



Green Hotelier – International Tourism Partnership

Water Management and Responsibility in Hotels

March 22, 2013



This article was published by the GH in 2013 but most of its recommendations are as valid today as then.



Water Management and Responsibility in Hotels

In celebration of World Water Day here are our top tips for hoteliers looking to reduce their water consumption and address water issues responsibly

An international day to celebrate freshwater was recommended at the 1992 United Nations Conference on Environment and Development (UNCED), and since then World Water Day has been held annually on 22nd March. The day aims to focus attention on the importance of freshwater and advocating for the sustainable management of freshwater resources.

Each year, World Water Day highlights a specific aspect of freshwater. In 2013, in reflection of the [International Year of Water Cooperation](#), World Water Day is dedicated to the theme of cooperation around water, which is very in keeping with what the [International Tourism Partnership](#) (ITP) has been doing on the topic of water since establishing a [Water Working Group](#) in 2012.

ITP is currently working with its 16 global hotel company members to address how the industry should address water challenges. This collaboration is being conducted through a working group on water, with its first objective: *To produce a risk analysis of key water issues - present and forecast - of water availability and quality, along with an assessment of any cost and regulatory implications, in selected geographic regions, in order to increase awareness and understanding of how and where water issues present a significant risk to the industry's future.*

As part of this working group, ITP has engaged the help of SIWI, the Stockholm International Water Institute, to conduct a research piece on the above. More details of this research will be publicly available in early summer. However, for now, we've updated our practical Know How Guide to Water Management in the hotel industry...

Why the need to conserve water?

Water scarcity is a recognised global problem, with demand for water projected to exceed supply by 40% by 2030. By the same year, half the world's population will be living in areas of high water stress.

Most water (97%) is in the oceans, which cover 71% of the Earth's surface. 3% is freshwater, two-thirds of which is tied up as ice in glaciers and at the poles. This leaves approximately 1% as freshwater in rivers, lakes, the atmosphere and in groundwater.



However, with demand rising rapidly due to a growing global population with expectations of higher living standards and resource-intensive farming, that 1% is under threat. Climate change is adding to the problem because our weather patterns have become less predictable and more pronounced. While a number of areas are experiencing periods of prolonged drought, the rain that falls in some other areas is heavier. This leads to flooding without sufficiently replenishing groundwater stocks.

Hotel companies have both a strong commercial and moral imperative for addressing water use. Cost is a clear factor: water accounts for 10% of utility bills in many hotels. Most hotels pay for the water they consume twice – first by purchasing fresh water and then by disposing of it as waste water. According to the UK's Environment Agency, depending on their water efficiency, hotels can reduce the amount of water consumed per guest per night by up to 50% compared with establishments with poor performance in water consumption. The moral reasons are equally compelling: water is a scarce resource in many resorts around the world so hotels have a responsibility not to use more than necessary; in rural or remote areas it ensures that local residents are not deprived of their essential supply; and by reducing the amount of waste-water that needs to be treated, this lessens the risk of water pollution.

According to the latest research conducted by SIWI, almost 20 % of the world's population live in areas of physical water scarcity. A water scarce region is one where water resources development is “approaching or has exceeded sustainable limits” and “more than 75% of river flows are withdrawn for agriculture, industry, and domestic purposes”. By 2030, the world might face a 40% global demand/supply gap of accessible, reliable water supply for economic development. The private sector is a major water user and often completely dependent on water for production and service delivery. The Hospitality industry is one of these where water plays a determining part in everyday operations and potential growth.



Resorts have to be developed responsibly in water-stressed regions



Water efficiency: Establishing a water management plan

In order to set up and achieve relevant and realistic targets you will need to invest time and resources in careful planning, organisation, training and follow-up.

The first step to take when creating a water management plan is to start measuring water consumption and set some tangible targets. It's vital to know your start point and find out how much water you are currently using. Installing meters and taking regular readings will aid this and sub meters will help you see where the areas of greatest use are. These are obviously the areas where you will probably need to focus most of your efforts.

Another key part of understanding measurement and target setting is knowing your water costs. Work out what your potential cost savings may be and the payback period for any capital investment. Grounding a water management plan on costs, as well as environmental saving, will help gain the buy in of key stakeholders and improve your property's overall efficiency.

Once measurement and targets have been set, you can establish a water conservation plan. Here are some suggestions of how best to go about this:

- Carry out a water audit to show where the major water costs are and where savings can be made
- Compare total and departmental consumption figures with hotel industry benchmarks to determine the potential for savings (see the diagrams below)
- Calculate the water used per guest per night by dividing the total water consumed in guest rooms by the number of guests for that month. If your utility bill is in cubic metres rather than litres, multiply the number of litres by 0.0001
- Check if funding / loans are available from government or other sources for investment in new technology or water reduction schemes
- On the back of the information gathered, establish realistic goals for each department and the entire hotel
- Communicate the management's commitment to water reduction and the subsequent objectives and goals to all employees
- Train staff so they understand how to make prudent use of water and how to maintain equipment for optimum energy-efficiency
- Encourage staff to put forward their own suggestions for water reduction
- Establish a monitoring and targeting system so that you can regularly report progress back to staff and other stakeholders. Motivate through feedback and reward success
- Join forces with other hotels and provide mentoring to help them reduce their water consumption

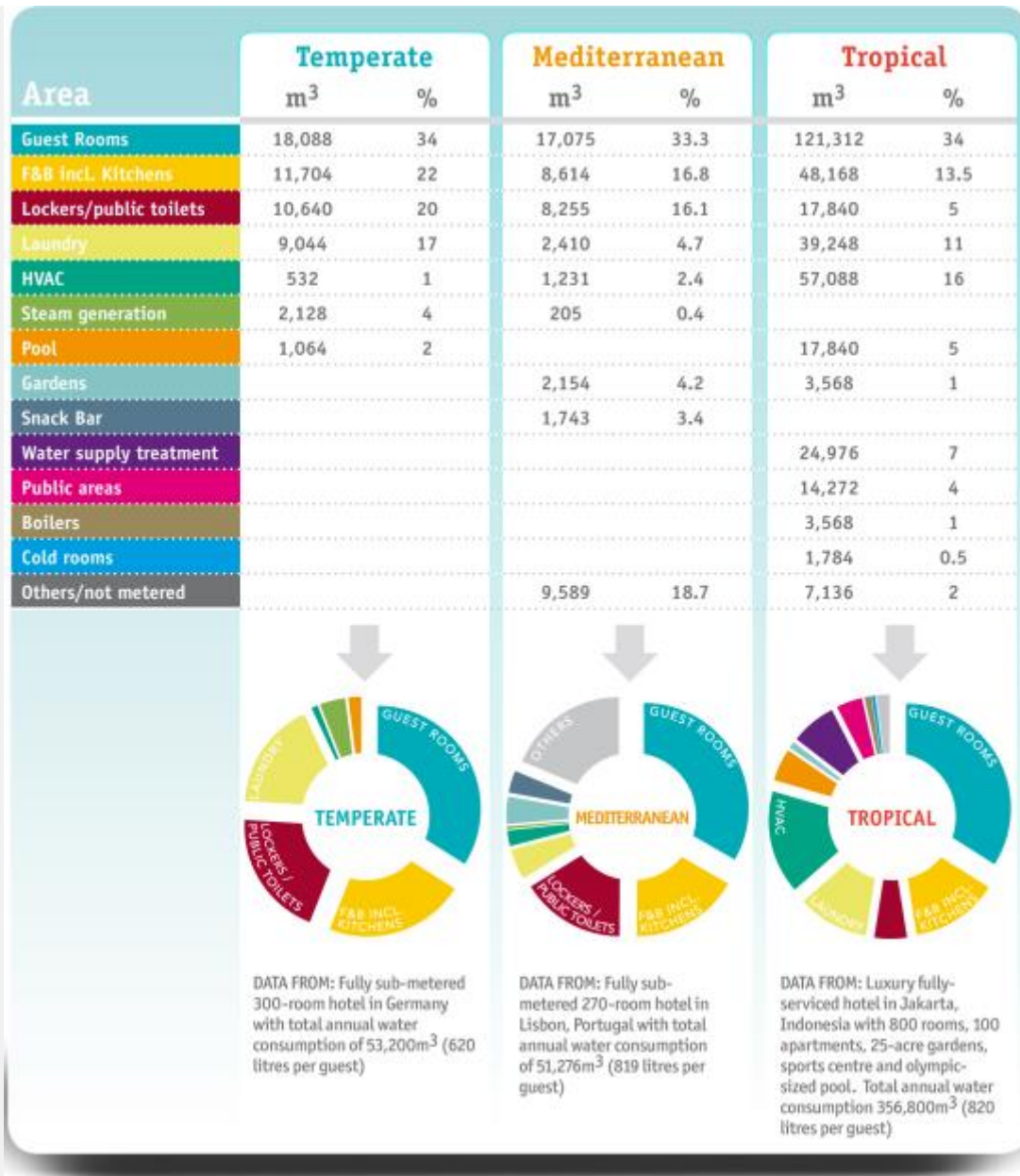


Figure1: Annual water consumption in hotels

Hotel profile	Climate zone	Water consumption (m ³ per overnight guest)		
		EXCELLENT	SATISFACTORY	HIGH
Luxury serviced hotels	Temperate	< 0.3	< 0.45	< 0.7
	Mediterranean	< 0.4	< 0.6	< 0.8
	Tropical	< 0.8	< 1.0	< 1.4

NOTE: 1 CUBIC METRE = 1000 LITRES. FOR MORE CONVERSION TABLES SEE SECTION 12.2

Figure 2: Water benchmark for luxury fully serviced hotels, from EMH



Moving through areas of a hotel where water consumption is likely to be highest, here are some ways in which you can change your operational water use. Always test first to see that any measures taken will not compromise quality, health or safety.

Bathrooms

- Shower flow should be no more than 10 litres / min. This can be very simply measured with a bucket and stopwatch
- Low flow toilets use an average of just six litres per flush, compared to older models that use roughly two to four times more than that. Additionally, you can install dual flush toilets so guests can opt for a shorter flush. If it is not feasible to change all toilets, you can reduce the water used in flushing by placing a brick or full water bottle in the cistern (effectively displacing some of the water)
- Taps should have a maximum flow of six litres / min, or four in hand washing sinks in public bathrooms. Flow restrictors or better aerators can both help reduce tap flow
- Maintenance is a key part of saving water consumption – a leaking toilet can lose 750 litres of water day

Laundry

- Where outsourced, ask your supplier what procedures they have in place to reduce water and energy use
- Wash small quantities in a 5kg machine and always ensure machines are fully loaded
- Minimise the rinse cycle as much as possible without reducing quality
- Consider using “intermediate extraction” between rinse operations
- Consider the reuse of water from previous rinse cycles for the first wash of the next cycle by installing temporary holding tanks
- Maintenance is also key: Check regularly for leaking dump valves, ensure that all water inlet valves are closing properly and check that level controls on water reuse tanks are working properly
- 500-room-plus hotels could consider installing a continuous batch washer (CBW), which uses all the rinse water for pre-washing and main suds operation
- Ensure that the water flow rates on tunnel washers and CBWs are adjusted to the manufacturer’s recommended setting
- When buying washing machines, look out for a good water consumption rating
- Consider using ozone laundry systems. These inject ozone into the water, which works in conjunction with the laundry chemicals to provide a more efficient wash



Swimming pools

Having a swimming pool can increase fresh water consumption in a large hotel by up to 10% so think hard about whether it is really necessary before installing one. These steps will help ensure no water is wasted.

- Conduct regular maintenance to prevent leaks. Checking for leaks is best done by reading water meters last thing at night and first thing in the morning
- Backwash the swimming pool every two to three days rather than daily. It is also best to opt for a backwash system where water can be recaptured and used for irrigation
- Always cover swimming pools when not in use to prevent evaporation and reduce the need to empty and refill
- Installing push-button showers by the pool will reduce water use

Grounds

- Do not water grounds in the heat of the day. In hot climates, the best time to water is in the evening
- It's best to avoid using automated watering systems, however if they do have to be used water can be saved by fitting timers on sprinklers to control water use. Moisture sensors in gardens and grounds can also be used to avoid over-watering
- Put a procedure in place for manual watering and train gardening staff to reduce water use where possible
- Use rainwater harvesting techniques to divert and capture rainwater from roofs and gutters. Water can be diverted into underground storage tanks or into water butts. Plants actually prefer rainwater to treated water from a tap
- If possible, use grey water from baths and sinks for irrigation. Consider installing a treatment system that will enable you to use treated black water from toilets in the gardens. The treatment plant needs to be carefully positioned in relation to prevailing winds and screened from view. Management of these systems must be well controlled
- A well-designed and controlled irrigation system will deliver water when and where it is needed
- Using your own organic compost will add nutrients and help retain moisture in the soil
- Placing wood chips on top of soil helps to reduce evaporation
- Native species of plant often need less water so design and landscape your grounds in keeping with the existing environment



The Orchid in Mumbai has a Sewage Treatment Plant on its roof to treat all waste water

Kitchens

- Taps in kitchens should have a maximum flow of 10 litres per minute
- Only use dishwashers on full load
- Pre-soaking utensils and dishes saves using running water. Similarly, wash vegetables and fruits in a sink of water rather than a running water rinse
- Avoid thawing food under running water and avoid using running water to melt ice in sink strainers
- Minimize the use of ice machines and adjust settings to dispense less ice

Housekeeping

- Put procedures in place and conduct training to inform housekeeping on how they can reduce water use. These procedures should include how many times to flush the toilet when cleaning, not to leave taps running or use excessive water, using a mop rather than hose when cleaning floors
- Implement a linen reuse programme. As well as saving water, these programmes mean less wear on fabrics, prolonging their life, and saves housekeeping staff time. Many hotels advertise a reuse programme but often do not adhere to them, leaving guests cynical, exasperated by the fact that guests often think this is just a cost saving exercise for the hotel. Rather than imposing a structured programme, the most successful policies are those that allow guests to opt out of having their linen changed on a daily basis



Water efficiency systems

- Grey water systems enable up to 50 per cent of wastewater to be returned to the hotel after treatment for toilet flushing

Because of the separate pipe-work involved, grey water systems are expensive to install and chemical treatment of the recycled water is sometimes necessary for health and safety reasons (only in on-demand systems). They are therefore best designed into the building at the outset, although increasingly hotels are choosing to retrofit them because of the savings to be made. Payback time is difficult to calculate, as it will depend on the type of systems installed and the relative cost of the potable water to that of the reuse water. The payback can be anything from two to fifteen years depending on the cost of water at your location

- Low-flow technology installation can save huge volumes of water across bathrooms and kitchens, with minimal effect on the customer experience

Adjustable flow restrictors on taps enable them to deliver a lower instantaneous flow rate than screw-operated taps and can reduce water use by over 50%. Similarly, low-flow shower heads cost very little and use around 9.45 litres a minute compared with conventional heads (which typically use nearly twice that). If properly designed they should feel as effective as higher water volume models.

An IHG property recently experienced huge savings by implementing this kind of technology. Holiday Inn in Flinders, Australia, recouped its AUD \$22,000 (USD \$19,500) investment in low flow technology after 18 months and cut water usage by 50%.

Spotlight on Starwood and incentivisation

Starwood Hotels have committed to reduce water consumption by 20% by 2020. All hotel brands owned by Starwood in the U.S. offer a \$5 voucher to spend in the shop / restaurant / bar if guests don't have their room cleaned every day. Other hotels donate to charity when guests opt out of having rooms cleaned/ linen changed. These rewards act as an incentive but also remove any cynicism from the customer – so they understand that not changing linen is the hotel's environmental policy, rather than simply a money saving scheme.

Spotlight on Soneva and sourcing water

Sourcing water from sustainable sources is a major priority for these luxury resorts in The Maldives and Thailand. Although water consumption in the resorts continues to rise, no water is taken from the public water supply with 60% coming from rainwater collection or wells and 40% from desalination. Since fresh water issues are a particular concern in Thailand, Soneva Kiri has built its own reservoir to collect rainwater.



Water and the stakeholder: Communicating and educating

Access to water is a human right and educating those around us about its fragility is therefore vital. Hotels have a responsibility in educating and communicating water issues to their stakeholders; employees, the local community and the customer.

As we can see from the above, a key component of a water management action plan is communication with and the education of staff. Implementing simple procedures and setting targets can play a huge role in effecting the mindset of employees when it comes to water consumption. Although this starts at the hotel, this shift in attitude is soon carried into home-life and in turn extends to others.

Where water is in short supply, being aware of competing demands for water and availability issues for a local community is vital. Hotels have to work with local communities when it comes to water use, rather than taking supplies from them.

- Get informed about local water issues through talking to local authorities, community and business groups and your staff
- Conduct a water use and risk assessment of your property (see tools below)
- Be aware of and as a minimum, adhere to local regulations on water extraction and waste water disposal. Where standards are low or infrastructure poor, ensure yours are high and join with other businesses and community groups to lobby for better regulation and management
- In areas where local people may have limited access to water, or where water quality is poor, consider supporting improvement schemes with local authorities and community groups or funding better access to water, such as water tanks or standpipes

Hotels can also play a role in educating customers about water issues, and to some extent encourage reflection on their own water use at home and when traveling. Most simply, this can be done by communicating what the hotel does to minimise water consumption and why it is committed to doing so. This can be done by:

- Communicate to guests the importance of fresh water resources within the area and provide opportunities to allow guests to use water wisely
- Encourage guests to shower instead of bath
- Suggest they do not leave the tap running when brushing their teeth. It can save up to nine litres each time they do so!
- Invite them to reuse their towels and linens by opting not to have them changed every day
- Incentivise guests to change their behaviour through donations to charity or vouchers to spend at the hotel
- Inform guests how the hotel reduces water consumption in other areas of the hotel

Going one step further, hotels in particularly water-stressed areas can involve guests in their water policy. This is most successfully done in properties and places where guests are motivated to learn about the local area and community, and are environmentally aware. Initiatives include guest participation in local education or water infrastructure building and running educational tours of innovative water saving initiatives.



In some regions working with the local community on improving water infrastructure is essential

Spotlight on Kempinski and staff education

Kempinski's Green Inspiration programme starts with raising awareness among guests and staff, inspiring them to adopt simple but impactful behaviours. The first of many initiatives is 'The Oak Tree':

"The oak tree is a symbol of strength, an ancient European tree, resistant to drought and disease. All Kempinski hotels participate in the Oak Initiative with a guest awareness programme: the small Oak Tree left on the bed by the guest invites their housekeeping attendant to make up the bed with the existing linens (reducing water used for laundry and the associated waste water), to use green cleaning products, and to turn off air-conditioning, lights and TV while the guest is not in the room. Staff contribute by purchasing goods responsibly and communicating this to suppliers - each decision to use FSC paper or buy local produce for the restaurants adds up. A hotel may also choose to support a local environmental conservation programme. Staff take part in Earth Hour each year, and a Green Day each month - where they will clean up the property and its grounds."



Water and charity: Philanthropic approaches to water

Besides from the potential for an individual property to educate immediate stakeholders about water issues, many hotels/ hotel chains choose to interact and support broader water charity and conservation efforts. Larger hotel chains may set up their own water conservation groups or become a primary sponsor of an existing one.

For smaller hotels, there are numerous charities and schemes that are always looking for partners. One example is [Whole World Water](#), which encourages the tourism industry to filter, bottle and sell their own water supply and give 10% of the proceeds to the Whole World Water Fund, which seeks to provide clean and safe drinking water for everyone. Also find out about what [Water Aid](#) and [Just a Drop](#) are doing in your local area.

Spotlight on Marriott, Nobility of Nature

Marriott's "Nobility of Nature" program works with Conservation International to protect the source of fresh water in Asia for more than 2 billion people. Located in Sichuan Province, an area hard hit by the 2008 earthquake and home of the giant panda, the program will help to improve water quality in the rural communities of Pingwu County.

"Worldwide, Marriott is investing in innovative, large-scale conservation projects that help address some of the most pressing environmental problems, such as water and rainforest preservation. In China, the need for fresh water is expected to exceed its supply by 25% over the next 15 years. Helping to develop viable ways to preserve the water supply and conserve water in our hotels is one way we can help." J.W. Marriott Jr., Chairman and CEO of Marriott International.