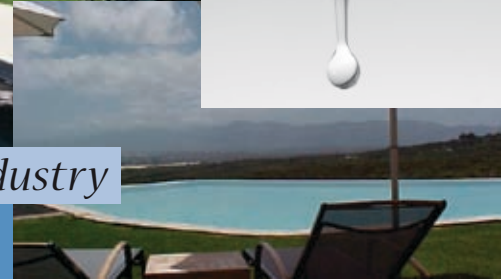
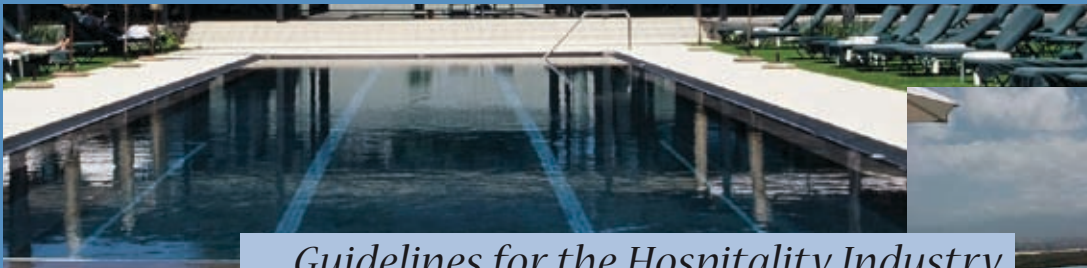


Water Use and Management



Guidelines for the Hospitality Industry

Auto Garden Watering

- Installing an automatic irrigation system, which is programmed to water the garden before 10am and after 5pm, can save up to 70% of water used for irrigation as losses through evaporation and heat are avoided.
- Try to avoid watering the garden during strong winds, as it can waste up to 70% of the water you spray onto the garden.
- Water the base of plants, not the leaves. This provides water directly to the roots, where it is needed most.
- Removing misters and installing a drip irrigation system brings the water to the plants most efficiently and can save a lot of water.
- Plan your garden wisely, try to stay with indigenous plants that fit the climate and don't need excess watering. Put the plants in groups of irrigation needs so that different parts of the garden can be set up to their needs. Giving the plants sufficient water but not overwatering them.
- Try and find an alternative watering source from the mains. For example borehole, rain water harvesting or a grey water system, as this will save money and reduce consumption of potable mains water.

Application: in all gardens

Ease: 3/5

Availability: 5/5

Factors to consider:

Plan your garden according to plants and use the correct irrigation for the right areas to maximise water savings. Make sure that plants are not overwatered and irrigation is adjusted according to seasons.

Cost: drip irrigation can be calculated with R50/meter, installed. It is extremely difficult to estimate a price on irrigation systems as they can vary from R500 to R500 000 depending on garden size, plantation and irrigation components used.

Payback: like the costs this is difficult to say. It depends on the system which was installed previously and on the irrigation type being installed. For example one impact sprayer uses 1000 litres/h compared to drip irrigation that would only use 100 litres/h to cover the same area.

Requirements to meet criteria:

- Auto watering system adjusted according to season and weather (e.g. rain sensors so during rainy days the irrigation stays off)
- Alternatively to this a complete drip irrigation system could be installed
- Or the existing irrigation is changed to rain harvesting and gray water usage



"Using rain or grey water for garden irrigation can seriously save water"

Guests provided with tips and encouragement for water saving in rooms

Information brochure in rooms

- Water is a precious resource that needs to be conserved today and in the future. Water conservation is also important in reducing wastewater discharges to rivers and the ocean.
- In most hotels, the majority of water used is in guest rooms. Guest rooms, therefore, represent the biggest opportunity for water savings and modern fixtures enable water efficiency without compromising guest comfort.
- Encourage your guests to get involved, Inform guests about your environmental and water conservation policy, so they can take an active role in assisting your program. Investigate the possibility of guests reusing towels to reduce the energy and water consumed during laundry operations.
- To encourage water and energy efficient practices, many hotels have adopted a 'green room' initiative. Guests are advised that by placing a green card on the bed, hanging towels up or hanging a notice on the door, linen and towels will not be changed that day. The 'green room' initiative helps to save water, energy, resources and the amount of chemicals released into the environment.
- You can encourage your guests to adopt water wise behaviour through doing simple things such as giving guests the option of reusing towels and linen as mentioned above. In addition, you can encourage water saving practices through displaying signs in bathrooms encouraging shorter showers or discouraging leaving water running unnecessarily.

Application: in all hotels

Ease: 5/5

Availability: 5/5

Factors to consider:

Think about how you will bring this across to your guests so you encourage them to help save water instead of giving them the feeling you just out to save money. Make sure they understand why it is important to save water.

Cost: R0

Payback: immediately

Requirements to meet criteria:

- There must be a pamphlet in every room that encourages water saving and gives tips on how to do so.
- There must be a system implemented in which linen and towels are swapped according to guests needs and not automatically every day.



"IT'S A NEW DESIGN TO SAVE WATER."

"One gram of CO₂ is released for every litre of processed mains water"

All basins to have tap aerator, flow reducers

- Nearly 80% of the drinking water consumed is used in washbasins and the toilet, e.g. when washing our hands, and goes straight down the drain.
- Aerators restrict the flow of water from your tap without reducing water pressure. Fit an aerator to your taps and reduce the amount of water you use by more than 50%.
- The insert regulates the tap's water flow. To make sure your aerator is efficient, you need to choose the right insert for your flow rate requirements. For example, a 5 litre/minute aerator should be fitted to hand basins and a 7.6 litre/minute aerator is best for kitchen and laundry basins.

There are 3 different types of aerators (see picture below)

1. Aerated flow types introduce air into the water stream. This softens the stream and reduces water splash.
2. Laminar flow types remove air to provide a clear water stream. They are commonly used in hospitals and medical clinics to prevent airborne bacteria from entering the water.
3. Spray flow are best for low flow conditions, where aerators and laminar devices would not function effectively, spray flows spread the tap's water stream over a wider area. This type of aerator ensures full coverage when washing your hands and is recommended for use in public toilets to reduce water consumption.

Application: on all taps with screw fittings otherwise use inline flow restrictors.

Ease: 5/5

Availability: 5/5



	Per minute	Saved
Normal Tap	15 litres	0 litres
Low flow aerator (basin)	5 litres	10 litres
Low flow aerator (kitchen)	7.6 litres	7.4 litres



Aerator



Inline flow restrictor

Factors to consider:

If the tap does not have a screw fitting for the aerator it is still possible to install a flow restrictor. This is more complex and expensive.

Cost: aerators +-R100/tap, inline flow restrictors R100 + +-R300 for installation.

Payback: 3 months to 1 year depending on usage and flow rate of the aerator.

Requirements to meet criteria:

- Aerator or flow restrictors on all taps, unless there is a specific requirement for higher flow e.g. kitchen.

Regular leak monitoring and maintenance program

- Monitoring water usage should be a key element of any maintenance schedule. Regular reading of water meters is essential, particularly if your premises has shared facilities
- Monitoring alone will not save water and money. Maintenance is very important. An effective maintenance program should regularly assess water usage records and determine the cause for any increase. Fixing a leaking toilet is the most cost effective maintenance.
- Staff awareness should be the fastest way of detecting a leak and getting it fixed, wasting as little water as possible. It is important to train up staff to notice running toilets and dripping taps so they can report them.
- Set up an uncomplicated reporting procedure to make it easier for your staff.
- Seals and washers decay over time and a tap will start dripping and toilets keep running. It will be increasingly difficult to close the tap as you have to tighten it quite hard to seal it. This is the time to replace the washers, as it prevents water loss and is more comfortable for guests.

Application: on all taps and toilets

Ease: 5/5

Availability: 5/5

Leaking Tap Audit				
	6 min	1 hour	1 day	1 year
Slow drip	75mls	750mls	18 l	6570 l
Fast drip	1000mls	10 l	240 l	87600 l



"A leaking tap can waste thousands of litres of water a year"

Factors to consider:

1000 litres of water costs R6.99 plus the sewage costs of R2.82 this makes R9.81 excluding VAT. This means a slow dripping tap will cost R65 per year excluding VAT and a fast dripping tap R860 per year excluding VAT.

Cost: R0

Payback: as soon as leaks are prevented

Requirements to meet criteria:

- Staff to be trained to identify leaks and report them to a person responsible for dealing with them.

Monthly monitoring of water consumption and trend plotting:

- Monitoring is the key to identifying water saving opportunities. Monitoring also identifies any water leakage. Simple overnight readings can identify base-flow or leakage. A portion of base-flow can be attributed to toilets and cooling towers (where applicable). These facilities should be inspected regularly to ensure minimum water usage and confirm that water is not being wasted.
- Installing sub meters can help you know how water is being used. On top of that one can monitor water saving procedures and see the result after making changes. The suggested locations for sub meters are:
 - Hot water supply
 - Kitchen
 - Cooling tower
 - Public amenities
 - Laundry
 - Outdoor areas
 - Pool
 - irrigation

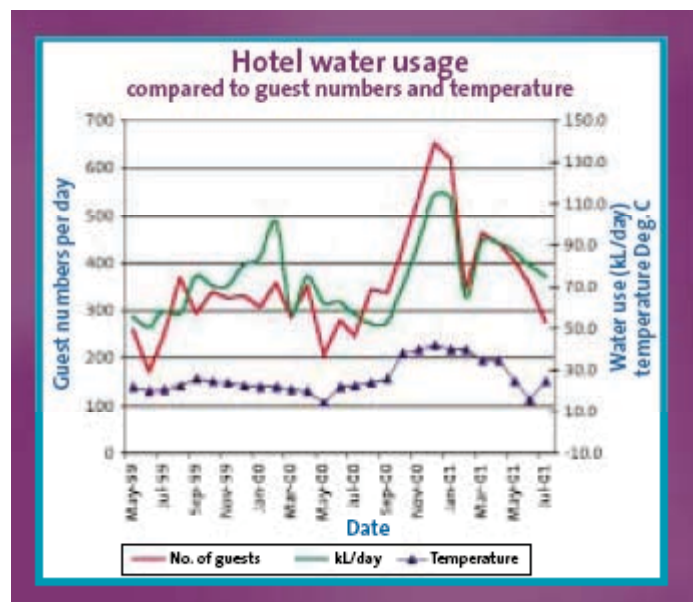
Application: in all hotels

Ease: 5/5

Availability: 5/5

Factors to consider:

To put a meter in for every one of the categories mentioned above would be very expensive as the piping will not be designed for having separate meters. Unless one is building a new hotel it makes sense to think about which areas can be optimised the most by monitoring them and getting information this way. Therefore it has to be looked at separately for every site.



It makes sense to log the data that one gets from the readings. It is advised to make a simple graph like the one shown below. The data should be displayed in a way that identifies change in usage patterns.

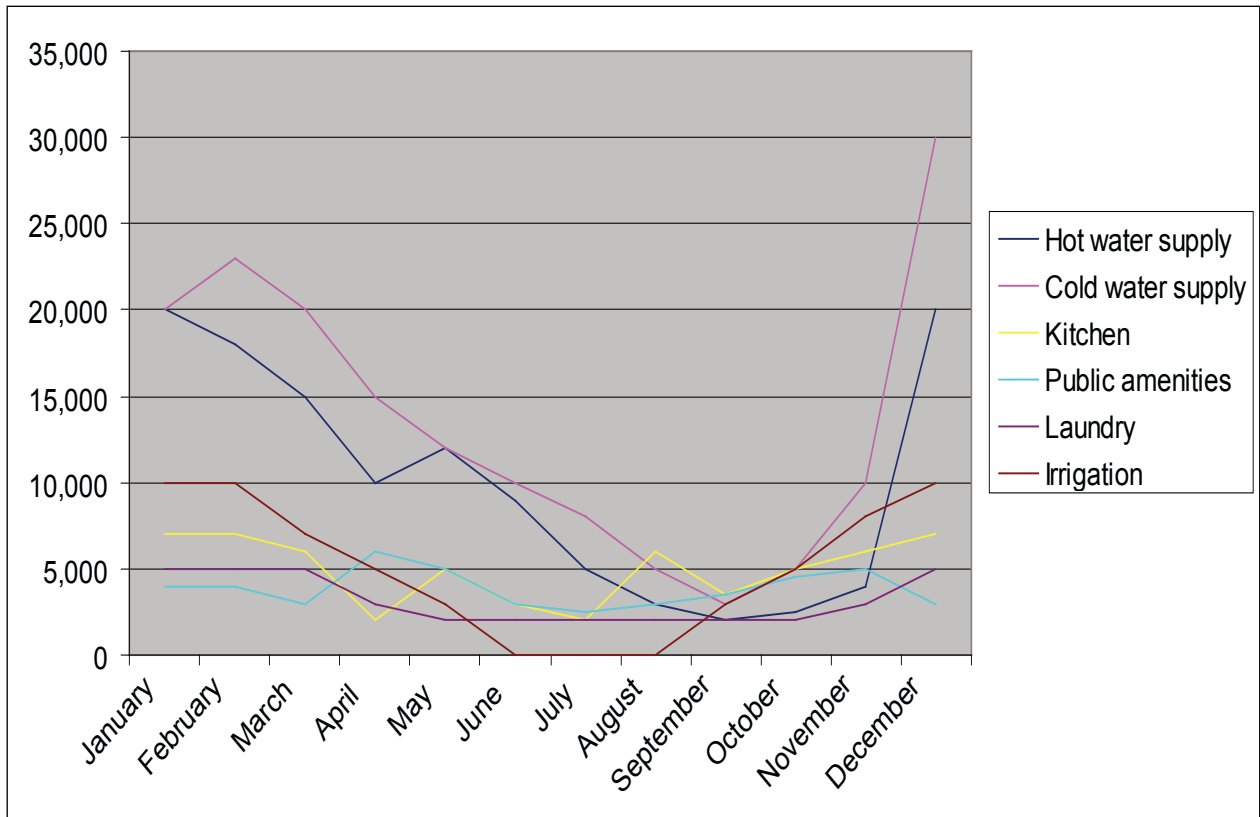
Cost: Basic water meters about R1500 installed

Payback: depends on saving potential or leak detection noticed through meters.

Requirements to meet criteria:

- Water meters have to be installed on at least 3 of the areas mentioned above.
- Monthly logging and analysis must be evident.

Logging example



Water-wise gardens, which encourages the planting of plants that are suitable for the specific area and don't require excess watering:

It is important to organise gardens carefully so that water saving can be maximised and maintenance kept low. The following points can help going into this direction:

- Group plants with similar watering needs as this helps to ensure they all receive the correct amount of water.
- Select local natives, and other water wise plants and lawns because they use less water, and require low maintenance
- Remember not to mow your lawn too short leave grass 2cm or higher and maintain this length by cutting only the top third of the leaf area in dry conditions, leave the clippings on the lawn to keep moisture in the ground.
- Use mulch around plants to help the soil retain water and reduce evaporation by up to 70%
- Spread mulch evenly up to 3-4cm deep to insulate roots from heat as well as reduce weed growth.
- Fine textured mulches are better at moisture retention than coarse textured mulches.

Application: in all gardens
 Ease: Depending on existing garden
 Availability: 5/5

Factors to consider:

Retrofitting

Cost: no extra costs just careful planning

Payback: save on irrigation



"Various means such as mulching, shade, efficient irrigation methods and hardscape surfaces can be used to make the established landscape, as well as a new landscape, more water efficient."

Efficient showerhead in all showers

Installing Low-Flow shower heads and faucet aerators is the single most effective water conservation savings you can do for your Hotel.

- Inexpensive and simple to install, low-flow shower heads can reduce your water consumption as much as 50%, and reduce your energy cost of heating the water also by as much as 50%.
- Water-efficient, or low-flow, showerheads are designed to provide an acceptable shower at a greater reduced flow rate. Many are equipped with a valve to switch the water off at the showerhead, to save water while shaving or lathering. Water-efficient showerheads should not be confused with the flow restrictors used in the 1970s and early 1980s, which simply reduced the flow rate far below design level, often resulting in an unacceptable shower.

Application: For all showers
Ease: 5/5
Availability: 5/5

Factors to consider:

Guest comfort must be maintained.

Cost: R150 to R500

Payback: in 3 to 5 months

Requirements to meet criteria:

- Water efficient showerheads (max flow rate 8l per minute) to be installed on all showers



"A low flow showerhead uses 6,3 litres of water per minute at 200 kPa"

By using an shower for 20 minutes per day one can save upto R2000 in water and electricity rates, 100 000 litres of water and 3000 kWh of electricity in just one year!

Efficient towel/linen laundry policy

The laundry can be one of the biggest consumers of both electricity and water in a hotel.

- Washing towels and linen every day adds up to a lot of laundry and is generally unnecessary if a guest is staying for more than one night. It is essential to make guests aware that they should leave the towel on the ground if they want them washed and hang them up if it is not necessary.
- Tell guests that they can ask staff at any time to change their sheets, therefore they will not be changed every day for long term guests. This has been done in many hotels in Europe and works very well, as long as guests are made aware so there is no confusion.
- Train staff in the new policy and how they inform guests. This will make the implementation easier and avoid uncomfortable situations or explanation procedures.

Application: in all hotels

Ease: 5/5

Availability: 5/5

Cost: minimal

Payback: immediately

Requirements to meet criteria:

- Policy has to be in place
- Guests have to be made aware through staff and information in rooms
- Staff to be trained to know about and deal with the policy



"Through awareness money and resources can be saved"

Waterless Urinals and dual flush toilets

- Every year billions of liters of precious drinking water are wasted in the flushing of urinals. As the name suggests, the waterless urinal operates with absolutely no water, at the same time exceeding all of today's hygienic needs. The one way traps or seals are at the core of the composite or vitreous china waterless urinals. Together they function to allow urine to pass into traditional sewer systems whilst blocking any unwanted smells rising back up the waste pipe without wasting valuable water.
- The amount of water used in public amenities is often overlooked. Toilets alone can account for 15% to 40% of the total water usage, depending on the type of system. Installing water efficient devices in public areas is very cost effective due to the number of patrons and the corresponding high ratio of usage to fixtures.
- Toilets should all have a dual flush system. The dual system works by allowing the user to choose between a light flush, usually three litres, and a longer six litre flush. This can save between 30% and 50% of water used.
- Alternatives to the dual flush system would be to reduce the volume of the cistern by placing a hippo bag into it or an other displacement item. Although this does not allow a full flush anymore and might result in having to flush a second time. This is only recommended for older cisterns which have more the 6 litres.

Application: in all public toilets
Ease: 5/5
Availability: 5/5

Factors to consider:

Considering that many people on this earth don't have any clean water at all, and all of us will have that problem soon if we don't look after our resources, it is a ridiculous thought that we flush this precious water down the toilet.

It is often possible to retrofit the one-way seal of the waterless urinal to existing units lowering the cost considerably.

Cost: R300 - R1500

Payback: 2 months to 1 year

Requirements to meet criteria:

- All public urinals must be waterless
- All toilets to have multi-flush and/or reduced cistern capacity.



"Older toilets use up to 15 litres per flush, which is not necessary. New dual flush toilets use 3 or 6 litres per flush, which is totally sufficient."