox"/> Establish storage policies according to instructions provided by suppliers or as mentioned on the labels <input type="checkbox"/> Check that the packaging is not damaged during storage <input type="checkbox"/> Prepare a maintenance schedule for the storage areas and warehouses <input type="checkbox"/> Update regularly the inventory of stored materials <input type="checkbox"/> Document mishandling or storage problems 			

'LOGISTICS' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Storage of chemicals</p> <ul style="list-style-type: none"> <input type="checkbox"/> Keep all chemical products (especially those that are hazardous) in a designated, protected, and safe area <input type="checkbox"/> Respect the storage instructions provided by the manufacturers <input type="checkbox"/> Label containers of hazardous substances clearly <input type="checkbox"/> Avoid storing substances that could interact in the same area <input type="checkbox"/> Ensure that the necessary storage conditions are maintained to avoid accidents (appropriate temperature, ventilation, etc.) <input type="checkbox"/> Avoid exposing flammable products to the sun or to any other source of heat <input type="checkbox"/> Restrict access to hazardous products and control their use <p>Optimal supplying</p> <ul style="list-style-type: none"> <input type="checkbox"/> Avoid excessive purchasing to limit surplus and loss <input type="checkbox"/> Inspect the stocks and keep a record of them (register or database) <input type="checkbox"/> Check expiration dates of materials to avoid having to discard out-of-date and unusable materials <input type="checkbox"/> Train the staff to work according to the principle of "first in, first out" <p>Losses and leakage</p> <ul style="list-style-type: none"> <input type="checkbox"/> Avoid accidents and contamination by using appropriate equipment to handle materials when necessary <input type="checkbox"/> Close lids and taps to reduce leaks and spills 			

Example

Problem	Frequent losses of products due to mishandling during transfers
Measure	Providing wheeled carts for distributing products
Investment	US\$ 50
Payback	Immediate, with a saving of US\$ 3'000 per year
Environmental impact	Improvement of the logistics and reduction in waste quantities

2.6. Noise, air quality and landscape integration

2.6.1. Noise

Just like any other type of pollution, noise has an impact on the quality of life and on health. Hotels are, above all, meant to be places where one can relax and rest. This often proves difficult because of the noise level. It affects hotel guests and the staff, as well as the hotel's surroundings. Exposure to noise pollution above 60 dBA has an impact on mood, the quality of sleep, and stress levels. It can also give rise to auditory fatigue (buzzing and ringing). Prolonged exposure to high noise levels, above 90 dBA, represents a hazard to hearing (which can result in moderate to severe deafness).

Self-assessment

- Do you know which are the noisiest areas in your hotel in order to limit the noise levels there?
- How many of your employees are exposed to high noise levels?
- Do your guests or neighbours complain about noise pollution?

Determine here if noise is a problem in your hotel.



If guests complain, it may be due to internal noise and lack of acoustic insulation.

'NOISE' checklist

OBJECTIVE: TO PROTECT THE STAFF AND GUESTS FROM NOISE

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Evaluate risks</p> <ul style="list-style-type: none"> <input type="checkbox"/> Measure the noise levels and record them <input type="checkbox"/> Monitor the variations in noise levels in the noisy areas <p>Act on your environment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Reduce noise at its source <input type="checkbox"/> Install sound insulation and other means of damping vibrations <p>Change your organisation</p> <ul style="list-style-type: none"> <input type="checkbox"/> Accept deliveries only at agreed hours <input type="checkbox"/> Relocate noisy machines to an isolated area or away from the hotel and its surroundings <p>Protect your staff</p> <ul style="list-style-type: none"> <input type="checkbox"/> Inform the staff of the long-term health effects linked to noise pollution <input type="checkbox"/> Provide the employees who are exposed to high noise levels with individual ear protection 			

'NOISE' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Look after your well-being of your guests' and the quality of the environment</p> <p><input type="checkbox"/> Carry out noisy activities at times which will cause the least nuisance for the guests and the surroundings</p> <p><input type="checkbox"/> Display posters in exposed areas to raise employee awareness</p>			



According to European Norms, four acoustic comfort levels must be respected in hotels (see below).

Type of space	dB(A) Lower limit / default value / upper limit.
Hallway	35 / 40 / 45
Function room	35 / 40 / 45
Hotel room (at night)	25 / 30 / 35
Hotel room (during the day)	30 / 35 / 40

2.6.2. AIR QUALITY

As with all industrial activities, tourism contributes to atmospheric pollution. Hotel boilers emit atmospheric pollutants, such as particles, carbon dioxide (CO₂), sulfur dioxide (SO₂), carbon monoxide (CO) and nitrogen oxides (NO_x). Emissions from road traffic associated with the hotel also contribute to atmospheric pollution. Chlorofluorocarbons (CFC) used as refrigerating fluids in air conditioning and refrigeration equipments purchased before 2000 are responsible for the destruction of the ozone layer.

Furthermore, indoor air pollution is a typical feature of hotels. Many sources contribute to the deterioration of air quality inside a hotel. Pollutants range from mere bad odours to toxic hazards, and include kitchen smells, sewer emissions, tobacco smoke, allergens (acarids, moulds, etc.), Legionella (the bacteria that cause this disease thrive in hot water systems and air conditioner tanks at temperatures between 25 and 45°C), and volatile organic compounds (found in cleaning agents, paint and solvents, glue, varnish, thinner, etc.).



The life span of chlorofluorocarbons in the atmosphere can exceed 100 years. These chemicals are responsible for the deterioration of the ozone layer.

Self-assessment

- Do you regularly check your burners and air conditioning equipment?
- How do you manage and dispose of refrigerant fluids when changing equipment?
- Have you created smoking and non-smoking zones in your hotel, and are they sufficiently aerated and ventilated?
- Do you maintain your hot water system?
- Do you take any steps to reduce the proliferation of allergens?

If the majority of your answers are negative, you should pay more attention to your hotel's air quality.

'AIR' checklist

OBJECTIVE: TO IMPROVE AIR QUALITY, AND TO PROTECT STAFF AND GUESTS

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Allergens</p> <ul style="list-style-type: none"> <input type="checkbox"/> Make sure the hot water network and hot water tanks are well maintained (keep the temperature at 55°C at least) <input type="checkbox"/> Clean tanks and taps during periods of extended shutdown <input type="checkbox"/> Clean up mouldy areas with bleach and ventilate them in order to diminish humidity <input type="checkbox"/> Avoid acarids (lice) by limiting the use of carpets, rugs and wall hangings <input type="checkbox"/> Avoid dust accumulation by regularly washing bed linen 			

'AIR' checklist (continued)

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<p>Outdoor air quality</p> <ul style="list-style-type: none"> <input type="checkbox"/> Check and maintain regularly boilers and cooling equipment <input type="checkbox"/> Change the filters of air conditioning equipment regularly <input type="checkbox"/> Replace old oil-fired burners with natural gas ones <input type="checkbox"/> In cases where fuel oil is specifically required, use low sulfur fuel <input type="checkbox"/> Draw up a list of all the cooling equipment (air conditioning, refrigeration), check their airtightness and remove and dispose appropriately of refrigerant fluids (CFC) which are harmful to the ozone layer <input type="checkbox"/> Monitor leaks in refrigerating systems <input type="checkbox"/> Select fire-extinguishers and fire fighting systems that are halon-free (since halons also contribute to the destruction of the ozone layer) <input type="checkbox"/> Ask your suppliers to switch off the engines of their vehicles when delivering supplies <p>Indoor air quality</p> <ul style="list-style-type: none"> <input type="checkbox"/> Provide high performance indoor ventilation <input type="checkbox"/> Identify sources of pollution and eliminate them or decrease their effects <input type="checkbox"/> Create non-smoking places in public areas <input type="checkbox"/> Mark smoking and non-smoking rooms clearly, if the hotel is not completely smoke-free <input type="checkbox"/> Limit the use of aerosols and check that they will not damage the ozone layer <input type="checkbox"/> Choose sprays that do not use propellant gases <input type="checkbox"/> Ensure close adherence to the instructions for the use of cleaning agents (e.g. "do not use in a confined space", "do not inhale fumes") <input type="checkbox"/> Prefer products that are solvent-free to avoid emissions of volatile organic compounds (VOC) <input type="checkbox"/> Choose biodegradable cleaning agents <input type="checkbox"/> Do not mix cleaning agents (interactions between substances can increase their toxicity) 			

Example

Problem	High CO ² emissions due to the hotel's heating system
Measure	Installation of an ecoenergetic heating system
Investment	n.a.
Payback	3.5 years
Environmental impact	Reduction in CO ² of 430 tons/year (average of 2.7 tons per year and per room)



In order to ensure optimal indoor air quality, monoblock filters, replaced 2 to 3 times a year, propel outside air into the whole hotel.

2.6.3. Landscape integration and protection of natural resources

Areas with high natural diversity or with an important historical heritage are favourite tourist destinations. To respond to the increasing demand, construction linked to the tourism industry has expanded rapidly. This situation creates certain abuses linked with gradual modifications of the environment and landscape that may become irreversible. The growth of tourism and its aesthetic requirements have direct impacts on soil, landscape and on the surrounding ecosystems. In some places developments on the coastline can lead to severe conflicts. Intensive construction practices are harmful to the environment, especially when the building materials used are not in harmony with traditional architecture. Such construction not only robs the landscape of its natural characteristics but also detracts from its identity.

Self-assessment

- Does your hotel's visual appearance fit into its surroundings (in terms of colours, shape, and size) and into the region's cultural landscape?
- Did you employ a landscaper during the development of the hotel?
- Do the building materials contain local natural products?
- Did you employ local craftsmen when building?
- Did you lay out gardens and limit the area that paved or built on?

If the majority of your answers are negative, it would be a good idea to make an effort to improve your landscape impact.



Manufacturing a ton of concrete requires 140 to 220 kWh, 70'370 kWh are consumed in the manufacture of a ton of aluminum sheet, and to manufacture one ton of plywood 5'000 to 8'000 kWh is required.

'LANDSCAPE INTEGRATION AND PROTECTION OF NATURAL RESOURCES' Checklist

OBJECTIVE: TO PROMOTE LANDSCAPE INTEGRATION AND ENVIRONMENT PROTECTION

Actions to be taken	Priority (1 to 3)	Name of person responsible	Deadline
<ul style="list-style-type: none"> <input type="checkbox"/> Check if you are in conformity with your region's estate layout policy <input type="checkbox"/> Give heed to environmental recommendations in laying out your hotel <input type="checkbox"/> Aim for visual continuity with the architectural style of the surroundings <input type="checkbox"/> Preserve local identity and the natural heritage <input type="checkbox"/> Whenever possible, use sustainable materials produced locally <input type="checkbox"/> Lay out green areas and gardens to make the site more pleasant (preferably using indigenous plants) <input type="checkbox"/> Place the parking lot in an inconspicuous area of the hotel <input type="checkbox"/> Choose, when needed, mineral materials that have a link with the region's geology 			

Example

Problem	Water expenses represent more than 40% of operating costs
Measure	Planting indigenous and drought-resistant species suited to the region
Investment	Minimal
Payback	Immediate, with savings of US\$ 5'417
Environmental impact	Integration into the local landscape and rationalisation of water use



Selecting building materials is a crucial step in a hotel's construction. In this context, some principles are given below.

Utilize materials that have already been tried	Investigate the eco-balances of the materials used
Use renewable raw materials	Ensure sustainable development
Prefer variety to uniformity	Use different materials for different functions
Prefer a regional approach	Prefer local materials with cultural links
Stick to the basics and save resources	Evaluate your needs and avoid excesses
Use nature's energies and rhythms	Do not fight nature, but make the most of what it offers

IV. DETAILED ENVIRONMENTAL ASSESSMENT

To go further with the environmental evaluation of the hotel, it is possible to undertake a more in-depth analysis of the most important environmental aspects. The following section of the Guide will enable you to prepare an environmental balance sheet of the hotel's management and consumption practices. This quantified approach to environmental management facilitates the identification of "priority actions" (to counter high rates of water consumption, loss of materials, excess waste generation, etc.) in the most significant environmental areas. Finally, the results of this assessment can be used to plan remediation measures according to opportunity, their importance and the available means.



Warning, this section is restricted to hotels that have already undertaken an environmental audit or diagnosis. The implementation of a detailed environmental assessment requires baseline data. Hotels that submit to an environmental analysis for the first time should move to the next chapter, and return to this one at a later stage.

Objectives

- Document economic and ecological deficiencies
- Identify the strategic measures to be undertaken
- Reduce the impacts on the environment
- Promote rational and efficient use of natural resources
- Promote communication and environmental awareness

Components

- Water
- Energy
- Wastes
- Purchasing policy
- Logistics
- Noise and air quality



All the tables presented in this section are available in EXCEL format.

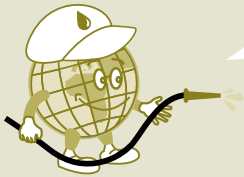
To obtain a more accurate assessment, data concerning water and energy consumption, as well as the inventory of the wastes generated must be obtained from various sources – internally (accounting, technical department, purchasing department, etc.) and externally (suppliers, subcontractors, etc.). The hotel's environmental analysis can thus be further refined.

1. WATER

Fill out the following tables according to the hotel's available data. Involve the concerned departments and persons.

The hotel's total water consumption

Period (month, quarter, semester)	Consumption (m ³ , litres)	Cost (monetary unit)	Water sources
...			
Total consumption		Total cost (monetary unit)	



If you fill out this table by month, quarter or semester, you will get the yearly consumption.

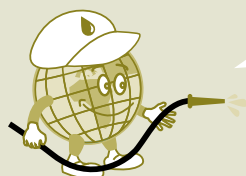
To evaluate the trends in the hotel's consumption, you must repeat this process for several years.

The necessary data can be obtained from the accounting department, by checking the meters, etc.

Water consumption per department

Department		Person responsible	
...			
Total consumption		Total cost (monetary unit)	

Period (mois, trimestre, semestre)	Consumption (m ³ , litres)	Cost (monetary unit)	Comments or current actions
...			



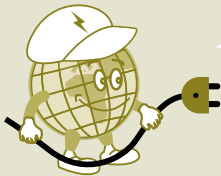
You can also calculate the proportion of the total consumption and cost for each department by combining the two tables.

2. ENERGY

Fill out the following tables according to the hotel's available data. Involve the concerned departments and persons.

Hotel's total energy consumption

Period (month, quarter, semester, year)			
Energy source	Consumption (tons, m ³ , litres, kWh)	Cost (monetary unit)	Use
Electricity			
Gas			
Diesel			
Fuel			
Butane			
Coal			
...			
Others			
Total consumption (kWh)		Total cost (monetary unit)	



You can follow the consumption of the different forms of energy and their respective costs. State how the form of energy in question is used: cooking, heating, etc.

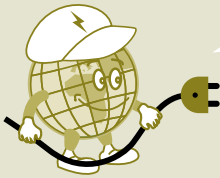
Convert all the consumption figures for the various forms of energy into kWh to obtain the total consumption:

- 1 m³ of natural gas = 10.54 kWh
- 1 ton of oil = 12'602 kWh
- 1 ton of coal = 8'012 kWh
- 1 ton of butane = 12'703 kWh

To evaluate the trends in consumption, you must repeat this process for several periods.

Energy consumption per department

Period (month, quarter, semester)				
Department	Consumption (kWh)	Cost (monetary unit)	% of hotel's total consumption	Comments or current actions
...				



Calculate each department's energy consumption and its cost. Repeat this operation for different periods in order to establish comparisons and identify possible inconsistencies.

To identify areas of high consumption, compare each department's consumption with the hotel's overall consumption. For this operation, you will need meter readings and gas, fuel or other bills.

Don't forget to convert the consumption of the different forms of energy into kWh.

3. WASTES

Fill out the following tables according to the hotel's available data. Involve the concerned departments and persons.

Yearly waste quantities

Hotel		<input type="checkbox"/> Non-hazardous wastes	<input type="checkbox"/> Hazardous wastes
Period (year)	Quantity (kg, m ³ , t)	Transport costs (monetary unit)	Treatment cost (monetary unit)
...			



Determine precisely the period covered by the data. If you choose to give the monthly values, make sure to add them up to get an annual figure.

Yearly data will reveal trends and will allow you to identify any inconsistencies.

Fill out this chart for both non-hazardous (NHW) and hazardous wastes (HW).

Wastes categories and their sources

Period (month, year)		<input type="checkbox"/> NHW	<input type="checkbox"/> HW				
Wastes categories	Source	Quantity (kg, m ³ , t)	Collection mode	Transport costs	Treatment		Comments
					Type	Cost	
...							



List the different categories of waste generated by your establishment and record their sources and quantities. This will allow you to identify the areas that generate the highest quantities. If wastes are mixed, try to make estimates. Involving the staff is important at this stage.

For each type of wastes, mention the collection and treatment mode as well as costs, not forgetting transport. Fill out the chart for non-hazardous and hazardous wastes. Begin with NHW since they make up a greater percentage of the whole.

Wastes categories	Reuse and recycling activities	Comments
...		



If you have taken measures to reuse and recycle your wastes, describe them and comment on them.

Wastewater

Period (month, year)	Source	Volume (l, m ³)	Collection mode	Transport costs	Treatment		Comments
					Type	Cost	
...							



State what do you do with your wastewater? Is it collected or discharged into the sewer system? If you are treating some of the wastewater in a particular way, indicate it in the table.

4. PURCHASING POLICY

Fill out the following table according to the hotel's available data. Involve the concerned departments and persons.

Overview of purchasing

Item	Quantity / year	Concerned department	Supplier	Ecological features *	Risks linked to the product
...					

* Biodegradable, recyclable, reusable, etc.



State the types of products you use most often and their quantities. State also the departments in which they are used. Indicate whether or not they are dangerous, biodegradable, or made from recycled or reusable material. All this information is available on the manufacturer's labels or from your suppliers.

This table shows you how much of a change in your purchasing habit is necessary.

5. LOGISTICS

Fill out the following table according to the hotel's available data. Involve the concerned departments and persons.

Storage area		Department		Period	
Product	Inflow (kg, l, m ³)	Outflow (kg, l, m ³)	Current supplies (kg, l, m ³)	Amount lost during storage (kg, l, m ³)	Comments



For each storage area, indicate which products are stored there. Don't forget to give the quantities that enter and leave. Current supplies are the quantity of products available in the stores on the day of the inventory.

If you have noticed problems in the storage area, write them down. It is also important to quantify and explain any losses – through mishandling, inadequate storage conditions, passing of expiration date, etc.).

6. NOISE AND AIR QUALITY

6.1. Noise

Fill out the following table according to the hotel's available data. Involve the concerned departments and persons.

Concerned area		Time of day		
Origin	Noise level and frequency	Causes	Effects	Comments
...				



Following the suggestions of the staff and complaints of guests and neighbours, investigate the areas in the hotel that are causing concern and record their noise levels. It is also important to specify the frequency of occurrence of excessive noise (every day, on particular days, during specific activities, daytime, night-time, etc.).

Identify the origin of the noise pollution (kitchen, laundry room, ventilation, poorly running machine, piping, etc.) and indicate likely causes (defect, insulation problem, etc.). In the table, describe also the effects of the noise on the staff, guests and neighbours.

6.2. Air

Fill out the following table according to the hotel's available data. Involve the concerned departments and persons. When necessary, make measurements or estimates.

Emission	Source	Concerned area	Approximate quantities (t/year)	Compliance
...				



For each type of gas emission, note the source, the area of the hotel where it occurs, and an assessment of the quantity or concentration.

When there are no exact figures, make an estimate. Ask yourself whether you are in compliance with local regulations.

V. DECISION-MAKING AND CORRECTIVE MEASURES

1. ECONOMIC RETURN OF CORRECTIVE MEASURES

After having identified the actions to be implemented in your hotel, you can now calculate their return on investment. The table of economic calculations enables you to evaluate the costs of implementing corrective measures step by step, the potential savings and the expected return on investment. It is a decision-making tool that helps you assess the situation before and after the implementation of corrective measures. In other words, it estimates the return on investment of the targeted actions before they are actually implemented.

Elements of economic calculations form

<p>Overall description</p>	<p><i>Presentation of the set of problems and of the chosen corrective measure. This part encompasses the following elements:</i></p> <ul style="list-style-type: none"> • Concerned environmental domain • Department responsible for the corrective measure • Problem faced • Action to be taken (corrective measure) in order to solve the problem
<p>Comparison of costs</p>	<p><i>Comparison of costs before and after the implementation of the corrective measure:</i></p> <ul style="list-style-type: none"> • Annual costs before implementation (Ca): costs incurred before the implementation of the corrective measure (consumptions, losses of water, energy, raw materials, maintenance costs, costs of equipment upgrades, etc.) • Annual costs after implementation (Cb): recorded or estimated costs after the implementation of the corrective measure
<p>Investment</p>	<p><i>Capital invested to acquire the means needed to implement the corrective measure. In most cases, the investment creates annual running costs to keep the measure working effectively and efficiently:</i></p> <ul style="list-style-type: none"> • Investments (Iv): capital needed to implement the corrective measure. If the measure included several investments, the various amounts should be added • Annual running costs (Rc): additional running costs related to the implementation of the corrective measure. In some cases, there are no running costs
<p>Profit</p>	<p><i>Savings resulting from the implementation of the corrective measure:</i></p> <ul style="list-style-type: none"> • Gross annual savings (Gs): annual savings obtained as a result of the implementation of the corrective measure. Gs = Ca – Cb • Net annual savings (Ns): actual annual savings obtained as a result of the implementation of the corrective measure. Ns = Gs – Rc
<p>Return on investment</p>	<p><i>Highlighting the economic efficiency of the chosen measure:</i></p> <p>Payback period (Pp): time needed for the hotel to recover the investment used to implement the corrective measure. It is expressed in years. To turn it into months, it has to be multiplied by 12. After the payback period, the gross annual savings (Gs) become profit. Pp = Iv / Ns</p>

Note: Particular attention should be paid to the choice of unit (t, kg, l, etc.) and to the currency (US\$ or local currency). What matters is to be consistent in usage of units.

EXAMPLE OF ECONOMIC CALCULATIONS FOR A HOTEL

GENERAL DESCRIPTION	
Domain	Energy
Facilities concerned	The different components of a tourist complex: 3 hotels, 5 restaurants, 4 bars, 3 swimming pools and 19 shops
Problems addressed	Conservation of energy is an important theme for tourist complexes. The electricity costs represent a large part of the complex's operating costs
Action to be taken	<ul style="list-style-type: none"> • Installation of an electronic monitoring system to monitor energy consumption from a distance and detect areas where savings could be made • Installation of presence sensors in staircases • Installation of additional switches in the staff restaurant • Substitution of 240 standard incandescent bulbs with low consumption bulbs (which have a life of 6 years)
COMPARISON OF COSTS	
Annual costs before action (Ca)	Electricity costs per year: $C_a = \text{US\$ } 1'200'000$
Annual costs after action (Cb)	Electricity costs per year: $C_b = \text{US\$ } 789'524$
INVESTMENT	
Investment (Iv)	<ul style="list-style-type: none"> • Electronic monitoring system: $Iv_1 = \text{US\\$ } 20'000$ • Presence sensors: $Iv_2 = \text{US\\$ } 3'240$ • Additional switches: $Iv_3 = \text{US\\$ } 7$ • Low consumption bulbs: $Iv_4 = \text{US\\$ } 4'800$ <p>$Iv_{\text{total}} = Iv_1 + Iv_2 + Iv_3 + Iv_4 = \text{US\\$ } 28'047$</p>
Annual running costs (Rc)	<ul style="list-style-type: none"> • $Rc_1 = \text{US\\$ } 1'920$ • $Rc_2 = \text{US\\$ } 160$ • $Rc_3 = \text{US\\$ } 0$ • $Rc_4 = \text{US\\$ } 880$ <p>$Rc_{\text{total}} = Rc_1 + Rc_2 + Rc_3 + Rc_4 = \text{US\\$ } 2'960$</p>
PROFIT	
Gross annual savings (Gs) $G_s = C_a - C_b$	$G_s = \text{US\$ } 1'200'000 - \text{US\$ } 789'524$ $G_s = \text{US\\$ } 410'476$
Net annual savings (Ns) $N_s = G_s - Rc$	$N_s = \text{US\$ } 410'476 - \text{US\$ } 2'960$ $N_s = \text{US\\$ } 407'516$
RETURN ON INVESTMENT	
Payback period (Pp) $P_p = Iv / N_s$	$P_p = \text{US\$ } 28'047 / \text{US\$ } 407'516 = \sim 0.069$ $P_p = \sim 25 \text{ days}$

2. ACTION PLAN

In order to get the financial return from such corrective measures, the hotel must set an action plan for the daily management of its activities. To identify the hotel's strong points, recognise its weaknesses, and define its perspectives there should be some kind of internal organisation and a clear allocation of responsibilities. The development of an action plan enables the implementation of the corrective measures by specifying the means allocated (financial, technical, human, etc.) and the deadline for the actual implementation. Appointing qualified persons to implement the corrective measures is essential. At the same time, coordination between the departments that face the same problem (such as excessive consumption of water or energy, or inadequate waste management) is necessary for reaching the performance targets. The corrective measures and their results should be assessed and documented regularly in order to evaluate progress and plan possible additional improvements or corrective measures.

Example of an action plan

Objective	Targeted action	Department concerned	Person responsible	Means	Deadline	Expected result	Iv (US\$)	Rc (US\$)	Ns (US\$)
Reduce noise pollution to ensure guests' comfort and reduce thermal loss	Acoustic and thermal insulation in the hotel's rooms	Technical department	Mr. Benjelloun	Installation of high-insulation double-glazed windows	6 months	<ul style="list-style-type: none"> Reduction of the noise level (and improved guest loyalty and satisfaction) Reduction of 66% in energy costs 	US\$ 1'200 per window	None	US\$ 24'000
Reduce the pollution linked to cleaning chemicals and raise the awareness of the cleaning staff	Use of environmentally-friendly cleaning products in refillable containers	Purchasing departments	Ms. Tazi	<ul style="list-style-type: none"> Establish purchasing guide lines based on labels with preference for green products Selection of products with a high degree of biodegradability 	1 year	<ul style="list-style-type: none"> Reduction of air pollution (common cleaning products are responsible for 8% of the emissions of volatile organic compounds) Improvement of 5 % of the productivity of the staff (decrease of medical problems linked to chronic exposure to chemicals) 	US\$ 1'000	Normal labour costs	US\$ 10'000

VI. IMPROVEMENT, TRAINING AND PERSPECTIVES

1. STRENGTHENING AND CONTINUOUS IMPROVEMENT

Becoming an environmentally responsible hotel requires the adoption of a new corporate culture both within the hotel and among its stakeholders. To strengthen this commitment, changes should be implemented progressively within the hotel.

Organisational change

To obtain a lasting change in the hotel, clear objectives are needed, and follow-up and evaluation measures must be implemented. A systematic approach can be adopted by establishing resource management plans and by communicating factual information. Therefore, appointing a “*task group*” made up of selected volunteers from among the staff will contribute to the implementation of concrete improvements in the BEP’s main domains.

Behaviour change

Influencing staff behaviour in favour of more rational resource use has a direct impact on lowering the hotel’s running costs. It is important to involve staff by giving them specific duties (realistic and suited to their competences) and by providing training. It should be noted that such a commitment also requires the involvement of the guests.

Technological change

Within the framework of the strategic environmental actions, the hotel can, when changing equipment or renovating, choose more sustainable technologies that consume less water and energy. The aim of this is to become more eco-efficient and adopt a more responsible purchasing policy.

In addition, to sustain the efforts made in applying “*green*” measures, the hotel must institute corroborative and follow-up actions. This will support the hotel’s environmental commitment and help monitor its performance.

2. FOLLOWING UP AND SUSTAINING THE CORRECTIVE MEASURES

Follow-up gives managers the necessary information to assess the impact and the progress of the action taken. It can provide an evaluation of the adequacy of the measures, judged against the hotel’s environmental goals. Moreover, by using the annual follow-up results, managers can identify trends in performance (benchmarking) and, if needed, take corrective action. Using the BEP Guide each year will give the hotel the data it needs to do this, thereby conforming to the principles of continuous improvement. The goal is to strengthen the environmental and economic efficiency of the hotel departments. After this initial approach to best environmental practices, the hotel can go further in its adoption of the principles of eco-efficiency by offering guests additional and personalized services while at the same time limiting environmental impacts and costs, and guaranteeing quality.

3. AWARENESS-RAISING AND TRAINING OF STAFF

Just as investments are required to maintain or replace a hotel’s equipment, an investment in staff awareness-raising and training is essential to improve the human capital. Environmental commitment is an opportunity for the hotel to involve its various co-workers. Staff training must be centred on the hotel’s environmental impacts. For the training to be adequate, training and awareness-raising must also be relevant to the target groups and be related to their daily activities. Employees should be invited and encouraged to respect the environmental measures that have been implemented. Finally, because of the high turnover rates in the hotel industry, training curricula should be revised to include the BEP principles in the induction training provided for new employees. Awareness-raising and training can be implemented in the different departments of the hotel. Sessions should be organised at times of less activity, and should last one to two hours. Practical demonstrations increase the effectiveness of the training. In addition, other media can be used in the departments, such as posters, information notes, brochures, bulletin boards, and films.

4. GUEST'S INVOLVEMENT AND EXTERNAL COMMUNICATION

A hotel's position regarding environmental issues can increase its competitiveness. Information on this topic should, above all, be addressed to guests, but also to the other stakeholders.

As far as informing guests is concerned, the main objectives are to inform them about the hotel's programme and sound environmental practices, as well as to inform the guests regarding what they themselves can do. By communicating clearly about its efforts in the field of environmental protection, the hotel can increase the approval and loyalty of demanding guests. Nevertheless, it is important to communicate well and get the message across without being sanctimonious.

Guests can become involved in the hotel's environmental approach if they are given key information about the hotel's commitment. They can participate if they are informed about rational use of water and energy (*cf. section III*). The information can be distributed to guests when they arrive and be posted in the guest rooms. It should be noted that the hotel must have a demonstrated commitment to the protection of the environment, having implemented effective and efficient measures, before requesting the participation of guests.

Other stakeholders can be informed of the hotel's practices by different means, among which are the annual report, the environmental charter, and the web site. Another way to show one's commitment is to describe the improvement measures that have been implemented and to explain their economic and environmental advantages.

5. PERSPECTIVES

The efforts undertaken by the hotel in terms of the environment can lead to a consideration of eco-labelling. The best known labels for hotels are the "*European Eco-Label*" and the "*Green Key*". Getting accreditation in this way requires meeting a number of mandatory and optional criteria. Investments may prove necessary to upgrade the hotel's equipment in order to meet the requirements of the label. Such certification is an important competitive advantage that can be used as a marketing tool.

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