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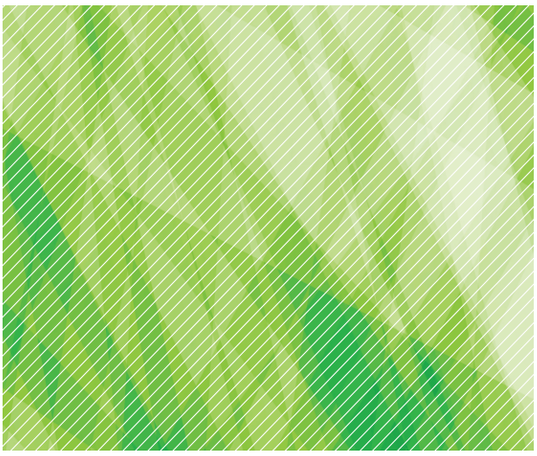
Appreciating Properties

The Hoteliers' Guide to GOING GREEN in the UAE 2016

White Paper prepared by
TFG Asset Management

About TFG Asset Management



TFG Asset Management specialises in hotel asset management and its primary objective is to maximise the hotel owner's return on investment. The company assists with managing every aspect of a completed hotel development and acts as an intermediary between owner and operator, with a view to aligning the interests and profitability of both parties.

TFG Asset Management currently manages three hotel apartment projects offering a total of 918 keys and will add four new hotels to its hospitality portfolio by the end of 2018. The company employs an experienced Asset Management team and partners with some of the world's leading hospitality brand operators in order to position and manage its hospitality projects with future growth in mind.

TFG Asset Management's main roles include the daily control of hotel operations and the provision of strategic solutions to enhance revenue generation and property values, ensuring they exceed owner expectations.

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1. Acknowledgments

TFG Asset Management would like to thank the Hospitality Managers (HMs) and industry experts consulted for this white paper for sharing their knowledge and expertise on green practices. Their contributions have proven invaluable, providing in-depth analysis for our research. In alphabetical order, they are:

1) **Mr. Solaiman Al Rifai**
   – Senior Manager of Tourism Development and Investments at Dubai Tourism and Commerce Marketing (DTCM)
2) **Mr. Bob Busman**
   – Rooms Division Manager at Radisson Blu Dubai Deira Creek and Regional Responsible Business Coordinator Middle East Carlson Rezidor
3) **Emirates Green Building Council** (EmiratesGBC)
4) **Mr. Jesus Gutierrez**
   – Co-managing Director at Smart4Power
5) **Mr. Iftikhar Hamdani**
   – General Manager of Ramada Hotel & Suites Ajman and Ramada Beach Hotel Ajman
6) **Ms. Sandrine Le Biavant**
   – Farnek Facilities Management's Director Consultancy
7) **Mr. Hani Mansour**
   – Senior Hotel Asset Manager at TFG Asset Management

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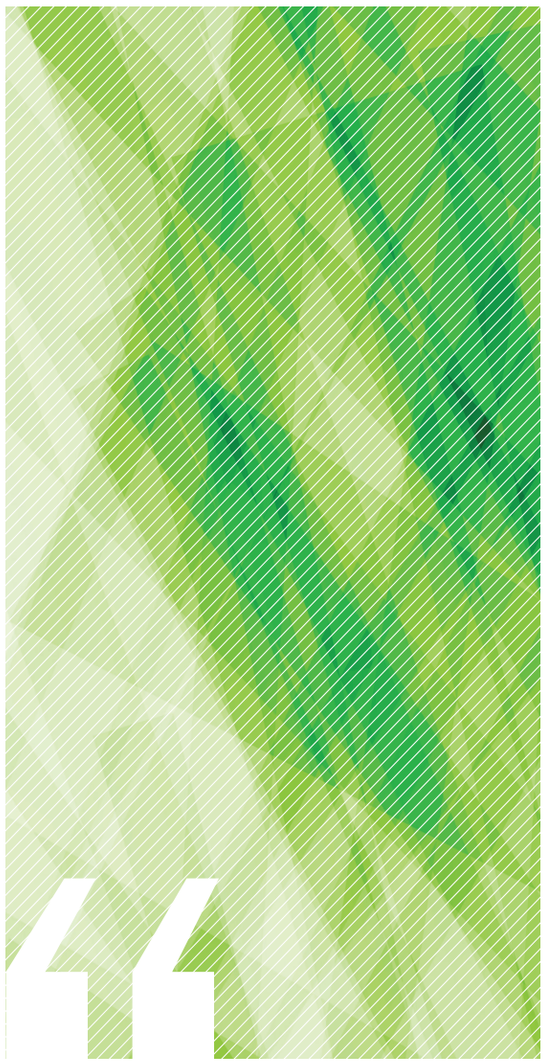
2. Introduction & Objectives

The case for developing more sustainable hotel industry practices is complex and subject to ongoing debate. Many hotel owners are still reluctant to embrace green initiatives, deterred by the associated increase in capital costs and what they deem an ambiguous return on investment. In Dubai the sustainability concept was initially considered impractical given the lack of supporting facilities and the belief that the high investment cost of green practices would impact bottom-line profits.

However, over the past three to four years, the UAE hospitality industry has witnessed a drastic change in mindset. Hotel owners have become more aware of how sustainable practices can improve their bottom-line performance. In addition, hotels that adhere strictly to a set of green practices are more likely to court new environmentally-conscious clients from the local community, and to command government approvals. Recognising the growing importance of green initiatives to the evolution and development of the region's hospitality industry, this research paper, prepared by TFG Asset Management, aims to provide a complete detailed green-practices guide for hoteliers, helping them to identify measures that not only boost their property's bottom-line performance, but also reduce their carbon and water footprints.

In order to enhance the precision of this research TFG Asset Management consulted a panel of hospitality experts and their insights are cited throughout the paper.



"The UAE hospitality industry has witnessed a drastic change in mindset"

3. The current view on Green Practices

3.1 The Hoteliers

In an era marked by rapid changes in market conditions, successful hospitality industry players are those who look to the future, understand and anticipate the critical requirements of current and future guests. Mansour first pioneered green initiatives as a General Manager in 2002 and recalls how at the time, hoteliers demonstrated a lack of interest in green practices and failed to understand their value. He says big hotel brands overlooked the importance of CSR practices and the onus was on the GM to enforce a green programme at his or her property. Today, hotel operators across the Middle East are demonstrating a strong commitment to sustainability programmes that reduce their energy and water consumption, according to Emirates Green Building Council (EmiratesGBC). Given this industry-wide commitment to sustainability, Asset Management companies play a crucial role in aligning the interests of owners and operators to ensure the most cost-effective green practices are adopted at their hotel property.

During discussions with experienced industry consultants and HMs, TFG Asset Management discovered the hospitality sector's knowledge and understanding of green materials, processes, equipment and systems had improved tremendously over the past decade. However, many hotel owners are still reluctant to roll out green practices designed to reduce their carbon footprint.

3.2 The Public Sector

- **3.2.1 Programmes launched by the public sector**
  The initial push towards sustainable practices was initiated and encouraged by Dubai's Department of Tourism and Commerce Marketing (DTCM) in 2009. DTCM launched the Dubai Green Tourism Award, which aimed to recognise hotel businesses across the emirate for their eco-friendly practices (DTCM, 2009). Al Rifai says the DTCM continues to enhance the Green Tourism Award by developing a roadmap and clear guideline to motivate hoteliers to be more sustainable. He reveals the DTCM in collaboration with other noble entities will roll out an improved version of the award in 2016. This will incorporate a third-party audit and introduce effective tools to help hoteliers reach green targets. The Government of Dubai primarily aims to support local and small hotel chains by educating and encouraging them to operate their properties responsibly, providing them with the option to pay the investment in green solutions via actual savings.

  In 2015 Dubai evolved to become a more eco-friendly environment. At the recent Hotelier Middle East Sustainable Design & Operations Summit - Dubai, Dubai Municipality senior civil engineer, Salim Mohammad Zid, shared his vision for Dubai to become a sustainable city. He presented the Demand Side Management (DSM) strategy – initiated by the Dubai Supreme Council of Energy, which is designed to support green implementation methods in the following aspects: building regulations, building retrofits, district cooling, standards for appliances and equipment, reuse of water and efficient irrigation

methods and outdoor light (Navdar, 2015). The strategy has set out ambitious goals for the city to reduce water consumption by 15%, energy resource utilisation by 20%, and CO2 emissions by 20% by 2030 (Navdar, 2015).

In order to adhere to the Dubai Integrated Energy Strategy 2030 vision, which includes generating 5% of the emirate's energy from the solar power, Dubai Electricity and Water Authority (DEWA) recently permitted and encouraged local residents and businesses to install photovoltaic panels that generate power through solar energy (Abbas, 2015). The installation of solar panels provides opportunities for the hospitality industry, particularly big hotel chains operating several properties, to improve energy savings. For example, Hotel Indigo, which is currently under construction in The Sustainable City - Dubai, will generate 100% of its energy from solar power (Navdar, 2015).

The government is currently devising methods to encourage more establishments to adopt green practices as part of their construction and operation plans. Recognising the government push towards sustainable development, Asset Managers (AMs) continue to advise hotel owners to adopt green practices at an early stage of development in order to win public sector recognition.

Appendix 1, page 24 summarises some of the government programmes and initiatives designed to encourage hotel establishments to adopt green practices during both the construction and operations phase.

- **3.2.2 The advantage of joining internationally-accredited 'green' certification programmes**
  There are several internationally-accredited green certification programmes that provide concrete guidelines and access to the correct tools, promising robust results. A growing number of Dubai hotels are signing up to these programmes. Hotel establishments that enroll in a globally-renowned environmental certification programme will: 1) Benefit from access to cost-effective solutions designed to boost bottom-line profits; 2) Demonstrate to stakeholders that the operation is environmentally friendly, which appeals to both customers and investors and; 3) Receive increased recognition as a result of positive publicity. Ultimately, these advantages will enable the property to drive increased ADRs.

  Appendix 2, page 26 outlines some of the world's leading green accreditation programmes.

3.3 The Hotel Guests

The concept of sustainable tourism is becoming increasingly important to travellers. According to United Nations Environment Programme (UNEP) and the World Tourism Organisation (WTO), more than one third of travellers favour environmentally-friendly tourism concepts and are willing to pay up to 40% more for the experience (UNWTO & UNEP, 2012). As hotel guests become increasingly aware and concerned about the eco-friendliness of a product and/or service, the provision of sustainable products and services will become the basic requirement for establishments. Hotels that have already established green-focused business models will therefore not

"The concept of sustainable tourism is becoming increasingly important to travellers"

only retain existing clients but win business from the rapidly-emerging eco-conscious crowd. The positive buzz around their CSR initiatives will lead to more robust bottom-line profits as a result of guests' willingness to pay more, brand loyalty, and higher retention rates. Loyal customers will generate word-of-mouth recommendations that translate into sales, which is already proven to be more effective than conventional advertisements. Busman highlights that it is also imperative to achieve recognition for environmental practices amongst key stakeholders.

Despite increased global demand for green practices, hotel guests in the Middle East are sometimes reluctant to accept change. They still hesitate to be involved in practices that impact their expectations, particularly in the luxury sector. Based on our discussions with the hoteliers, guests frequently request their rooms be cleaned twice daily and for linens and towels to be replaced on a daily basis. They also consume a lot of energy (such as switching on lights unnecessarily), and water. It is, once again, the AM's role to motivate hotel owners and operators to apply procedures that encourage guests to embrace green practices without compromising their overall hotel experience or satisfaction levels. At Carlson Rezidor, staff encourage guests to engage in green practices to support good causes. For example, for every 250 towels reused, the hotel will donate enough money to Just A Drop organisation to provide clean and safe water for each underprivileged person over a course of a lifetime. These initiatives have proven to be highly effective.

4. The Current Issue

In 2009, an average Dubai hotel emitted 6,500 tons of carbon dioxide compared to 3,000 tons for an average European hotel, spent approximately US$1.9 million per year on their energy bill and consumed 850 litres of water for each guest annually (Bundhun, 2009). Without precise measurements or concrete action plans in place, these figures will continue to rise, and the role of an Asset Manager (AM) is to ensure this does not happen. The designated AM must devise a strategic facilities management plan to improve savings and leverage the property's Corporate Social Responsibility (CSR) programme. The AM must understand that solutions designed to combat the environmental impact of hotels focus on three key areas:

4.1 Energy Consumption

The majority of hotel energy consumption derives from HVAC (Heating, Ventilation & Air-Conditioning) operations, lighting, cooking fuel, refrigerator, equipment and miscellaneous power sources. Our findings reveal the largest energy consumption contributor relates to air-conditioning, as well as automation and control systems, which can account for 65% to 70% of all energy consumed in operating a hotel. The next largest source of energy consumption was motors, pumps, and lighting.

According to Le Biavant, Farnek Facilities Management data indicates a 10.4% year-on-year decline in energy consumption in kWh/m^2 (Kilowatt-hour per metre square)[1] in Q2, 2015 to 267.7 kWh/m^2 compared to Q2, 2014. In terms of kWh (Kilowatts per hour), Q2, 2015 indicates a 11.1% decline compared to Q2, 2014.

HVAC system accounts for 70% of the total energy consumption, highlighting

[1]KWh/m2 indicates the quantity of energy used per square metre of air conditioned area of the hotel per year. The air conditioned area is considered to be able to compare all hotels on a common platform irrespective of the size of its landscaped area, according to Farnek definition.

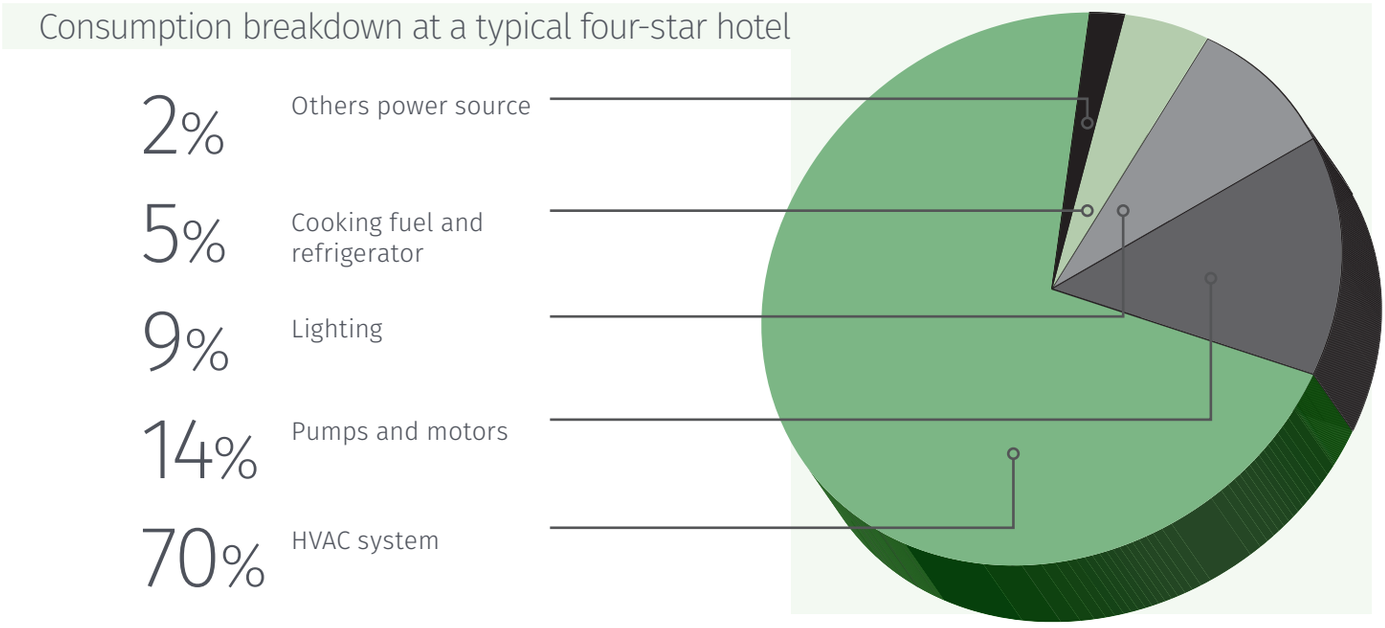


Figure 1: *Energy and water consumption breakdown*

the urgent need to adopt effective strategies to operate the HVAC system at optimum temperatures to reduce overconsumption and usage.

4.2 Water Consumption

According to the HVS Current trends and opportunities in Hotel Sustainability report, water consumption at hotel properties is divided into process water, greywater and blackwater. Process water can be used for facility operations in HVAC, irrigation, cleaning, maintenance (Goldstein et al, 2012). Greywater is water discharged from domestic activities such as showers, wash hand basins in guests rooms etc. Blackwater describes wastewater such as sewage generated by guests and back-of-house operations (Goldstein et al, 2012).

According to Le Biavant and the most recent data obtained from Farnek Facilities Management, overall water consumption increased 5% in litres/guest night in Q2, 2015 compared to Q2, 2014. This implies that current water-saving measures are ineffective while water conservation initiatives are thin on the ground (Le Biavant, 2015).

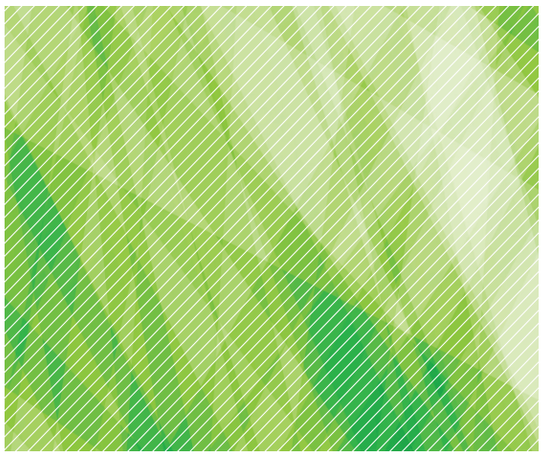
During the recent panel discussion entitled 'A hotel viewpoint – sustainability for a better tomorrow', staged as part of The Hotel Show Dubai's annual Vision Conference 2015, water footprint[2] is on the rise, which highlights the urgent need for hoteliers to implement initiatives that promote effective water-saving management and measurements.

4.3 Waste Production

According to HVS, hotel waste streams are found in construction consumables, durable goods, and F&B (Goldstein et al, 2012). In the UAE, there has been a lack of supporting facilities to segregate waste, resulting in high waste production dumped in landfill. In Dubai alone, waste levels averaged 7,000 tonnes per day in

[2]*Water footprint: Total freshwater volume required and used for a single process, and/or for a single hotel entity, hence addressing the the scarcity of freshwater and how they are being consumed.*

"Despite increased global demand for green practices, hotel guests in the Middle East are ... reluctant to accept change"



2014, 70% of which was produced by the private sector (Issa, 2014). This calls for further action to devise effective strategies and install facilities to help minimise waste production.

The good news is that awareness levels are on the rise, with hotels such as Ramada Ajman running surveys to make staff aware of waste issues. When each hotel department was asked how much waste it produced per day, the answer ranged from 100kg to 250kg. However, the survey revealed daily wastage levels were in fact as high as 950kg and that 60% of total waste was generated by the kitchen.

Al Rifai says that in order to mitigate wastage to landfill, Dubai Municipality will look at ways to provide businesses the correct waste management tools such as introducing waste segregation bins in every building. It should then start to impose a higher tariff on waste per truck after integrating all the necessary facilities. This will ensure businesses treat waste effectively and act responsibly.

5. The Solution – Guideline to Green Practices

In order to better manage energy, water consumption and waste production, TFG Asset Management has conducted thorough research to provide a detailed guideline of cost-effective green solutions.

The practices can range from no-cost, low-cost to medium and high-cost measures. Figure 2 below presents some of the more common practices.

No-cost practices	Low-cost practices	Medium to High-cost practices
Effort to change consumption behaviour by educating guests and staff in regards to electricity and water usage	Simple solutions such as: • Room automation control system • Motion sensors • Water conservation devices for faucets and showers • Proactive maintenance programme for the HVAC system to ensure it operates efficiently. According to Gutierrez, the payback period for low-cost solutions is six to eighteen months.	• Heavy retrofit work refurbishment in HVAC system • Enhance the building insulation measures • Installation of renewable sources of energy (e.g rooftop PV solar) • Installation of Building Management System (BMS) and room automation systems • Lighting replacement from conventional bulbs to LEDs According to Gutierrez, the payback period for high-cost solutions range between one and three years.

Figure 2: *Some common green practices that hoteliers can apply* HVAC system accounts for 70% of the total energy consumption, highlighting the urgent need to adopt effective strategies to operate the HVAC system at optimum temperatures to reduce overconsumption and usage.

5.1 Energy Management

Reducing energy consumption is the direct method to save expenses and boost a hotel's bottom-line. The hotel needs to continuously track its utility bill after the installation of various cost-saving systems to monitor their effectiveness. Dubai's water and electricity consumption rates are among the highest in the world, which presses the importance to initiate green practices (DEWA, n.d).

a. HVAC

Control appropriate temperature:

It is highly imperative for hoteliers to maintain the correct temperatures for specific areas within the hotel to save energy. Both staff and guest initiatives are required to adjust the appropriate temperatures to save energy consumption. Dubai Electricity & Water Authority (DEWA) suggests the temperature in unused rooms should be switched to 28°C or turned off completely during the cool season from October to March (DEWA, n.d).

Figure 3 below indicates the recommended temperatures for rooms and public spaces at Dubai hotels

Room type	Temperature (°C)
Lobby and hall areas	22 – 24
Guest bathrooms	26 – 27
Guest bedrooms (when used)	20 – 22
Restaurants and dining areas	22 – 24
Laundry areas	24 – 26
Swimming pool	≈ 22.5

Figure 3: *Source: Dubai Electricity & Water Authority (DEWA)*

Maintenance of air conditioners:

Air conditioning filters must be cleaned on a regular basis to avoid risk of dirt restricting airflows, which can cause the system to run longer and consume more energy (DEWA, n.d). Heat-generating items such as hair dryers, televisions, lamps etc should be kept away from thermostats to avoid heat from appliances affecting the readings, thus increasing energy consumption (DEWA, n.d).

Insulation of boilers, pipes, hot water tanks:

All pipes and ducts carrying hot, chilled water and refrigerant must be insulated to prevent condensation, minimise heat loss and energy escaping (DEWA, n.d). Ultimately, this results in further cost savings. Payback for this initiative can be expected to be less than a year (Carbon Trust, 2015).

Automated system to control process:

Heating systems should be switched off when heating or cooling is not required. The hotel can use an automated, programmed time setting switch to inform staff when heating, ventilation and cooling is required. The controls must be set appropriately to the occupancy of the hotel. Monitor sensor thermostats can be installed in guestrooms, which automatically switch on

the appropriate air-conditioning temperature when a room is occupied and switch it off when a room is left vacant. This helps reduce energy usage and associated costs. Dubai Electricity and Water Authority (DEWA) also suggests encouraging guests and staff to use ceiling fans instead of air-conditioners (DEWA, n.d).

Encourage the use of external cooling:

In Dubai, it is difficult to impose air-conditioning reduction measures due to the hot weather, but from November to January when the temperature is cooler, for low-rises or rooms on the lower floors, it is possible to encourage guests and staff to open windows and doors to provide natural light and cool air. At the same time, a visible sign should inform guests not to use air-conditioners while opening doors and/or windows (Carbon Trust, 2015). In order to reduce air-conditioning usage during the summer period, hoteliers are advised to use drapes, shades, and reflective materials to reduce the amount of heat penetrating the glass (DEWA, n.d).

b. Lighting

Educate guests and staff to switch off lights when they are not required:

Lights should be turned off when not in use in both common areas and guestrooms, with the consideration of safety and health implications. This policy can be communicated by placing posters in common areas or offices, and by using stickers above main light switches. An automatic key-card system turning off the electricity when the card is removed is also an option.

Encourage usage of natural light:

This suggestion can be assisted with a daylight sensor to monitor the level of artificial light usage. Light bulbs are automatically switched off when sufficient daylight is detected.

Switch to low-energy light bulbs:

It is highly advisable for hotel businesses to upgrade their conventional light bulbs to Compact Fluorescent Lamps (CFLs) or Light Emitting Diodes (LEDs). These energy-efficient light bulbs save energy and produce less heat. Figure 4 below compares the energy efficiency differences.

	60W Traditional Incandescent	60W CFL	60W LED
Energy saved %	22 – 24	75%	75%-80%
Lifespan	26 – 27	10,000 hours	25,000 hours

Figure 4: *Source: US Department of Energy, Washington, United States, 2014*

Occupancy sensor:

Similar to the sensor thermostats, lights are automatically switched on when the system detects that someone is in the lighting zone. The installation is proven to be highly cost-effective and the payback is anticipated to be one to three years post-installation (Carbon Trust, 2015).

c. F&B Activities

Minimise heat loss:

Minimise opening and closing ovens, fridges and refrigerators as they will allow air escape of around 25% (DEWA, n.d).

Unplug appliances when not in use

Turn off grills, extraction fans, fryers, lights and exhaustion fans etc after use. Ensure that appliances are unplugged after being used as electricity is still consumed even when the devices are turned off.

Refrigerator practices:

- **Keep refrigerated products at the correct temperature:** Energy consumption from refrigerators can fall if the temperatures for specific products are set correctly. Figure 5 below suggests the temperature guideline for each F&B product.

Product Temperature	Product
Below - 18°C/-15°C**	Ice-cream and specific frozen food
Below - 18°C/-12°C**	Specific frozen food
Between - 1°C/+4°C	Poultry and specific meat
Between - 1°C/+5°C	Specific meat and dairy products
Between - 1°C/+7°C	Processed meat and dairy products
Between + 1°C/+10°C	Produced & Canned bottle drinks

Figure 5:
**Source: The Carbon Trust & Food Safety (Temperature Control) Regulations, 1995*
*** The maximum temperatures are those allowed after defrost*

- **Reuse of heat from the kitchens:** Around 50% of warm air produced by hotel kitchens could be recovered to reduce energy costs and wastage. With the right tools in place hot air can be reused to preheat water (Carbon Trust, 2015).
- **Hot plates must be cooled down first** before placing in the refrigerators to avoid more energy consumption required to cool down food.
- **It takes less energy to cool a full refrigerator** than an empty one (DEWA, 2015).
- **Cleaning fridge condenser coils on a monthly basis** reduces energy lost by maintaining the correct temperature if dust accumulates on the coil (DEWA, 2015).

"In Dubai, it is difficult to impose air-conditioning reduction measures due to the hot weather"

"Due to environmental constraints, solar energy is the only renewable resource that can be used in the UAE"

d. Laundry area

According to DEWA, the laundry department consumes the most energy and water in a hotel operation. The following common practices can be applied to the hotel businesses:

- Recommended temperature of water used for laundry is 60°C instead of 85°C to save energy and cut expenses.
- Switch off all appliances when the laundry room is not in use, including ventilation, air-conditioning, light and power.
- Use cold water to wash clothes when possible as this will reduce the heating costs.

e. Renewable Energy

Hotels are encouraged to use more renewable energy sources such as solar, geothermal and wind to turn waste into energy, minimise their environmental impact and save costs. However, in the UAE, due to environmental constraints, solar energy is the only renewable resource that can be used. According to DEWA, 30% of heat entering guestrooms is a result of solar energy (DEWA, n.d). Hotels are encouraged to install solar control window-film. Glazing specifications can be found under the Dubai Green Building Regulations (Government of Dubai, n.d).

5.2 Water Management

Water conservation practices can be categorised by hotel areas.

a. Bathrooms

- **Reuse of Towels & Linens:** Guests should be encouraged to leave the towels they wish to be washed on the floor and hang out those that can still be used. A note in the bathroom should inform guests about the amount of water consumed to wash guests' towels and linens in order to improve their awareness. The Wyndham Green programme's 'towel and linen reuse' scheme is successful as guests are made aware of the water and energy savings they can generate.
- **Install water pressure and flow control systems:** Apply water flow reducers or aerators on showerheads, sinks or toilet flushes that control the water pressure. According to DEWA, this can save up to 30% of water usage (DEWA., n.d). Hotels can also install dual flush toilets.
- **Maintenance:** Continuous maintenance of bathrooms to safeguard against water leakage is essential. According to Hunter Water research, a leaking toilet can waste up to 16,000 litres of water per year (Hunter Water, n.d). If problems are reported and rectified immediately, water usage and corrective expenses will be limited.
- **Change washers:** Dripping taps can waste up to 20,000 litres of water per year. Hotels are encouraged to change washers when necessary (Hunter Water, n.d).

b. Laundry Area:

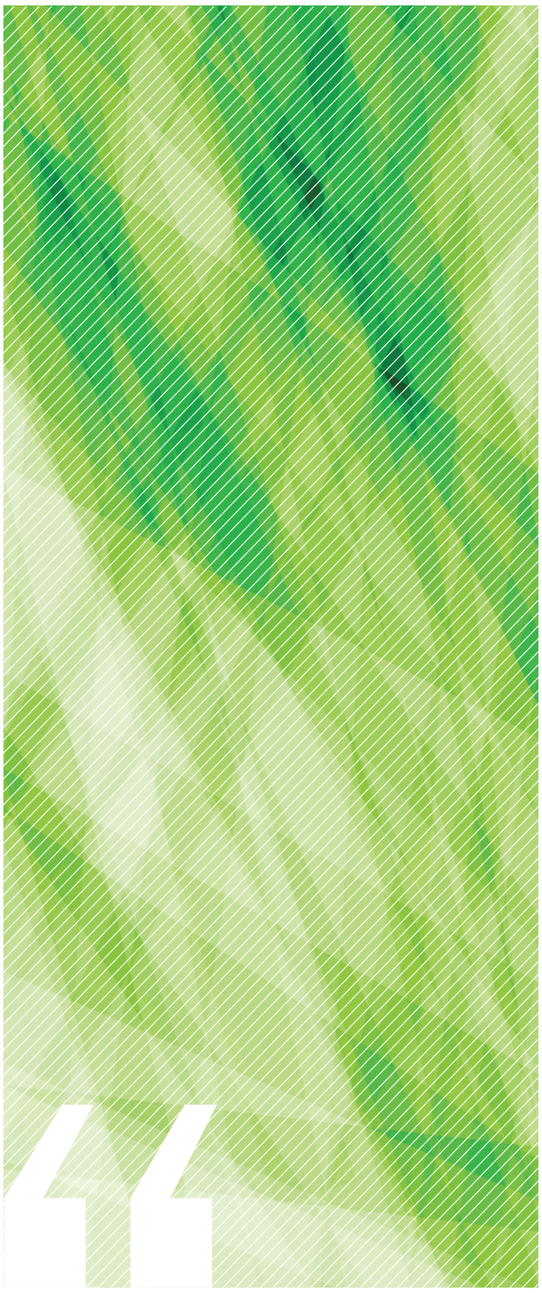
- Operate washing machines with full loads (DEWA, n.d).
- Maintain a holding tank that can be reused as wash water in the next wash. The installation will minimise water consumption (DEWA, n.d).
- Water softener can be installed to mitigate the water usage (Graci & Kuehnel, 2011).

c. Swimming Pool Area:

- Install push-button showers in swimming pool bathrooms to reduce water usage.
- A pool cover is recommended as it helps reduce evaporation by up to 95% (Hunter Water, n.d)

d. General Practices

- Hotels should consider using a water recycling plant, which obtains greywater and treats it so it can be used for other purposes such as for gardening. For example, Hotel Otani in Japan produces 1,000 tonnes of recycled water daily generated from kitchen sewage that it uses for gardens and staff lavatories (Graci & Kuehnel, 2011). This practice requires further staff training to execute the process correctly, checking the control level on the water reuse tank to ensure it works properly. Hamdani says at Ramada Ajman, the hotel installed a Reverse Osmosis (RO) Plant in 2012 – a water treatment plant that can also purify and filter water to reduce the hardness. High pressure RO systems are also used to desalinate and convert water to drinking water. Hamdani invested AED 175,000 in this plant and as a result, managed to recover 75% of waste water. The payback period for the RO plant is one year. At Radisson Blu Dubai Creek, Busman also applied the Reverse Osmosis filtration technique to treat and reuse A/C condensation water.
- Solar power is becoming a popular option in the UAE and all future buildings will incorporate solar energy usage. Hotels are encouraged to install a solar-energy based water heating system to save the costs of gas for heating water on demand. At Radisson Blu Riyadh, a combination of solar panels and heat pumps are currently used to convert energy to usable heat, which has proven highly efficient.
- Mansour and Hamdani suggest that A/C condensation water can be used for irrigation purposes.
- It is highly imperative to maintain the property. Staff need to be trained to identify and report leakages in bathrooms, plumbing systems and water pipes etc.



“Solar power is becoming a popular option in the UAE and all future buildings will incorporate solar energy usage”

5.3 Waste Management

As the UAE experiences ongoing economic growth and trade and business flourish, the volume of waste produced as a result of this activity also increases. To combat this issue Al Rifai says the government continues to support firms by providing them with the necessary tools to mitigate waste production and is looking at the option to adopt an increasing tariff per dump truck at landfill. Hotels are obliged to manage waste effectively to cut costs. An effective waste management approach should adhere to the Reduce-Reuse-Recycle model.

a. Reduce

This practice encourages the minimum consumption of resources.

- The purchasing process suggests huge potential for saving transportation and material costs. Hoteliers can encourage their suppliers to reduce packaging by purchasing in large volumes. At Ramada Ajman, suppliers are discouraged from bringing supplies in cartons. Instead they are provided with reusable baskets by the hotel.
- At Ramada Ajman, Hamdani took the initiative to transform a small empty parking lot into a garden where the hotel's chef can grow and harvest vegetables such as tomatoes, basil, mint, and aubergines. Not only is the food organic and locally grown, but the initiative saves on transportation and food procurement costs.

b. Reuse

The concept of reuse is to use a newly purchased product more than once.

- Hotels continue to encourage staff to maximise the use of equipment and material such as stationery. For example, printing must be double-sided and after use, they must be shredded to be reused for purposes such as packaging materials.
- Guests are encouraged to reuse linens and towels instead of changing them on a daily basis. In April 2015, Radisson Blu entered a global partnership with the Just A Drop organisation and launched the reuse towel programme whereby hotel guests are asked to consider the option to reuse their towel during their stay and make a donation to Just A Drop. The hotel group anticipates saving the costs of washing approximately three million towels annually while raising funds that will provide around 12,000 children with a lifetime supply of clean water.
- Hotels that donate excess items, clothes, used furniture etc to social service organisations or charities will extend the lifecycle of those usable products.

c. Recycle

The recycle concept refers to the process whereby used items or materials (waste) are transformed into new, usable products.

- In order to mitigate the waste dump to landfill ratios, hotel properties are encouraged to compost organic items such as food. They can be shredded and used as soil amendments or organic fertilisers (Florida Department of Environmental Protection, 2015). By introducing a composter, the Zero Landfill project at the Ramada Ajman property managed to achieve 90% waste diversion from landfill.

- The use of a bin separator is very practical, easy, cheap and popular. The garbage chute station will indicate a recycling bin for plastics, one for glass and one for paper. Guests and employees dispose of their trash according to the indicator.
- Hotels are encouraged to approach sustainable procurement. For example, hotels should consider purchase a minimum of 30% recycled content supplies instead of first-generation items when possible. Some of the products that can be made from recycled content include stationery, toilet tissues and papers (with 30% post-consumer recycled content) etc (Florida Department of Environmental Protection, 2015).

5.1 Notable Examples

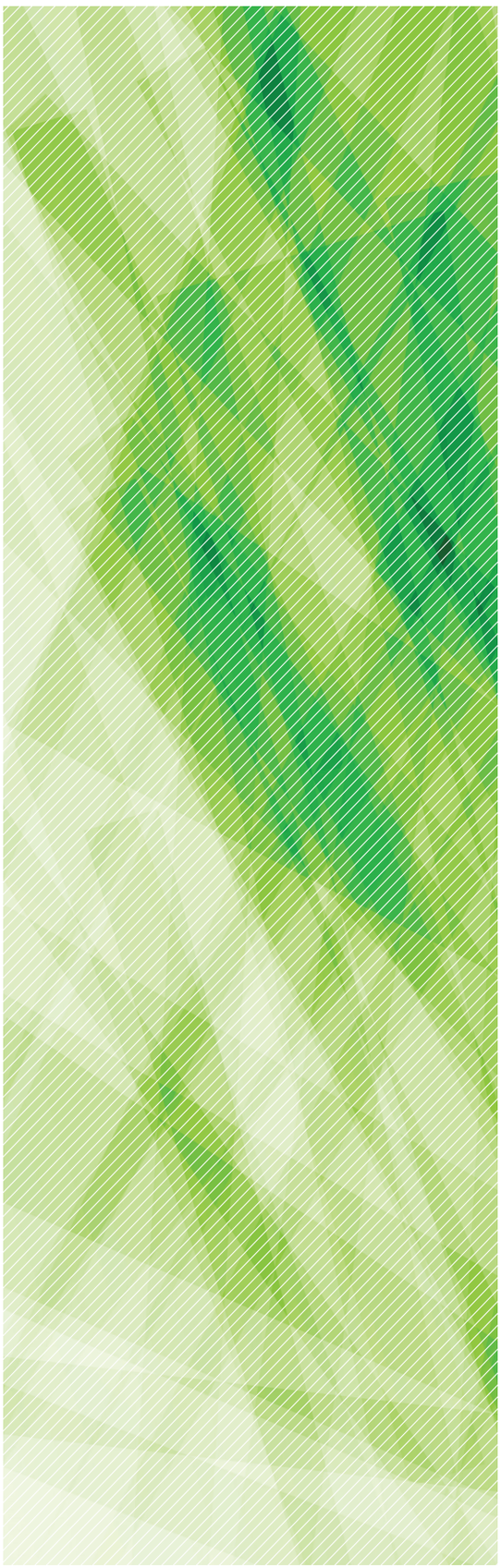
The Rose Rayhaan by Rotana brand was recently recognised with the Most improved hotel in sustainability practices accolade at the Dubai Green Tourism Award 2014. They have installed eco-friendly LED bulbs at all hotel premises and saved 11% on the electricity bill. In addition to their energy saving initiatives, their waste recycling programme has also helped reduce general waste towards landfill by 10% (Dubai PR Network, 2015).

DoubleTree by Hilton Dubai Jumeirah Beach reported a 23% year-on-year reduction in water consumption, an 11% decrease in energy consumption and employee turnover of 5% in 2013. Some of the practices adopted include tree planting, desert cleanups, textile recycling and the installation of energy efficient and water saving tools at the property (Navdar, 2014).

Westin Abu Dhabi Golf Resort & Spa has established an efficient food waste recycling scheme using a machine that transforms food waste into organic fertilisers over a period of 10 hours. Approximately 93% of waste is transformed into nutrient-rich fertiliser that can be used across the resort, contributing to further cost savings as there is no need to purchase fertiliser (Edgcumbe, 2013).

Wyndham Worldwide is the pioneer of a green programme that reduced its carbon footprint emissions by 20% between 2010 and 2014. During this four-year period water consumption fell by 18%. In order to monitor and track the performance of each individual property worldwide, Wyndham launched a Wyndham Green Toolbox – an online management system that gathers and quantifies accurate data for the group's global environmental footprint across its portfolio of owned, leased and managed properties. By monitoring the effectiveness of sustainability measures, the Green Toolbox enables the company to make improvements each year.

At Auris Metro Central Hotel Apartments, after applying the appropriate green practices proposed by Smart4Power, the property's electricity usage level fell 8% in kWH Year-To-Date (YTD) (November 2013 – July 2014 vs. November 2014 – July 2015), cooling tonnage consumption level reduced by 11% in TRH Y-T-D, and water savings of 17% in terms of IG Y-T-D. The practices include replacing conventional light bulbs with LEDs in corridor areas, re-commissioning of room automation systems, chilled water flow optimisation, and installation of water conservation devices in faucets and showerheads.



6. The Implementation Plan

TFG Asset Management, with help of the HMs consulted in this research, proposes a step-by-step framework to help hoteliers effectively implement green practices, which is illustrated in Figure 6 below.

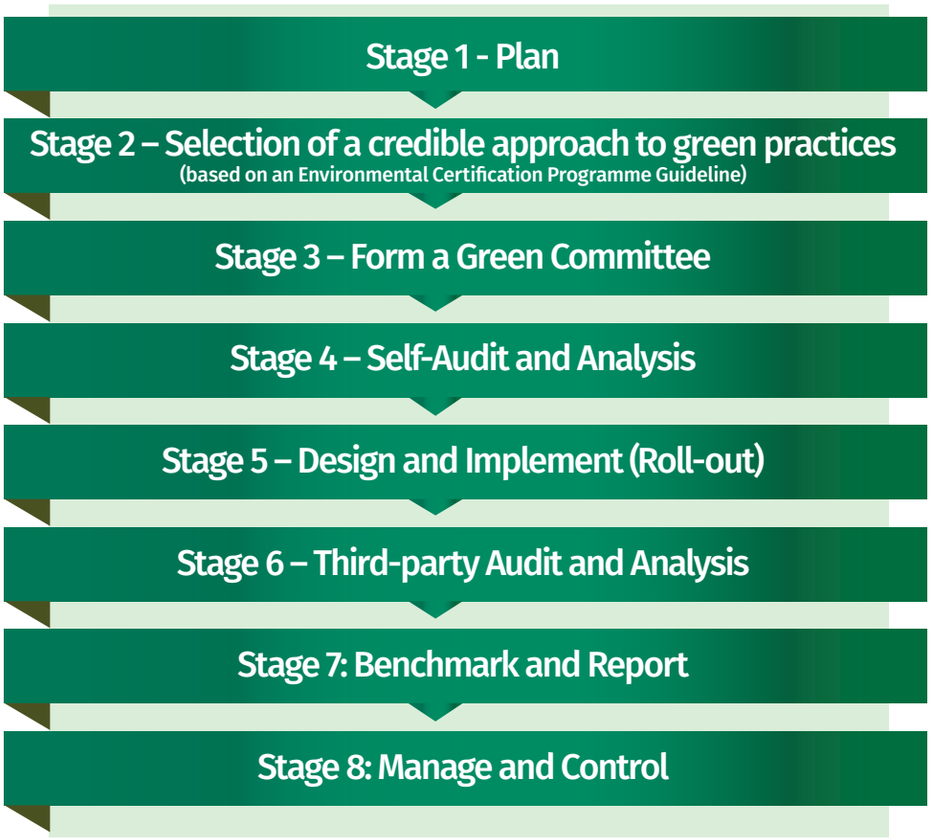


Figure 6: *Step-by-step implementation plan to effectively implement green practices*

Stage 1: Plan

One of the AM's main objectives is to improve the hotel's bottom-line profit. A savvy manager will understand that utilities costs are the highest operating expense. One way to reduce utilities bills is to adopt sustainable practices. When properties are yet to implement a green strategy, the AM is responsible for communicating this vision to the operator and initiating the request to execute sustainable practices to the hotel owner. International hotel brands usually adopt green practices as part of their strategy and daily operations as requested by their head office. It is imperative that hotel owners understand the importance of integrating green practices at their hotel properties. Primary and secondary research collected by TFG Asset Management revealed hotel owners are usually resistant to green initiatives due to the misconception that significant investment is required. This will hinder hotel owners from accruing the long-term cost-savings of such measures. The AM must therefore clarify the payback period for each investment to the owners and justify the bottom-line advantages of adopting green initiatives.

Stage 2: Selection of a credible approach to green practices

(based on an Environmental Certification Programme Guideline)

As suggested by Busman, after acknowledging the importance of adopting green practices, a hotel should consult professional bodies or organisations. Both the AM and the GM should choose an accredited green programme that is well aligned to the objectives of the property. The hotel property will use the programme guideline to effectively measure, monitor and carry out cost-effective green practices.

Stage 3: Form a Green Committee

After selecting an appropriate accreditation programme, the hotel should request the criteria it needs to adhere to in order to obtain certification. Busman, Hamdani and Mansour concur that a 'green team' should then be created that is responsible for putting together the green strategy required to meet these criteria. This Green Committee will introduce and monitor sustainability practices. Staff selected to be part of the Green Committee are usually from the housekeeping, kitchen and engineering departments, which are normally most impacted by green practices.

At Radisson Blu Dubai Creek, the Green Team is led by the Responsible Coordinator (RC) whose remit includes supporting and monitoring hotel operations, ensuring full compliance with the Responsible Business (RB) programme; supporting, managing and representing staff in all RB-related activities; and seeking innovative solutions to develop and learn from the hotel's green strategies. In addition, the RC must conduct feasibility reports on each RB practice. Volunteers from other departments can also join the Green Team and assist the RC.

Stage 4: Self-audit and Analysis

The Green Committee will identify issues that need addressing to adhere to the green programme criteria. The committee leader may choose to organise departmental audits. It is important to conduct a thorough analysis to understand the hotel's current position in terms of resource usage per department (e.g. measure electricity and water consumption, greenhouse gases and carbon emissions). In this way, the committee will be able to identify the criteria the hotel needs to adhere to. This is especially important if the hotel plans to enroll in an eco-certification.

Stage 5: Design and Implement (Roll-out)

Having identified the issues that need addressing to comply with the green programme, the team will start brainstorming solutions. They will also budget the cost of implementing each new practice. It is highly imperative to design a cost-effective implementation plan.

A detailed financial analysis will be required. This stage requires the hotel staff's involvement by instructing them to incorporate new practices as part of their daily tasks. Any changes must be well communicated to ensure staff support and operational readiness. Staff are encouraged to contribute ideas and suggestions to improve the current environmental programme.

Stage 6: Third-Party Audit and Analysis

When the hotel is ready to obtain green certification, the staff member responsible for rolling out the programme will submit the application and request a formal audit to evaluate the property. According to EmiratesGBC – National Operator of the Green Key eco-certification in the UAE since 2013 – first reviews the hotel's application and supporting documentation; the provided information is then checked onsite via a detailed audit conducted by a third-party auditor from the EmiratesGBC membership in order to validate the information provided. Post-audit, a National Jury comprised of local tourism authorities and Non-Government Organisations (NGOs) will review the auditor's recommendations and awards certification accordingly. Each certified property must meet a minimum baseline and show continuous improvements every year following the initial certification.

The selected green programme body can also provide guidance and tools to assist with any unfulfilled criteria. Once again, any changes must be communicated through all the hierarchies within the hotel property. A training programme needs to be rolled out to ensure the level of staff understanding, awareness and engagement is consistent and ongoing.

Stage 7: Benchmark and Report

As suggested by Dr. Graci, benchmarking – comparative analysis against the past performances and/or against other hotel establishments – can help evaluate the effectiveness of the green initiatives on the hotel's performance. Progress of how targets have been achieved must be recorded, assessed and communicated in a transparent fashion to all stakeholders. For well-established hotel businesses, publishing a sustainability report to communicate the property's CSR programme to stakeholders is highly recommended (Graci & Kuehnel, 2011).

Benchmarking is a good foundation for building targets in the future.

Stage 8: Manage and Control

It is the duty of the designated Green Committee to conduct regular audits to monitor green practices and ensure they are being adhered to by all departments. The committee should then send update reports to the Asset Manager (AM). The AM is responsible for analysing the impact of green initiatives on the hotel's bottom-line profit and for ensuring continuous improvement.

Appendix 3, page 28 is a hotel self-audit checklist created by the TFG Asset Management team. The checklist outlines no-cost and low-cost green measures and practices that will assist hoteliers in tracking and monitoring their progress. The checklist can vary according to the hotel property's individual and specific objectives.

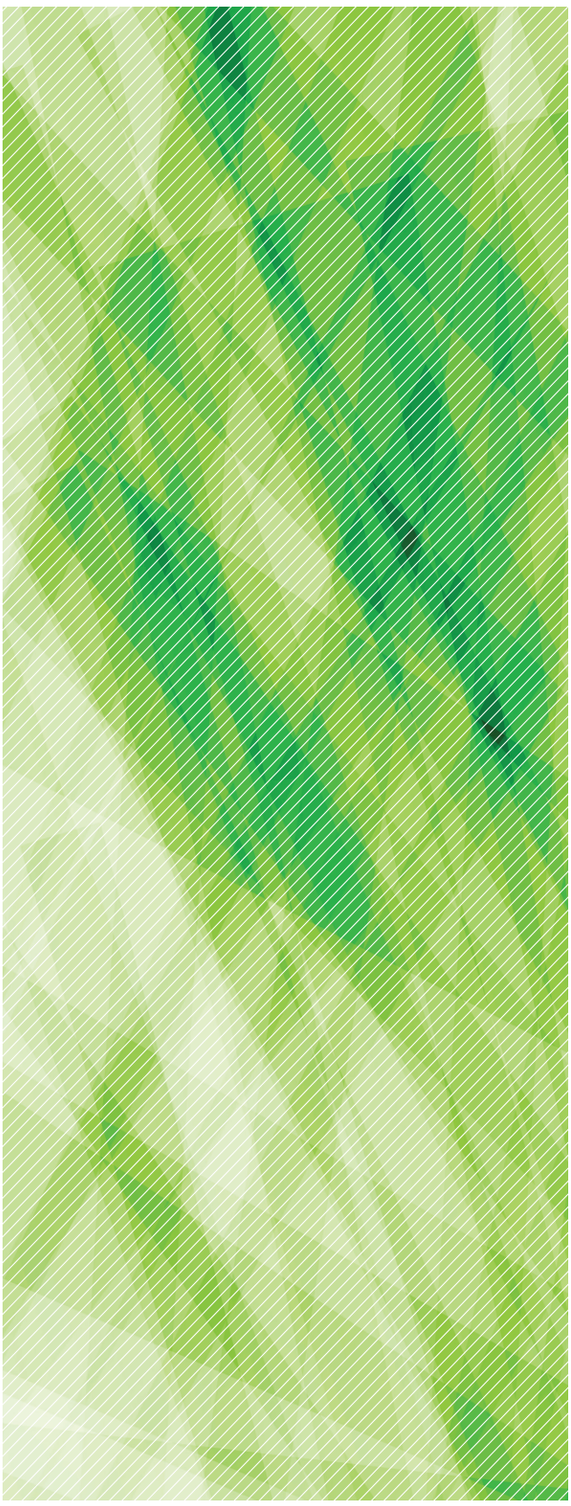
7. The Current Challenges

Hoteliers are starting to understand the importance of implementing green practices. However, rolling out a sustainability programme requires resources, tools and sometimes, employing a credible consultant, which independently-owned hotels may struggle to finance. Following discussions with the industry professionals and attendance at sustainability-focused seminars and events, TFG Asset Management has outlined the challenges hoteliers in the UAE are currently facing when adopting green practices:

- **Owner's resistance:**
  Green practices promise long-term benefits and high ROI. However, the initial costs required to invest in tools and equipment and the processes involved in seeking approvals from the relevant authorities act as a deterrent for hotel owners. It is the job of the assigned Asset Manager (AM) to advise the owner that incorporating green practices will shield them against future risks such as energy costs, which are subject to annual increases. In addition, the investment in green initiatives that address the hotel's CSR strategy will certainly attract more financing options for the hotel property (Wharton, 2012).
- **Operator's resistance:** For major hotel brands it is usually the case that head office will set a standard CSR strategy and its hotel properties must design green practices that adhere to this blueprint. When rolling out corporate-led CSR practices, hoteliers often struggle to get the Capex approval from the property's owner. The role of the AM here is to assess and analyse the Capex of the proposed green practices and advise both parties about the most cost-effective solutions available.
- **Lack of investment:** Despite the long-term benefit of adopting green measures, small or independent hotels often find it difficult to finance the purchase of tools or technologies to put them into practice. Gutierrez says an inability to fund high-cost solutions is the main reason hotels overlook the option to 'go green'. The solution he proposes in this scenario is the Energy Savings Performance Contracting (ESCO) services model whereby Smart4Power helps to cover all of the upfront investments such as retrofit solutions by capitalising on the value and savings of the monthly energy bill.

  In a bid to overcome financial hurdles associated with green practices, Saeed Mohammed Al Tayer, Vice Chairman of the Dubai Supreme Council of Energy & Managing Director & Chief Executive Officer of DEWA, recently outlined the potential development of a Green Fund as a solution to sustaining a green economy. Speaking at the World Green Economy Summit he stressed the importance of encouraging more green developments across the emirate (John, 2015). Government incentives can play a role in encouraging all types of hotel establishments to adopt sustainable operations without encountering financial difficulty.

"Green practices promise long-term benefits and high ROI [return on investment]"



- **Lack of measurement and benchmark practices:** Many hotel operators wishing to implement sustainable practices often lack the benchmarking reports[3] necessary to set realistic and achievable goals (Withiam, 2011). The most effective benchmarking method is to share and compare expenses incurred from property to property to be able to analyse the effects of green practices on the expenditure of each hotel. However, another issue identified in this research is a lack of willingness and transparency among the hotels to share this data.

  As part of its Hospitality Program launched in 2013, Emirates Green Building Council (EmiratesGBC) is developing a benchmarking and reporting tool to help properties compare their energy and water performances against their peers and the industry average. A detailed set of indicators, complementing the usual one based on star rating, will allow them to review their achievements in a relevant way, i.e. they will be compared against comparable facilities (resort with resort, tower with tower...).
- **Require operational training:** In order to optimise operational efficiency, it is imperative to ensure staff are fully involved in sustainable practice implementation. Staff will need to be trained to use new technologies and tools and their initiatives, ideas and feedback are also required for the process to work and ultimately prove cost-effective. Simple green practices such as switching off electrical appliances when not in use and monitor water and electricity usage will save a considerable amount in expenses. If staff awareness and collaboration is achieved, further bottom-line improvements will prove possible.
- **Previous poor experience with unreliable consultants:** According to Gutierrez hoteliers are often resistant to changes involving green measures because of previous encounters with unreliable consultants. These consultants either provided solutions that compromised service standards or resulted in zero net energy savings. This highlights the importance of selecting credible green auditors and programmes.

[3] *Benchmarking practices can be internal, comparing one department against another, and/or external, comparing performance to other hotels. Benchmarking involves the evaluation of processes and results of best practices among different hotels. Comparisons will help hotels collectively analyse their practices to impact positively on the environment (Bohdanowicz, 2005).*

8. Conclusion

Sustainability is no longer a new concept. The question is whether or not these green practices will be enforced across all hotel businesses in the UAE in the near future.

Sustainability can be seen as a challenge to hotels whose vision is hindered by perceived investment costs in green technologies and practices. Hotel owners are still reluctant to accept the growing importance of operating a sustainable asset and tend to avoid discussions relating to this topic. Sustainability can also be seen as a valuable opportunity for those who can look beyond the initial expense and understand the long-term cost-savings that will ultimately boost their bottom-line. The discussion with Al Rifai reveals the public sector is actively launching various innovative programmes to encourage sustainable practices to be integrated into daily operations, especially at local and small hotels.

With the help of the industry professionals who willingly shared their reflections, the 'Hoteliers' Guide to Going Green', the second white paper prepared by TFG Asset Management in 2015, has summarised the most critical green practices required to help hotel operators approach sustainability in the most efficient way. Hoteliers should now regard 'going green' as a matter of urgency in order to cater to the growing number of environmentally-conscious travellers, enhance their social corporate responsibility profile, drive profits and crucially, manage stakeholders' expectations.

9. Appendices

9.1 Appendix 1

Government green programmes and initiatives

Programmes/enforcements	Initiator	Aims
Dubai Green Tourism Award	Department of Tourism and Commerce Marketing (DTCM)	**1)** Encourage environmentally friendly activities and reduce carbon footprints across Dubai hotel establishments **2)** Award winners on a yearly basis *(DTCM, 2009)* **3)** Currently developing an improved version with a roadmap and clear guidelines, according to Al Rifai.
Green Building Regulations & Specifications	Dubai Electricity and Water Authority (DEWA) & Dubai Municipality	**1)** Improve the performance of buildings in Dubai by reducing the consumption of energy, water and materials, improving public health, safety and general welfare and by enhancing the planning, design, construction and operation of buildings to create an excellent city that provides the essence of success and comfort of living **2)** Create a more sustainable urban environment and extend the ability of the Emirate's infrastructure to meet the needs of future development **3)** Create structures and using processes that increase the efficiency of resource use -energy, water, and materials- while reducing building impacts on human health and the environment during the building's lifecycle, through better siting, design, construction, operation, maintenance, and removal. *(DEWA.,n.d)*
Demand Side Management from The Dubai Integrated Energy Strategy 2030	Dubai Supreme Council of Energy (DSCE)	Directing Dubai towards securing sustainable supply of energy and enhance demand efficiency of water, power and fuel, by: **1)** Reduce energy demand by 30% by 2030 **2)** Diversify energy mix with 71% from natural gas, 24% from nuclear and clean coal, and 5% from solar energy **3)** To stay in line with the Green Economy for Sustainable Development Initiative

**Source from Department of Tourism and Commerce Marketing (DTCM)*

Time launch	Practices	Incentives for hotels
2009	Encourage hotel establishments to invest in green programmes, some of the green practices include: · Reduce and reuse waste water · Prevent waste · Collaborate with suppliers to reduce packaging · Reduce paper waste · Avoid using products with hazardous properties *(Government of Dubai, n.d)*	**1)** Honours and recognises hotel establishments that implement exemplary efforts in energy, water conservation and waste reduction *(DTCM, 2009).* **2)** Provide green solutions for hoteliers and encourage them to engage in effective, sustainable practices.
January 2014	The regulation guide provides specifications on the following aspects of the building to enhance the ecological label of the building: · Ecology & Planning assesses the environmental impact, outlines sustainable construction. · Building Vitality assesses the ventilation, air, water quality · Energy assesses the commissioning and management, and the building system · Water assesses the conservation and efficiency of the system · Materials & Waste management For detailed guidance, please download Green Building Regulation & Specification	Request hotel and/or any commercial establishment's full compliance in accordance to the regulations.
2011	As part of the Dubai Integrated Energy Strategy, the sub-category of Demand Side Management Strategy aims to implement energy efficiency measures and introduce abatement technologies for water, power and fuel *(DGEF, 2013)*.	To align with the government vision for a sustainable city.

9.2 Appendix 2

Accredited sustainable programmes and certifications relevant to the hospitality industry in the Dubai emirate

Award programme	Organisation	Purpose
Green Key	Green Key in partnership with Emirates Green Building Council (EmiratesGBC). Recognised by the World Tourism Organisation and United Nations Environment Programme (UNEP)	· Raising the awareness of leisure establishment staff and clients, · Increasing the use of sustainable methods of operation and technology, · Running ecologically sound and responsible businesses, and thereby · Reducing resource, energy usage
Green Globe	The World Travel & Tourism Council (WTTC) established Green Globe Certification in 1993	Aim to assess the sustainable performance of hotel business, monitor operations and track achievement that lead to Green Globe Certification recognition. The assessment is made up of 44 core criteria and 380 compliance indicators.
EarthCheck Assessed & Certified	EarthCheck is a jointly developed organisation by the Australian government-funded Sustainable Tourism Cooperative Research Centre (STCRC) and Brisbane-based company EC3 Global (CEI, 2011). The organisation complies with Intergovernmental Panel for Climate Change (IPCC) Guidelines for National Greenhouse Gas Inventories, the World Business Council for Sustainable Development (WBCSD) Greenhouse Gas Protocol, and the International Organisation for Standardisation (ISO) 14064 range of standards for greenhouse gas accounting (Ecolabel, 2015)	EarthCheck Assessed Helps review current sustainable business practices and provides simple solutions to minimise energy and water use. Report based on benchmark performance against similar operators in the competitive set Reduce water and energy bills. EarthCheck Certified A science-based approach to help hotel establishments increase operational effectiveness, maximise guests experience and minimise carbon footprints. Focus primarily on the operational improvement on energy savings, water savings, conversion of resources and reduction of carbon footprints. Hotel establishments are required to submit a year's worth of operational data and undergoes third-party audit. Bronze Benchmark will be achieved if satisfied a set of criteria. The progress of each year is measured which can lead to attainment of Silver, Gold and Platinum certifications.
ISO 14001	International Organisation of Standardisation – the ISO 14001 sets out an Environmental Management System (EMS) which can be certified to hotels.	Provision of framework to achieve the following environmental goals: - Reduce resource use - Reduce energy consumption - Improve process efficiency - Reduce waste and disposal cost (ISO,2009) 17 elements to be fulfilled for hotel properties seeking certification (ISO 14001, n.d)

Participants in Dubai	Website
Carlson Rezidor Group (5 properties) Starwood Hotels & Resorts (9 properties) Fairmont Hotels & Resorts (1 property) 25 certified properties across the UAE	Information obtained from http://www.green-key.global
Jumeirah Group (13 properties) JA Resorts & Hotels (1 property) Movenpick Hotels & Resorts (7 properties) One & Only Resorts (2 properties) Park Regis Hotel (1 property) Accor Group (1 property) The Address (1 property) TIME Hotels (2 properties) Iberotel (1 property) Minor Hotel Group (3 properties) 41 certified properties across the UAE	Information obtained from http://greenglobe.com/
Taj Group of Hotels (1 property) Accor Group (2 properties) Dusit Hotels & Resorts (1 property) ** Full list is not provided. Information is obtained from various articles.*	Information obtained from http://earthcheck.org/
Accor Group (1 property) Rotana Hotels Group (1 property) Marriott International (1 property) Hyatt Hotels & Resorts (1 property) Millennium & Copthorne Hotels (2 properties) Starwood Hotels & Resorts (1 property) ** Full list is not provided. Information is obtained from various articles*	Information obtained from http://www.iso-uae-dubai.com/iso14001consultant-semsuae.html

9.3 Appendix 3

Hotel Self-Audit Checklist

ORGANISATION MANAGEMENT	Yes	No	N/A	Measure
Does the hotel establish a corporate social responsibility statement relating to its green initiatives?				
Are staff encouraged to get involved in and help shape the hotel's green practices?				
Is there a Green Committee set up specifically to monitor and initiate the green programme?				
Is the hotel currently enrolled in any green practice accredited programme?				
Does the hotel track green practices progress on a regular basis?				

ENERGY MANAGEMENT	Yes	No	N/A	Measure
Is the hotel actively engaged in no-cost energy saving practices?				
Is the hotel actively engaged in low-cost energy saving practices?				
Is the hotel actively engaged in high-cost energy saving practices?				
Have energy-saving targets been set and implemented?				
Are the temperatures in all hotel areas controlled to what DEWA has recommended?				
Are air-conditioners cleaned regularly?				
Are water boilers, pipes, tanks insulated?				
Does the hotel install an automated system for heating, cooling and ventilation?				
Does the hotel install a sensor thermostat?				
Does the hotel take any initiatives to educate guests in simple ways to save energy?				
Has the hotel switched from using conventional light bulbs to Compact Fluorescent Lamps (CFL) and/or Light Emitting Diode (LED)?				
Are staff trained to unplug all electrical appliances when not in use?				
Is laundry washed in cold water as much as possible?				
Is renewable energy applied in the hotel?				

	Effectiveness?	Comment

	Effectiveness?	Comment

9.3 Appendix 3

Hotel Self-Audit Checklist

WATER MANAGEMENT	Yes	No	N/A	Measure
Is the hotel actively engaged in no-cost water saving practices?				
Is the hotel actively engaged in low-cost water saving practices?				
Is the hotel actively engaged in high-cost water saving practices?				
Have water-saving targets been set and implemented?				
Does the hotel raise guests' awareness about water consumption and the need to save?				
Does the hotel encourage guests to reuse towels and linens?				
Have flow restrictors been installed to reduce the pressure of the showerheads?				
Are low flush WCs fitted in all bathrooms?				
Is the property checked for leaks on a regular basis?				
Are employees trained to detect and repair leakage problems?				
Are the washing machines operated with full load?				
Are holding tanks maintained for the following wash?				
Is water softener installed?				
Is solar water system installed?				
Is greywater treated properly before it is used for other purposes?				

	Effectiveness?	Comment

9.3 Appendix 3

Hotel Self-Audit Checklist

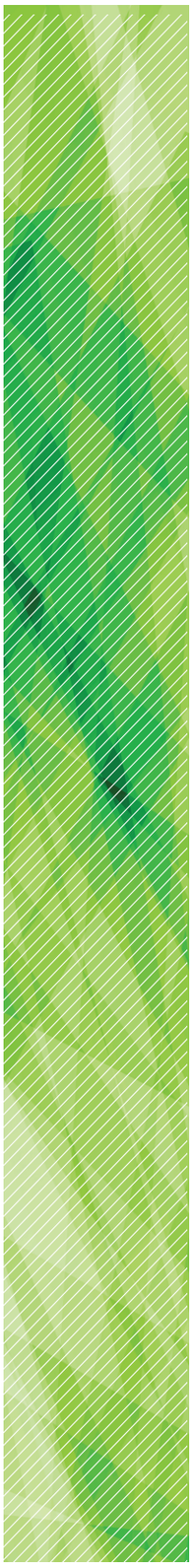
WASTE MANAGEMENT	Yes	No	N/A	Measure
Is the hotel actively engaged in no-cost waste management practices?				
Is the hotel actively engaged in low-cost waste management practices?				
Is the hotel actively engaged in high-cost waste management practices?				
Have waste reduction targets been set and implemented?				
Does the hotel buy products in bulk to minimise packaging usage?				
Are products purchased from local suppliers whenever possible?				
Does the hotel purchase hazardous materials (such as cleaning product) which have a low environmental impact?				
Does the hotel give back packaging to the suppliers?				
Are staff trained to reuse and recycle product whenever possible?				
Does the hotel donate reusable items to charities?				
Are organic items composted?				
Does the hotel use bin separators to categorise different recyclable items?				
Does the hotel purchase recycled content suppliers whenever possible?				

Hotel Audit Checklist by TFG Asset Management

**Some information obtained from research paper: How to increase your*

	Effectiveness?	Comment

10. References



B4Hoteliers. (2011, March 9). The Challenges of Sustainable Hospitality Operations. Retrieved May 16, 2015, from http://www.4hoteliers.com/features/article/5862

Abbas, W. (2015, March 15). Your guide to generating solar power in Dubai to slash Dewa bill. Retrieved September 2, 2015.

Bohdanowicz, P., Simanic, B., & Martinac, I. (2005, September 27). SUSTAINABLE HOTELS – ENVIRONMENTAL REPORTING ACCORDING TO GREEN GLOBE 21, GREEN GLOBES CANADA / GEM UK, IHEI BENCHMAR. Retrieved August 10, 2015, from http://storage.globalcitizen.net/data/topic/knowledge/uploads/20120223121735533.pdf

Braley, S. (2013, October 1). Making Sense of Green Hotel Certifications. Retrieved August 10, 2015, from http://www.meetings-conventions.com/News/Features/Making-Sense-of-Green-Hotel-Certifications/?p=2

Bundhun, R. (2009, July 23). New Dubai hotels adopt green theme | The National. Retrieved August 1, 2015, from http://www.thenational.ae/business/travel-tourism/new-dubai-hotels-adopt-green-theme

Carbon Trust. (2015, July 1). Saving energy without compromising service. Retrieved August 10, 2015, from http://www.carbontrust.com/media/39220/ctv013_hospitality.pdf

CEI Asia. (2011, February 17). Setting standards with EarthCheck. Retrieved August 3, 2015, from http://www.cei.asia/Article/274253,setting-standards-with-earthcheck.aspx

CNN. (2015, June 3). 10 most popular cities for travelers in 2015 - CNN.com. Retrieved August 4, 2015, from http://edition.cnn.com/2015/06/03/travel/mastercard-top-10-destination-cities-2015/

Dhar, S. (2015, February 1). The huge challenge of improving sustainability in the UAE. Retrieved July 11, 2015, from http://www.gnproperty.com/a/real-estate-news/huge-challenge-improving-sustainability-uae/

Divecha, D. (2015, July 20). Dubai using sustainability to attract tourists | HotelierMiddleEast.com. Retrieved August 4, 2015, from http://www.hoteliermiddleeast.com/24358-dubai-using-sustainability-to-attract-tourists/

DEWA. (n.d). Hotel Management: Conserve Electricity & Water For A Better Tomorrow. Retrieved July, 31, 2015.

DEWA. (n.d.). Electricity and Water Conservation. Retrieved July 30, 2015, from https://www.dewa.gov.ae/community/conservation/conservedefault.aspx

DTCM. (n.d). Dubai hotels benefit from DTCM's Green Tourism initiatives. Retrieved August 1, 2015 from http://green.dubaitourism.ae/press/dubai-hotels-benefit-dtcm's-green-tourism-initiatives

DTCM. (2015, May 6). Dubai Tourism Announces winners of 2015. Retrieved July 17, 2015 from http://www.visitdubai.com/en/department-of-tourism_new/press-centre/press-releases/dubai-tourism-announces-winners-of-2015

Dubai Global Energy Forum. (2013) Clean Energy for Sustainable Development. Retrieved August 4, 2015, from http://www.dgef.ae/images/DGEF_english_13.pdf

Dubai Global Energy Forum. (2013) Dubai Supreme Council of Energy. Retrieved September 02, 2015, from http://www.dgef.ae/sce.aspx

Dubai PR Network. (2015, May 7). Rose Rayhaan by Rotana receives 'Most improved hotel in sustainability practices' in Dubai Green Tourism Award 2014. Retrieved August 10, 2015 from http://m.dubaiprnetwork.com/pr.asp?pr=98799

Ecolabel Index. (n.d.). Retrieved August 9, 2015, from http://www.ecolabelindex.com/ecolabel/earthcheck

Edgcumbe, D. (2013, September 13). Best Practice: Waste management. Retrieved August 10, 2015, from http://www.hoteliermiddleeast.com/18350-best-practice-waste-management/

Emirates Green Building Council (EmiratesGBC). (2014, July 1). GREEN BUILDING CITY MARKET BRIEF. Retrieved August 10, 2015, from http://emiratesgbc.org/wp-content/uploads/2015/02/Dubai-MarketBrief-FINAL-2014-07-15.pdf

Fairmont Dubai. (n.d). Fairmont Hotels & Resorts' Green Partnership Program. Retrieved July 30, 2015.

Farnek. (n.d). Factsheet: Green Globe Certification. Retrieved July 17, 2015.

Farnek. (2015, September). Utilities Performance Benchmarks Dubai. Hotelier Middle East, volume 14 issue 9, 198-199.

Florida Department of Environmental Protection. (2015, July 1). Green Lodging Program. Retrieved July 31, 2015 from https://www.dep.state.fl.us/greenlodging/bmp_waste.htm

Goldstein, K., Primlani, R., Rushmore, S., & Thadani, M. (2012, February 1). HVS: Current trends and opportunities in Hotel Sustainability . Retrieved May 14, 2015.

Government of Dubai. (n.d.). Green Building Regulations & Specifications. Retrieved August 10, 2015, from https://www.dewa.gov.ae/images/greenbuilding_eng.pdf

Green Emirates (n.d.). Dubai Municipality Green Building Regulations & Specifications. Retrieved July 15, 2015, from http://www.greenemirates.org/greendirectory/item/33,green-standards/160,dubai-municipality-green-building-regulations-specifications#.VbDl6bOqqko

Graci, S., & Kuehnel, J. (2011). How to increase your bottom line by going green. Retrieved May 5, 2015

Greywater Recycling and Reuse. (n.d.). Retrieved August 10, 2015, from http://www.fbr.de/fileadmin/user_upload/files/Englische_Seite/Greywater_Recycling_Introduction.pdf

Gulf News. New Dubai park runs on solar energy. (2015, August 30). Retrieved August 31, 2015, from http://gulfnews.com/news/uae/environment/new-dubai-park-runs-on-solar-energy-1.1575538

Halligan, N. (2015, May 4). 100% solar-powered hotel to open in Dubai by 2017. Retrieved July 30, 2015, from http://www.arabianbusiness.com/100-solar-powered-hotel-open-in-dubai-by-2017-591568.html

Hotelier Middle East. (2013, February 13). BEST PRACTICE: Certifying hotel sustainability. Retrieved August 4, 2015, from http://www.hoteliermiddleeast.com/16252-best-practice-certifying-hotel-sustainability/1/print/

Hunter Water. (n.d). Saving water in hotels and motels. Retrieved August 10, 2015.

Huxley, A. (n.d). EarthCheck Assessed. Retrieved July 16, 2015

Huxley, A. (n.d). EarthCheck Certified. Retrieved July 16, 2015

Kamali, S., et al (2014). Effect of Building Management System on Energy Saving . Retrieved September 2, 2015

InterContinental Hotel Group. (2015, May 5). IHG Set to Open Hotel Indigo in Dubai's Newest Neighbourhood. Retrieved August 3, 2015, from http://

www.ihgplc.com/index.asp?PageID=116&NewsID=3444

ISO 14001 Dubai. (n.d.). Retrieved July 30, 2015, from http://www.iso-uae-dubai.com/iso14001consultantsemsuae.html

ISO 14001 Requirements. (n.d.). Retrieved July 13, 2015, from http://www.iso14001.com.au/iso-14001-requirements.html

John, I. (2015, April 24). Dubai eyes 'Green Fund' - Khaleej Times. Retrieved August 8, 2015, from http://www.khaleejtimes.com/article/20150424/ARTICLE/304249881/1037

Masudi, F. (2014, October 27). Dubai to charge for waste from next year. Retrieved September 2, 2015, from http://gulfnews.com/news/uae/general/dubai-to-charge-for-waste-from-next-year-1.1404580

Morris, K. (n.d.). Steps in the System Development Life Cycle. Retrieved June 26, 2015, from http://smallbusiness.chron.com/steps-system-development-life-cycle-43241.html

Navdar, P. (2015, May 04). IHG signs second Hotel Indigo property in Dubai| HotelierMiddleEast.com. Retrieved August 09, 2015, from http://www.hoteliermiddleeast.com/23636-ihg-signs-second-hotel-indigo-property-in-dubai/

Navdar, P. (2015, June 10). Dubai Municipality's plans for a sustainable city | HotelierMiddleEast.com. Retrieved July 16, 2015, from http://www.hoteliermiddleeast.com/24041-dubai-municipalitys-plans-for-a-sustainable-city/

Navdar, P. (2013, June 13). Accor hotels receive EarthCheck certification. Retrieved August 10, 2015, from http://www.hoteliermiddleeast.com/17513-accor-hotels-receive-earth-check-certification/

Navdar, P. (2014, July 2). Event Review: Sustainability Summit. Retrieved August 8, 2015, from http://www.hoteliermiddleeast.com/20911-event-review-sustainability-summit/1/print/

Patel, A. (2008, August 18). Hotels and hazardous waste. Retrieved July 17, 2015, from http://www.arabianbusiness.com/hotels-hazardous-waste-44978.html

Ponce de Leon, J. (2015, August 2). Making small changes at home could save energy and water. Retrieved August 10, 2015, from http://gulfnews.com/news/uae/government/making-small-changes-at-home-could-save-energy-and-water-1.1559957

Project Management Methodology Guidelines. (n.d.). Retrieved July 12, 2015, from http://www.chandleraz.gov/content/pm000pmmethodologygde.pdf

Repak. (n.d). Prevent & Save – Best Practice Guidelines in Waste Management. Retrieved August 10, 2015.

Segarra-Ona, M., Peiro-Signes, A., & Verma, R. (2011, December 1). Cornell Hospitality Report - Environmental Management Certification and Performance in the Hospitality Industry: A Comparative Analysis of ISO 14001 Hotels in Spain .

Schneider, N. (2010, November 17). Green Business Certifications: What you need to know. Retrieved August 5, 2015, from http://www.environmentalleader.com/2010/11/17/green-business-certifications-what-you-need-to-know/

Sheraton Dubai Creek Hotel & Towers. (n.d). Environmental Practices. Retrieved July 16, 2015 from http://www.starwoodhotels.com/sheraton/property/features/environmental_details.html?propertyID=408&language=en_US

State of California. (2015, June 18). Waste Reduction in Hotels and Motels. Retrieved July 30, 2015, from http://www.calrecycle.ca.gov/ReduceWaste/Business/FactSheets/Hotels.htm

Supreme Council of Energy. (2014, August). Dubai Demand Side Management Strategy. Retrieved September 02, 2015.

The Hotel Show Saudi Arabia. (2015, May 3). Massive opportunities as hotels move towards sustainability. Retrieved July 8, 2015, from http://www.thehotelshowsaudiarabia.com/Content/Massive-opportunities-as-hotels-move-towards-sustainability

Todorova, V. (2012, November 26). Ajman hotel proud of its green water | The National. Retrieved September 2, 2015, from http://www.thenational.ae/news/uae-news/environment/ajman-hotel-proud-of-its-green-water

Townsend, S. (2015, July 19). Greening the desert: How the UAE aims to change its carbon footprint. Retrieved July 30, 2015, from http://m.arabianbusiness.com/greening-desert-how-uae-aims-change-its-carbon-footprint-599849.html

Trade Arabia. (2014, April 2). Sheraton Dubai Creek Hotel & Towers Recognised for Leadership in Environmental Sustainability. Retrieved August 1, 2015, from http://www.tradearabia.com/news/HEAL_255314.html

UNEP. (2012). Tourism in the Green Economy. Retrieved July 6, 2015, from http://www.unep.org/greeneconomy/Portals/88/documents/ger/ger_final_dec_2011/Tourism in the green_economy unwto_unep.pdf

U.S Department of Energy. (2014, November 5). How Energy-Efficient Light Bulbs Compare with Traditional Incandescents. Retrieved August 4, 2015, from http://energy.gov/energysaver/articles/how-energy-efficient-light-bulbs-compare-traditional-incandescents

Wafa, I. (2014, October 28). New landfill charges announced for Dubai firms. Retrieved October 8, 2015, from http://7days.ae/new-landfill-charges-announced-dubai-firms

Waste Reduction. (n.d.). Retrieved August 10, 2015, from https://www.dep.state.fl.us/greenlodging/bmp_waste.htm

Water Footprint (n.d). Retrieved September 12, 2015 from http://waterfootprint.org/en/water-footprint/glossary/#GW

Webster, N. (2015, April 19). Significant steps taken towards Dubai's renewable energy targets | The National. Retrieved August 3, 2015, from http://www.thenational.ae/uae/environment/significant-steps-taken-towards-dubais-renewable-energy-targets

Wharton, S. (2012, November 30). Sustainable new builds attract investors. Retrieved August 10, 2015, from http://www.hotelnewsnow.com/Article/9470/Sustainable-new-builds-attract-investors

Withiam, G. (2011, February 22). Cornell Research Summit Examines the Challenges of Sustainable Hospitality Operation

Wyndham Worldwide. (2015). Green Toolbox. Retrieved September 02, 2015, from http://www.wyndhamworldwide.com/category/green-toolbox

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