



HOTELS GOING GREEN

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ABSTRACT

Environmental pressures have affected many industries. Initially, one was only concerned about those industries which directly pollute the environment. Now the problem is much more complex. Hospitality industry does not cause gross environmental pollution nor does it consume vast amounts of non-renewable resources, but there are several operations, which consume relatively small amounts of energy, water, food, paper and various other resources which pollute the environment in the form of smoke, noise and chemical pollutants. Keeping the above issues in view, the industry has come forward to save the environment and is playing a major role in environment protection by developing awareness and good practice. Accordingly, has adopted environment friendly policies which includes aspects like :1) architectural (electrical and plumbing) 2) Guestrooms (amenities and energy conservation) 3) Public Area (Gardening and floor care) 4) Laundry (Energy conservation and eco-friendly chemicals) 5) Garbage Disposal, to name a few.

The above parameters would be elaborated by including the actual practices followed in hotels and also the initiatives like carbon trading and green building launched by the hotels. The hotels have become more socially responsible towards Green Tourism for a better tomorrow.

There is a Native American Proverb, "**We do not inherit the land from our ancestors, we borrow it from our children**". What better way to express the need to conserve natural resources! The hotel industry has also awakened to this fact and being one of the major consumers amongst industries, has realized its role in promoting responsible tourism.

The eco concept first grew wings in 1993 when the Hotel Catering and Institutional Management Association (HCIMA) and the World Travel and Tourism Council (WTTC) reached an agreement to cooperate in developing acceptance of environmental issues throughout the country.

Some of the major hotels across the globe have adopted these eco-initiatives, although late, but have made it one of their notable achievements. However, there is definite dearth of eco friendly hotels due to short sighted cost perception in particular. As far as the small hotels are concerned there is a definite paucity of eco literate hotels. One of the reasons for the reluctance is the high initial cost, but what the hotel fails to understand is that environment protection and eco friendly practices, if adapted in the right manner, can lead to significant services and healthier bottom line. Being eco friendly is not just a contributory step towards saving the environment, but is also profitable in the long run.

Environmental pressures have affected many industries. Initially the concern was related to those industries, which directly pollute the environment. Now the problem is much broader and relates to the whole operation. Hospitality industry does not cause gross environmental pollution nor does it consume vast amounts of non-renewable resources, but there are several operations, which consumes relatively small amount of energy, water, food, paper, and various other resources which pollute the environment in the form of smoke, noise and chemical pollutants. Keeping the above issues in view, the industry has come forward to save the environment and is playing a major role in environment protection by developing awareness and good practice. With this objective in mind, International Hotels' Environment Initiative (IHEI) was formed.

Now a day environment friendly hotels are focusing more on Eco design or Eco mantra of **Reduce, Reuse, Recycle** by keeping in mind the 4P's-Product, Price, Place, and Promotion. But what has gained momentum in the last decade or so is the importance of the **4th R**-which is **Replace** i.e., if something which is being consumed in hotels cannot be reduced in terms of consumption, cannot be reused in any way and cannot be recycled too then it has to be Replaced with an environment friendly alternative. One of the promotional aspects on "Ongoing Green" is through various supply chains which provides eco friendly products. Some of these products have increased the cost however the returns are more encouraging. These environmental friendly steps are flexible and also socially acceptable.

New ventures in the hospitality industry are doing environmental assessment, which refers to the procedures to assess the impact of operations on the eco system. All hotel related projects are considering an audit to

assess environmental factors pertaining to physical sites and buildings, energy, wastage, water treatment, transport systems for external use, products, processes, services, health and safety. IHEI (International Hotels Environment Initiative) is a forum which assists the leading hotels in such environmental audits.

Secondly they are making a good environmental policy based on the assessment by identifying codes, laws, practices of minimum standards. The HCIMA Technical Advisory Group is the one which issues a Technical brief on environment Issues. This is helping them to develop a policy statement based on the concept of sustainable development that includes maintenance of physical, cultural & sociological resources, as those could be passed to future generation.

Hotels have become more socially responsible towards Green tourism for a better tomorrow.

For an Ecotel, the planning starts from the conception stage itself. The building architecture plays an important role in the future policies and practices. It also affects the certification process and various audits related to certification.

ARCHITECTURE

“A tree always grows from its roots every building needs a strong foundation.”

Hotels give emphasis on structural designing as this is the first step towards energy conservation. The structure is built in such a manner that the focus point faces the northeast, hence reducing the direct sunlight there by reducing electricity consumption by way of lesser air conditioning and lighting. A false wall and double glazed windows with refractive glasses helps considerably to reduce the energy requirements. Building Management System is one such system which is used to control heating zones within a hotel. This system can allow energy consumption to be targeted only on those rooms which are occupied by the guests.

Passive energy conservation in design in various Ecotels

- **The Facade** - Depressions and protraction in the façade plays an important role in saving energy, since majority of the dead walls remain under shadow there by reducing the surface radiation.

- **The plan configuration** - While designing Ecotel rooms, designers emphasize on the room elevation not directly facing the external elements so that the overall heat load is reduced.
- **Natural lighting in the atrium** - The high rise lobbies have become an order of the day in hotels. It is not only for a majestic first impression of the guests' but is essential from the point of maximum usage of natural light. The atrium concept has now been taken up very well by most of the modern hotel architects and designers. This design incorporates skylight as an architectural element, detailed in a manner of double layered domes to reduce heat load and noise level yet admitting natural light in the atrium space.
- **Roof top** - Few hotels have swimming pools located on the roof top with 4 ft of water body which acts as an insulator from heat. KoolDeck is applied around the swimming pool desk to reduce the glare and the surface temperature so that one can walk bare footed around the pool. The hotels can also have a separate block for Public spaces like convention halls wherein, the swimming pools can be crafted on the terrace in order to keep the area below cool by reducing the surface temperature. Most of the time such public spaces have heavy flow of guests thereby increasing the air conditioning load. With such kind of planning the heat of these areas can be controlled.
- **Cement** - Hotels are today using PPC (Portland Pozzalana Cement) which contains 15-20 % fly ash, as compared to OPC (Ordinary Portland cement).
- **QED (Quiet easily done)** - Hotels use QED wall panels which are made from fertilizer waste instead of red bricks, which are made from top soil of the earth. These wall panels are reusable and will save labor and time from curing, plastering and recurring.
- **ACC (Autoclave Areated Concrete)** - Another alternative environment friendly material used by most of the hotels is ACC. This material is used for external walling and wet walling structure of the hotels. This is an eco friendly product manufactured by using 60 % Fly ash. It is the brick substitute building material, having excellent thermal insulation properties and better sound absorption coefficient than ordinary bricks.
- **Triple Glazed Windows** - The triple Glazed window comprises of a hermetically sealed double glazed unit and an added reflective glass. This triple glazed window blocks the heat of the sun from entering the

room and helps in conserving the air conditioning energy. An added advantage of this unit is that it prevents fabric and furniture colours from fading as the triple glazed unit prevents the infra red light from the sun to enter the room. This window also helps in effectively cutting out the noise pollution.

ELECTRICALS

The various new trends emerging in Ecotels are as follows:

- **Lamps/ fluorescent tubes** - Incandescent bulbs are now replaced by energy efficient PL bulbs, which provide much light than ordinary bulbs and consume subsequently less energy.

Eg. 10W PL lamp will give an equal amount of brightness as a 60W incandescent bulb, whereas the former (PL Lamp) will have a power consumption of 25% the latter will have a power consumption of 100 %.

- **Mini Bars** - Mini bars used in the guestrooms are equipped with “Fuzzy Logic”, which senses the load inside the refrigerator and cools it accordingly there by saving 40 % energy. An Added advantage is that this refrigerator is CFC free.
- **Electronic reduced Voltage soft starter cum energy saver for A/C Compressor**- During the start, the motor acceleration is controlled by gradually increasing the motor current to a reference current ramp limit. In the energy saving mode the applied voltages is adjusted by sensing that the motor current is minimum.
- **ECO Button** - This are placed in the guest rooms alongside the bed. When the guest presses this button the air conditioned temperature in the room increases by 2 degrees over a period of 2 hours. The saving in electricity resulting from the 2 degrees increase in temperature is translated into rupee terms and the same is displayed on the guest folio and profile. A certificate is then issued to the guest who has voluntarily participated in conserving energy. A database is maintained of all these guests and the hotel develops a direct mail link with them, telling them about their ongoing environmental activities.
- Hotels like The Oberoi, Bangalore have installed sensors in the balcony doors which switch off the Air-conditioning the moment the balcony door is opened by the guest or the employee. This helps in energy conservation.

- Most of the hotels now use the key tag to operate the lights and air conditioning inside the guest room.

PLUMBING

“We never know the worth of water till the well is dry”!! - Thomas Fuller

Water being one of the earth's most precious resource and vital to life, special care is taken by the hotels to conserve the resource by employing careful plant techniques such as

- **Aerators/ floor restrictors** - All taps contains special aerators which increase the water force and reduce outflow, saving water. Using these aerators up to 50% of water can be saved. In addition to this hotels have installed taps operating on timers in their cafeterias and on sensors in their cloak rooms. Even the urinals in public area toilets are fitted with sensors and pre established volume of water for each flush.
- **Cisterns and flushers** - This device uses only 6 liters of water per flush as against 15-20 liters used in the conventional flushes.
- **Drinking Water Treatment using ozone** - This employs ozone which destroys all micro-organism including bacteria, virus, spores, moulds and fungi, etc. the resultant water is absolutely safe, pure, fresh and healthy. The water is free from chlorine. On the other hand ozone having half the life of only about 20 minutes, unreactive ozone reduces to oxygen reducing no trace of toxicity in water. This makes it most environment friendly treatment. Ozonised water is colorless and odorless and can be used as disinfecting anything. Aqua zone diffuses the control dosage of ozone into the drinking water as and when required. Ozone reacts with impurities like microorganism and chemicals, neutralizing them. The result is clean, fresh and healthy water to drink.
- The hotels which are near to heritage sites have a greater responsibility towards the environment and have to be very careful in their approach in order to avoid any negative affect on the surroundings. Amar Vilas Hotel, Agra which is close to Taj Mahal has gas turbine fired by propane to boil water instead of Diesel in order to check the emission of harmful gases which can react with the marble of Taj Mahal and degrade it.

GUEST ROOM AMENITIES

In keeping with the environmental themes in mind hotels have started placing their entire product with herbal base, which are manufactured

under ayurvedic license. These product are not tested on animals and do not contain animal fat.

Some of the eco-practices being followed in hotels are being elaborated below.

- **NUWUD MDF (Medium Density Fiber Wood)**

There is a paradigm shift in hotels outlook when it comes to the excessive usage of expensive solid wood in the interiors as a tool to establish their image. The interior works of Hotel is now being made from MDF, which is manufactured using cotton stalks. The cotton tree, which grows to a height of 5-6 feet, is cut down after yield and the same is usually rendered useless. With the help of advanced technology, the waste stalks of the cotton tree then goes through a manufacturing process which includes chipping, sieving, washing and cooking of the fiber chips. After this lengthy procedure Medium Density Fiber Wood is produced having all the features of natural wood

- **Newspapers** - Hotels have started placing newspapers in the room , only on request, in reusable cane basket (optional) instead of the usual paper or plastic bags
- **Pens/ Pencils** - Hotels by large, use eco- friendly pens/ pencils made of recycled cardboard, reprocessed plastic and scrap wood. The cardboard which is used as barrel, is free from chlorine usage in the manufacturing stage. Plastic as the head and base is made from reprocessed ABS (a thermoplastic material that can be recycled and/ or remolded). Scrap wood is obtained from discarded cases used for packing purposes. The eco pencils are not made of wood but of a non- toxic polymer with the use of natural fillers. Wood saver pencils are made using a shaft, which is made of biodegradable material such as talc, gypsum and clay.
- **Recycling Bins** - Separate recycling bins with a sticker for guest use is placed in all rooms. These stickers are for disposal of dry waste, wet waste and plastics. The guests by means of message cards are requested to dispose the in-room garbage in the bins meant for each type of garbage. The room attendants are trained in collecting this garbage in separate bins and are taken for recycling or any other eco-friendly means of disposal.
- **Recycled garbage bags** - Garbage bags are made from recycled plastic and milk pouches.

- **Cut flowers verses potted plants** - Hotels are minimizing the usage of cut flowers; instead living vibrant plants are used to bring the beauty of nature indoors.
- **Stationary** - All the stationary's placed in most of the hotel guest rooms are made from recycled papers. The folders being placed in the rooms are now being made with Jute rather than the traditional leather, known for its style statement!
- **Slippers** - The stylish slippers placed in the hotel guest rooms are hand crafted from natural reed, which provides maximum comfort and luxury to the guest, which is an eco- friendly concept followed by the ecotels.
- **DND, Make My Room & Laundry Signs** - Paper door knob cards are now replaced by electronic signs placed outside the room, thus reducing the wastage of paper.
- **Anti- slipper mats** - Cloth bath mats can now be replaced with anti-skid rubber mat, which saves water and electricity which would have otherwise been used for the laundering of the mats.
- **Minimum use of single serving items** - Use of condiments like sugar sachets are replaced by using sugar cubes. Jams, sauces and ketchup are served in preserved pots. Butter chiplets are being replaced by butter curls.
- **Hangers** - Solid wood hangers placed in guest rooms are now being replaced by hangers made from pressed particle wood or sawdust.
- **Fruits** - Fruits in guest rooms are now placed on request, to avoid wastage. However in order to maintain the standards, a tent card is placed in the rooms requesting guests' to contact room service for their complimentary fruit basket.
- **Shopping bags** - Specially designed cloth shopping bags which are made from discarded linen or jute bags are placed in most of the Ecotel shopping arcades and guest rooms usually with an awareness environment message printed on it.
- **Room Fresheners** : The hotels are no longer using compressed gas based room fresheners packed in a can under pressure as these contain CFC. Instead a water based freshener is used which is usually in a concentrated form and can be diluted as per the standards of the organization.

- **Interactive television** - These are televisions in the guest rooms by which the guest can receive the messages on the screen, order room service through interactive Television, set top box. The welcome letter and the guest bills are also displayed on such televisions thereby reducing the usage of paper.
- **Gift a Plant** - Some of the hotels as a token of remembrance gift a sapling to the guests' on check-out. This makes the guests' also a part of the environment initiatives of the hotels. These saplings are presented to the guests' wrapped in a cloth carry bag made from discarded linen with an environment message.
- **Reuse of leftover amenities** - The Room Attendants are trained to collect all the left over toiletries from departure rooms and hand over at a central point where the soap bars are converted into liquid soap which is then utilized for back area floor cleaning purposes. The shampoo and moisturizer are refilled in containers and given for the usage of employees in the staff lockers.
- **Reuse of linen** - Discard linen is either given to charity organizations or is reused in the hotel by converting into other useful articles. Bath towels are converted into face towels, bed sheets are converted into pillow cases, bathmats are utilized for wiping bathroom floors during the cleaning process.

LAUNDRY

Hotels in strive to reduce paper wastage are now using reusable cloth laundry bags , in which the guest could send the cloths for laundering and the same is delivered in reusable cane baskets wrapped in muslin cloth. A laundry button is incorporated in master control panel eliminating the use of laundry pick up tent cards.

In Ecotel laundries all the equipments are operated as per the standard capacity, and Bio degradable chemical products like Ecolab and Johnson Diversey are used so that wastage water contains less or no phosphate or chlorine.

The modern laundries are increasingly adopting automatic dispensing of chemicals in machines to eliminate the chances of human error and wastage of chemicals and water. Even the environmentally conscious companies which manufacture laundry chemicals advise for the installation of the same.

The hotels have also started emphasizing on eco-messages for the guests as Guests are considered to be an integral part in this conservation drive. These messages are usually in the form of tent cards placed in strategic locations inside the room (usually the vanity counter) and convey the messages like the scarcity of water and electricity and how a small effort like putting off the tap while shaving or brushing, placing the towels on the racks in case it is not to be washed after single use, can contribute towards the ultimate goal of conservation of resources.

The load factor of articles which require steam ironing is worked out and depending on the requirement of the same; the steam is released in the pipelines. Equipments like Calendaring machine and steam press which consume large amount of energy are operated during certain pre-fixed timings and all the load is processed during that time only to save the energy.

PUBLIC AREAS

Energy conservation in public areas through building automation

- Keeping in mind the comfort of guest in public areas, such as, banquet halls, discotheques, meeting room's etc mixed gas sensors are used in demand for ventilation.
- Distribution pumps are controlled to distribute chilled water as per load through variable frequency drives (VFD). Suitable adjustment of set points of chillers based on external temperature. Setting at a higher or lower point will depend on temperature.
- Exhaust ventilation in car parks is controlled based to the extend of carbon dioxide measured in the basements / car park areas through the use of 2 speed fans.
- Kitchen exhaust is activated only when necessary through 2 speed fans.
- The glass washer is used only when it is full-to save water, detergent and electricity.
- Treated fresh air is regulated on the basis of Occupancy levels in the hotel in order to minimize the wastage of energy.
- Lighting in public areas especially garden side restaurants etc, will be switched on/off based on lux intensity meter, depending on time of day.
- Hotels have started using CFL bulbs in Public Areas, which consumes very low electricity.

- Solar panels are being used extensively in gardens and other landscaped areas for the general lighting during the evening. These light fixtures are also fitted with sensors so as to automatically switch on when the light is less or switched off when the light is more (sunlight).
- Treated grey water from laundry and guest rooms is let off in the gardens for watering purposes.
- Anti cockroach herbal treatment - This treatment has been recently introduced and is the first of it's kind in India to eradicate cockroaches. This herbal paste contains extracts from herbs and the treatment is totally different than the conventional spray treatment. By using this treatment there have been no health hazards, as there is no use of any poisonous chemicals. No cleaning is required after the treatment is done hence there is no wastage of water, detergents etc. This medicine is in the form of a paste and it is applied to all nooks and corners in the form of small globules in the premises, which is to be treated. This paste can also be applied in refrigerators, ovens, toasters, microwaves mixers, computers as it is non-poisonous.

FLOOR CARE IN PUBLIC AREAS

Green floor care involves the use of preventative measures, more environmentally protective or Green certified chemicals (USBGC Certified), and more advanced floor care equipment. It also includes cleaning processes that help reduce the need and frequency of more hazardous and time-consuming restoration procedures such as, sanding, grinding, or stripping and refinishing hard-surface floors.

Green cleaning products, which are necessary in a Green floor care program, contain less or no petroleum materials, as well as zinc and other metals. They also use less environmentally harmful, naturally derived extracts from plants such as soy, corn, citrus or seeds and trees.

There are key elements that play a significant role in helping to Green floor care. Among these are:

1. Soiling Prevention

- Capture and remove soil at its source, the basic line of defense-and the least expensive and easiest to do-yet the most under utilize.
- Place twelve feet of entry matting inside/outside of all entries and exits or other areas where soil may accumulate or be generated.

- For the high traffic areas like entrance to the lobby and banquet halls, the first 30 feet in and outside a building should be covered with matting to prevent soiling. Frequent dry mopping, vacuuming and wet mopping should be carried out to prevent the accumulation of the soil.

2. Scheduling

- The housekeepers should plan the floor care especially for marble, granite, wood and carpet well in advance keeping in view the degree of soiling. Excessive polishing/ shampooing of the above areas should be avoided as it leads to the wastage of chemicals and consumption of electricity which goes against the principles of Green Floor care. Here it is quite a challenging task for the housekeepers to strike a perfect balance between the standards of the hotel and the eco practices. “How clean is clean?” it is a question that every organization has to answer after considering various standards, procedures and practices.

3. Documentation

- Establish quality assurance guidelines, inspect to verify compliance and make corrections if necessary.
- Document the process, watch for trends, and improve.
- Use quantitative tests to validate results.
- Use environmentally preferable purchasing.
- Validate your Green cleaning program with an independent third party auditor.

4. Chemicals

- Neutral pH products should be used for daily cleaning.
- Finishes that contain heavy metals or solvents should be avoided especially for marble and granite.
- Hazardous acids, alkaline and bleaches should not be used.
- Use concentrates with automated dilution systems.

FLOOR CARE EQUIPMENT

In order to protect indoor air quality, an essential component of a Green cleaning program, floors should be vacuumed instead of swept or dry mopped. Additionally, the actual floor equipment used, buffers and burnishes

to strip, clean, or polish a floor can play a significant role in a Green floor care program.

Astute housekeeping supervisors should select floor machines with passive filtration systems and shrouds that cover the base of the machine. These systems help collect dust and debris that are generated when using the machine, so they do not become airborne. The shroud also helps minimize the amount of contaminants that can be released into the air.

Additionally, some hotels are switching to cylindrical floor machines, a new technology to the U.S., which has become quite commonplace in Europe. Cylindrical machines use less water and chemical, which helps make them a Greener alternative.

They also use brushes, not pads as with a rotary machine, which counter-rotate underneath the machine. This helps minimize the amount of dust that can become airborne. Additionally, one set of brushes can last as long as 100 rotary pads, placing less of a burden on landfills.

WASTE DISPOSAL

Hotels in endeavor to become a “**Zero Garbage**” organizations has taken various measures to reduce waste been generated. Vermiculture is one such answer to tackle the problems of wet garbage. Such a project has been successfully done by Orchid Hotel, Mumbai, which is the first certified Ecotel in India. This endeavor has not only helped the hotel to achieve Zero Garbage mission but have also helped the hotel from not adding the waste stream of the city.

CARBON TRADING

Carbon Trading is a market based mechanism for helping mitigate the increase of CO₂ in the atmosphere. The key idea behind carbon trading is that, from the planets point of view, where carbon dioxide comes from is far less important than total amounts. So rather than rigidly forcing the reduction of emissions company-by-company, the market creates a choice; either spend the money to cover the costs of cutting emissions, or else continue emitting and pay someone else to cut their pollution.

Hotels contribute less in terms of carbon dioxide emissions as compared to other manufacturing industries but have awoken to the environmental obligations and are striving now to become a carbon neutral company. ITC Hotels have already taken an initiative in this regard. ITC also has achieved

the status of being the first company in India to have a Green Building in Gurgaon, Haryana.

CONCLUSION

Eco designing is the current trend in the hospitality industry. Most organizations are trying to be nature sensitive organization and are acting towards implementing eco pressure. Concept of environmental management is a new consideration in hotel business however a matter of vital concern for all of us is to preserve the environment by covering the issues like environment assessment, sustainability, control of emission, pollution and energy waste and water management. Progressive hotels are now looking ahead and are finding ways and means to contribute towards the environment issues at a larger scale. Also public-private Partnership Avenue are being looked into wherein the hotels can adopt a certain environment sensitive facility such as lakes and parks, develop them into places of tourist interest.

Mahatma Gandhi once said, "*There is a sufficiency in the world for man's need but not for man's greed.*" Every individual and in turn organization should rise up to the need of the hour and contribute, however small an amount, towards saving the resources gifted to us by our Mother earth for the generations to come.

Hotels have definitely made a beginning!!

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