Waste Management Recycling and Renewable Energy systems the Need of Modern Hospitality

Hospitality activities generate waste, some of which fall under hazardous category. Continuous and proper disposal of hazardous waste is necessary for sustaining future hospitality activities. There are a large number of Restaurants and Hotels in India, these hotels contribute substantially to the generation of waste. Hotel and restaurant waste contributes to around 25-30 % of the total waste generated.

For the hospitality industry, the waste created by daily operations is an ongoing challenge. In addition to incurring the costs of waste disposal, hotels need to also allocate valuable back-of-the house space for waste to be stored and sorted. There are other concerns as well, namely the health and safety of those coming into contact with the waste, and the noise created by waste compaction and collection.

Much of the waste created in hotels is generated from within the kitchen (organic food waste, packaging, aluminum cans, glass bottles, corks and cooking oils), or from the housekeeping department (cleaning materials and plastic packaging). Waste is not only created in guest rooms but also in public areas, hotel gardens (engine oils, pesticides, paints and preservatives to grass and hedge trimmings) and offices (toner cartridges, paper and cardboard waste). Refurbishment and renovation projects undertaken at the hotel contribute further to the waste generated by the property. Hotels must meet all of the following seven criteria:

- Waste minimization
- Reuse/recycling
- Energy Efficiency
- Conservation and management
- Waste management

- Hazardous materials management
- Environmentally and socially sensitive purchasing policies
- Freshwater resource management

Types of Hotel waste

Hotel waste comprises of two components, Biodegradable (Wet) waste and Non biodegradable (Dry) waste. The wet waste comprises of food, vegetable and non veg waste whereas the dry waste comprises of plastic bottles, papers, plastic wrappers, HDPE, LLDPE bags etc.

Present System of disposal of Hotel Waste

At present Hotel waste generated by small restaurants is disposed off directly by the hotels at nearby collection spots. The substantial quantity of food waste dumped at these collection spots gets mixed with all the other kinds of dry and wet waste and gives an ugly look to the collection spots with lot of dirt and stink. In case of large four and 5 star hotels, the hotel waste is disposed off directly by the hotels through private contractors to the dumping ground. Some private contractors charges Trade Refuse Charge (TRC) to the hotels for the waste generated by the hotels. The TRC is charged in multiples of license fees which is directly based on the area of the hotel and the grade. The grade one hotels are generally bars and permit rooms which do peak business during evening hours. The waste generated by the restaurants with bars and permit rooms is much less as compared to that generated by the food restaurants. However the TRC charged for the bars and restaurants is much higher than that charged for the ordinary restaurants which generate much more quantity of waste. As per observations of the hotel waste generated by hotels, in a few words, around 70 to 75 % of the hotel waste is biodegradable and gets mixed with all the other type of waste when dumped at the collection spots. Also the waste which is collected directly by the private contractors gets mixed with all the other type of non biodegradable waste at the dumping ground.

At present, hotel Orchid, Rhodas, Lotus suites are managing their waste quite well, other new openings are Jakson Inns, they are all setting examples for other establishments.

Action Points

Management of waste generated by all the 3, 4 and 5 star hotels and restaurants generating over one tonne of waste by themselves. These hotels can look at options of in-situ composting, installation of small biomethanation plants in the premises etc.

Some methods for management

- Bio Sanitizer :Bio sanitizer, this machines can crush the food waste to 1/3rd of the original volume and odourless compost produced can be used as manure after curing.
- Biomethanation: Biomethanation Plants of capacities 100 -500 kg per day can be installed in the premises of hotels if adequate space is available. Gas generated can be used for cooking.
- Composting/ Vermicomposting: Also options of composting/Vermicomposting can be explored by the hotel management.

Duty of care Regulations

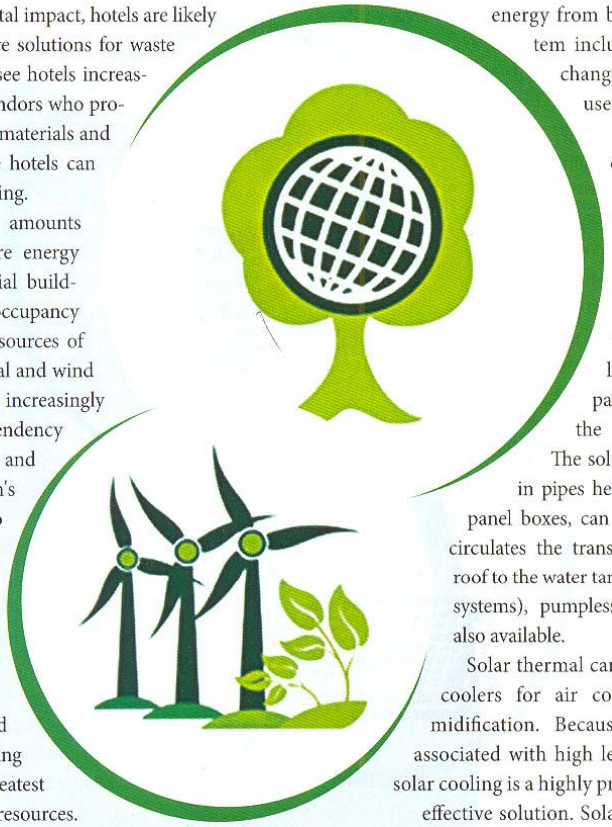
All waste removed from the premises is covered by the Duty of Care regulations. These regulations specify that all commercial waste (either for disposal or recycling) must be removed by registered waste carriers; and transfer notes should be completed and retained on file. Any waste contractors used, including the council, should provide the company with a transfer note on a yearly basis. Transfer notes must be retained on file for a minimum of two years.

Recycling

Recycling is good for the environment because it significantly lowers the amount of waste going to landfill, and can reduce waste costs if fewer collections are needed for general waste. Recycling will save money on waste costs as less collection for general waste will be needed.

For hotels, a good waste management strategy not only results in greater operational efficiencies, it also helps conserve energy and water. Waste elimination at source and recycling help to reduce greenhouse gas emissions at the manufacturing stage; these practices also keep waste out of the landfill, thus reducing

landfill methane emissions as well. Recycling one tonne of office paper creates 95 percent less air pollution and uses about 60 percent of the energy needed to produce the same amount of paper from trees. Recycling one aluminum can saves enough energy to run a television set for three hours. As the industry is able to better assess its environmental impact, hotels are likely to come up with more creative solutions for waste reduction. We also expect to see hotels increasingly lean toward suppliers/vendors who provide environmentally friendly materials and equipment, and to whom the hotels can hand back dry waste for recycling.



Hotels consume massive amounts of energy and use 50% more energy than a similar sized residential building despite having only 55% occupancy rates on average. Alternative sources of energy – like solar, geo-thermal and wind power – are now becoming increasingly available and reduce our dependency on non-renewable coal, oil and gas. Solar power uses the sun's direct and diffuse radiation to actively generate electricity. Installing solar panels helps hotels to cut back on the non-renewable energy that they use. Orienting the building so that the longest facades are exposed to the North and South with appropriate shading allows the hotel to take greatest advantage of available solar resources. You don't need to live in California, Hawaii or the Australian outback to utilize the power of the sun. Solar power is free, natural, cost saving and available every day. Generating up to 100% of your own clean electricity with solar has never been a better investment. State and central incentives reduce your investment cost by up to 80% - making solar not only an impressive commitment to the environment, but also a great economic choice. Various solar power options have become available and it's only the beginning. Understand the benefits and costs of each option.

Solar power is produced by using photovoltaics to convert sunlight directly into electricity by converting photon (light particles) into electrons (negatively charged particles). Photovoltaic (PV) cells are made of special materials called semiconductors. Silicon, mixed with other atoms, is currently the most commonly semi-conductive material (like the chips used in computers). When light strikes the PV cell, a certain portion of it is absorbed within the semiconductor material, meaning that the energy of the absorbed light is transferred to the semiconductor. In Short, when the sun hits a PV cell it causes the atoms to release their electrons in a way that produces a direct current (DC) similar to the energy from batteries. The solar system includes an inverter which changes the DC current into useable AC current.

The power that solar energy generates is often used for heating water, a solar water heating system is fairly simple. Solar water heating systems include storage tanks and solar collectors. Once the solar panels are installed and the sun heats the panels. The solar collectors heat a fluid in pipes held in the interior of the panel boxes, can include a pump which circulates the transmission fluid from the roof to the water tank and back again (active systems), pumpless (passive) systems are also available.

Solar thermal can also be used to power coolers for air conditioning and dehumidification. Because cooling demand is associated with high levels of solar radiation, solar cooling is a highly productive and very cost-effective solution. Solar energy can be widely used to generate electricity for the purpose of Air conditioning. The power consumption pattern of the Air Conditioner has to be understood initially in order to design the solar energy system accordingly. The AC which normally consumes the three times more power at time of starting needs more power in order to work efficiently. The solar power sizing should be done accordingly in order to make the AC function without any hindrance. The solar solution for AC includes determining the solar inverter capacity as power consumption patter of the AC increase three times fold at the stating of the machine. If the inverter is not sized properly then there will be a huge problem in functioning of the

system. Accordingly the solar panel capacity and the battery capacity have to be determined. Solar Plant can be set up in the roof top space of the building according to the capacity of the Air conditioner installed. Based on the capacity of the Air conditioners, the capacity of the solar plant varies accordingly.

Solar Energy is a natural resource that can be tapped easily and can be utilized for many of the applications in a Hotel. The total required solar energy can be calculated using the total load requirements of the Hotels. Solar Power can be utilized in meaningful way for Hotels.. The required solar power can be determined by adding up the power consumption by each of the electrical appliances in the Hotels. The solar power brings in clean and green power to the world, thus saving the environment, besides providing the required power by harnessing the power from the sun, Solar Solutions for Hotels have become a common thing these days, with people becoming more energy conscious and are also looking to contribute to the environment which is highly polluted due to conventional source of energy and many other factors. ■

Mr.Sandeep Talaulicar

Managing Director
Jakson Hospitality

"Its not just a need of Hospitality, its a need for Humanity. The industry has the responsibility and the potential of becoming a stalwart by tapping into new systems and recycling every resource it consumes. Solar, wind, thermal, gas, wet garbage, water, chemicals, plastic, glass and paper are all resources that can harnessed or reused to create magic for guests and mother earth. Recycling and renewable technologies exist, we just have to be responsible enough to include them as a cost of doing business. Jakson Hospitality is taking giant steps towards this goal. By 2015 we will have tapped into or recycled solar, water, gas, wet garbage, plastic, glass and paper in every hotel. Wind and thermal energies as resources will also be used depending on the location."

Mr.Harish Gupta

(B.Arch, B.E.Const) Partner-SOLARWINDZ

"Renewable energy is the future of humanity as fossil fuel will deplete and market dynamics will make it more expensive due to demand very soon as specific industries that cannot use alternate forms of energy will be ready to pay a higher price for example aviation industry and many more. Of all renewable energy sources solar is the most clean, reliable and available at point of consumption that no other energy source can ever match. The hospitality industry is at the helm of setting trends as it caters to all decision makers of the world and therefore it can take the first step to use solar energy for its own consumption and set the ball rolling for the world to follow towards self-sufficiency. We at SOLARWINDZ have always been passionate about renewable energy as the satisfaction to do our bit for mother earth has driven us for the last five years in the business of SOLAR plants, SOLAR roof tops, SOLAR street lights, SOLAR Billboard, WIND turbines and energy saving LED lighting for every need. We are continuously exploring new avenues to try and reduce the energy consumption on projects and try to create 100% self sufficiency. We can create beautiful adoptions of renewable energy integrated with the architecture of the building which would add to the aesthetic view of the project. Our company SOLARWINDZ is a partnership company based in Mumbai with pan India operations."

Mr. Ashwin C. Shroff,

CMD, Excel Industries Limited

"Clean and green environment is integral part of Hospitality sector. Waste management ensures a clean and green environment. Organic waste if left untreated results in unhygienic living condition near dumping sites and at the same time, results in the release of harmful GHG gases. Excel has been involved in organic waste management for last 25 years. We offer decentralized organic waste management technologies, which can convert organic waste into compost in a short period."