

WaterCheck™ WORKSHEET

WATER MANAGEMENT TOOL FOR HOTELS & TOURISM INFRASTRUCTURE

Responsible and sustainable water management is a critical concern for the global hospitality industry. With tourism growing in the Asia Pacific region, issues of water stress, water quality and water scarcity cannot be ignored.



EARTHCHECK

ECOLAB®

Everywhere It Matters.™

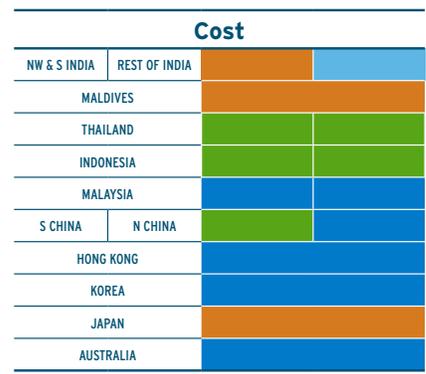


By 2030, 500 million international visitors will travel to the Asia Pacific region.¹ This boom in tourism, along with the impact of industrialization, pollution and global climate change, is placing significant stress on the area's water supply.

Tourism providers can improve their social license to operate while saving money when they **focus on sustainable water management**. A strong water management program can minimize your negative impact on surrounding communities, ensure regulation compliance and result in substantial cost and energy savings.

WaterCheck™ is designed to help you identify areas for potential improvement in your water management practices. Use it to discover hands-on solutions, strategies and plans for action. This tool will help you get a snapshot of your operation's water health profile, develop a water-focused action plan and define your goals.

¹The EarthCheck Research Institute has published two White Papers on Water in the Tourism Industry in the Asia Pacific region (2013 - EarthCheck 1st White Paper Tourism and Water; 2014 - EarthCheck 2nd White Paper Tourism and Water: From Challenges to Solutions)



■ Critical
 ■ Alarm
 ■ Moderate
 ■ Acceptable

Key dimensions of water stresses in the Asia Pacific region (Ecolab 2012 cited in Becken et al 2013)



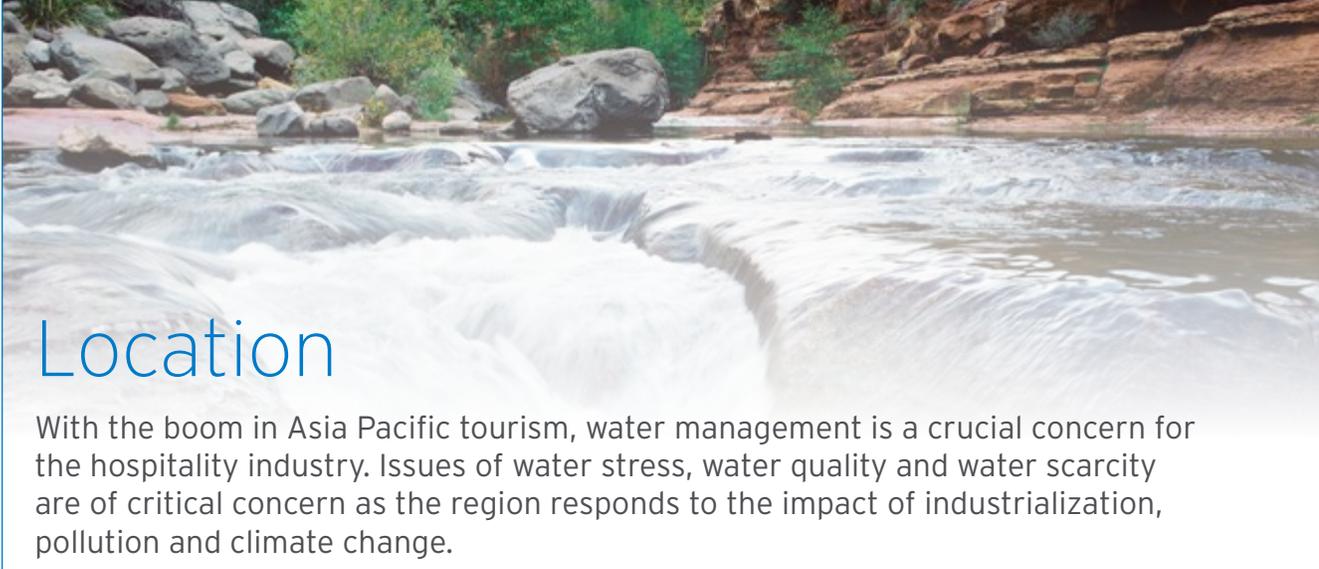
Water management is a wide-ranging topic, and it can be challenging to determine where to place your focus. The “WaterCheck™ Top 5” checklist is provided to guide you, as you review your water supply and consumption. Consider these five points as you get started.

To get started using this tool, identify a Water Champion and members of a supporting Water Team, and determine their interest in joining a green or blue team. Engage your employees in discussions about your operation’s water practices, and emphasize the value of improvement to individual team members—not just the operation as a whole.

Once the Water Champion and Water Team are established, work together to answer the following questions. Remember, developing a plan with your team rather than for your team creates ownership among employees and improves the likelihood of the plan being embraced.

WaterCheck™ Top 5

- 1. Sustainability:** Has your organization recognized the need to address sustainability?²
- 2. Policies and plans:** Do you have a policy and a plan that identifies water as a potential business risk?
- 3. Support:** Do you have a blue or green team that can support the design, implementation and monitoring of a water management plan?
- 4. Measurement:** Do you have water meters? If not, consider installing them, including sub-meters. Measurement promotes sound management.
- 5. Visual inspection:** Go for a walk around your property. Consider all the areas where water is an absolute necessity to the operation of your business. Identifying potential risks often inspires action.



Location

With the boom in Asia Pacific tourism, water management is a crucial concern for the hospitality industry. Issues of water stress, water quality and water scarcity are of critical concern as the region responds to the impact of industrialization, pollution and climate change.

	Y	N	ACTION OWNER
Are you located in a water stressed area? (Mapping tools such as the World Resources Institute Aqueduct website can assist in identifying the level of water stress. See here: http://www.wri.org/our-work/project/aqueduct/aqueduct-atlas)	<input type="radio"/>	<input type="radio"/>	<i>Blue Team</i>
Do changing seasons drastically affect your potable water supply?	<input type="radio"/>	<input type="radio"/>	<i>Blue Team</i>
Is the water used by your business also accessed by local communities?	<input type="radio"/>	<input type="radio"/>	<i>Blue Team</i>
Are there waterborne diseases identified in the region where your property is located?	<input type="radio"/>	<input type="radio"/>	<i>Department Head</i>
Do you test the quality of your water supply? (Worksheets such as those available from Ecolab, can assist in testing for water quality. See ecolab.com)	<input type="radio"/>	<input type="radio"/>	<i>Engineering</i>
Do you harvest and use rainwater?	<input type="radio"/>	<input type="radio"/>	<i>Engineering</i>
Do you reuse your greywater?	<input type="radio"/>	<input type="radio"/>	<i>Engineering</i>
Do you have an onsite wastewater treatment facility?	<input type="radio"/>	<input type="radio"/>	<i>Engineering</i>

Click here to go to [Action Plan](#)

Water Tips

- The disconnect between water’s market price and risk makes it hard for businesses to make the business case to invest in effective water strategies to protect against water-related business challenges. This disconnect also makes decisions about where to locate or expand operations more difficult to make. In order to make more informed, responsible decisions about water use, businesses need to better understand the impact and associated costs of water-related risks at the site level, as well as the broader implications of business operations to the surrounding community, and water-related business risks in the supply chain.
- The Water Risk Monetizer is an easy-to-use tool to help businesses assess water-related risks in financial terms based on existing information about current water use and activity projections at individual facility and enterprise levels. For more information, visit www.waterriskmonetizer.com.

This worksheet is not intended to be a comprehensive water conservation planning tool. It is only intended to help identify water-related business risks and evaluate best practices.



Infrastructure

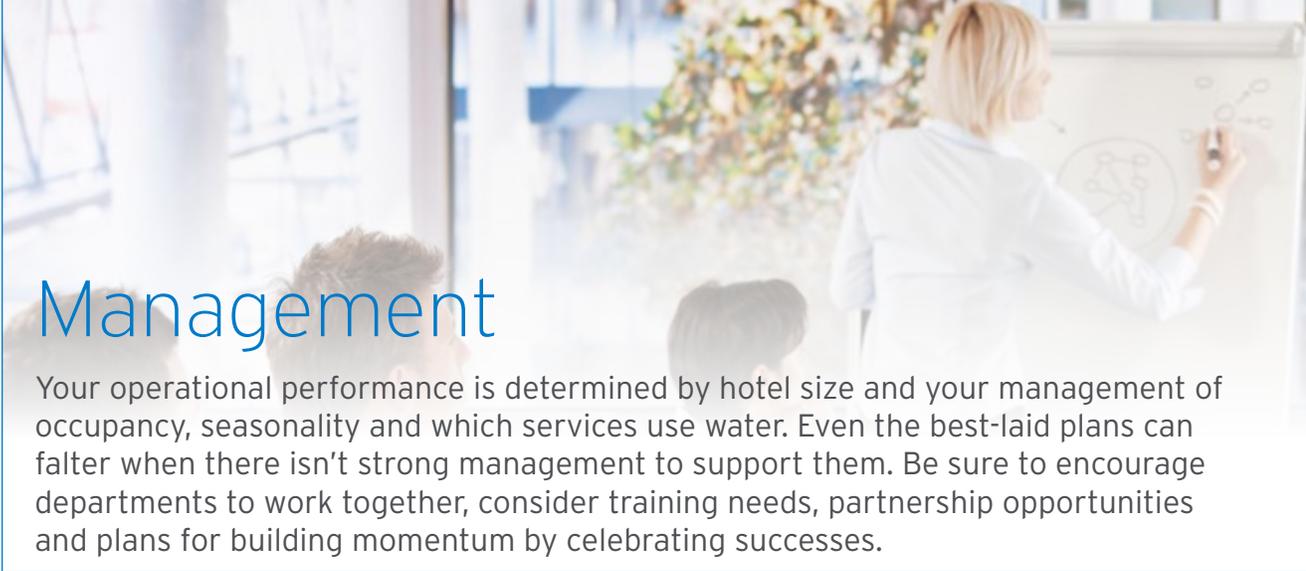
Understanding your hotel infrastructure is a critical factor in your ability to effectively manage your water use. Map out key services and facilities that use both potable and untreated water. Consider your overall water consumption by asking yourself and your team these questions about your operation:

	Y	N	ACTION OWNER
Are water meters installed across your hotel to better understand the normal consumption patterns?	<input type="radio"/>	<input type="radio"/>	Engineering
Do you provide each department with a mini water audit checklist and a communication sheet to foster understanding by staff?	<input type="radio"/>	<input type="radio"/>	Blue Team
Can you trace water use over time?	<input type="radio"/>	<input type="radio"/>	Blue Team
Can you map consumption and cost against industry averages to benchmark your performance?	<input type="radio"/>	<input type="radio"/>	Blue Team
Can you calculate water used per guest night?	<input type="radio"/>	<input type="radio"/>	Blue Team
Have you measured your shower head flows and bathroom taps?	<input type="radio"/>	<input type="radio"/>	Engineering
Do you regularly monitor toilet flows for leakages?	<input type="radio"/>	<input type="radio"/>	Engineering

Click here to go to [Action Plan](#)

Water Tips

- You can only effectively manage what is measured. If you do not have water meters, consider installing this critical piece of water management infrastructure as one of your first priorities to achieving effective water management. Water meters and sub-meters installed in specific areas of your property offer you the ability to track water loss or excess water use attributable to specific infrastructure, which can result in significant savings.
- Cooling towers, if present, can account for the most water use in a hotel. Calculate and understand “cycles of concentration” in your cooling towers. Work with your cooling tower water treatment specialist to maximize the cycles of concentration. Increasing cycles from three to six reduces cooling tower make-up water by 20% and cooling tower blowdown by 50%.
- Install a conductivity controller to automatically control blowdown. A conductivity controller can continuously measure the conductivity of the cooling tower water and discharge water only when the conductivity set point is exceeded. Install flow meters on make-up and blowdown lines. Check the ratio of make-up flow to blowdown flow. Check the ratio of conductivity in blowdown and make-up water. These ratios should match your target cycles of concentration. If both ratios are not about the same, check the tower for leaks or other unauthorized draw-off.



Management

Your operational performance is determined by hotel size and your management of occupancy, seasonality and which services use water. Even the best-laid plans can falter when there isn't strong management to support them. Be sure to encourage departments to work together, consider training needs, partnership opportunities and plans for building momentum by celebrating successes.

	Y	N	ACTION OWNER
Do you have a water management plan in place?	<input type="radio"/>	<input type="radio"/>	Blue Team
Have you investigated what rebates (Local, Regional, National) may be available to offset equipment or technology upgrades?	<input type="radio"/>	<input type="radio"/>	Blue Team
Do you provide capacity building and training to all staff and suppliers in relation to water management?	<input type="radio"/>	<input type="radio"/>	Blue Team
Do you celebrate your water savings successes at regular intervals?	<input type="radio"/>	<input type="radio"/>	Blue Team
Do you actively seek out community and commercial opportunities to collaborate on water management initiatives within your local area or region?	<input type="radio"/>	<input type="radio"/>	Blue Team
Have you considered win-win outcomes from saving water and energy at the same time?	<input type="radio"/>	<input type="radio"/>	Blue Team

Click here to go to [Action Plan](#)

Water Tips

- If no rebate or incentives exist around water management within your area or region, consider gathering other business owners to lobby the local legislature for policy change.
- There are many instances where properties can use captured rainwater runoff and AHU condensate for cooling tower make-up. In some cases, if the property has on-site wastewater treatment, membrane bioreactors can be installed to treat all sewer water from a site. The treated water can then be used for cooling tower make-up.
- When making the business case for water conservation, always consider the value of embedded energy. For example, considering the relative unit costs for water and energy in Bangkok, a cold-water no-rinse floor cleaner that reduces warm water use can deliver over five times more cash value in energy savings than in water savings.
- Education and training of staff, including inviting their participation in the development of your action plan, can result in greater ownership of changes in operational practice. Staff training is ranked as one of the most popular management strategies implemented to help manage water use.
- Sharing your management techniques and success in improved water use techniques with customers can deliver longer term, and unpaid marketing opportunities for your property through your customers sharing your achievements.

This worksheet is not intended to be a comprehensive water conservation planning tool. It is only intended to help identify water-related business risks and evaluate best practices.



Audit

From your bathrooms and your kitchens to your laundry and your swimming pools, the opportunities for water savings across your operation are plentiful.

BATHROOMS	Y	N	ACTION OWNER
Have you installed low/dual flush toilets, low flow tap/faucet flow restrictors or fittings, or low flow shower fittings?	<input type="radio"/>	<input type="radio"/>	Engineering
Have you installed waterless urinals or low flow urinals with time delay or movement sensors?	<input type="radio"/>	<input type="radio"/>	Engineering
KITCHEN			
Have you installed low flow tap/faucet flow restrictors or fittings?	<input type="radio"/>	<input type="radio"/>	Engineering
Are water efficient dishwashers in use?	<input type="radio"/>	<input type="radio"/>	Engineering
LAUNDRY			
Have you considered smart technology options for the laundry to reduce heating and water use?	<input type="radio"/>	<input type="radio"/>	Engineering
EXTERIOR			
Does your operation have minimal irrigation landscaping?	<input type="radio"/>	<input type="radio"/>	Department Head
Do you collect rainwater in collection tanks for use in landscaping irrigation (where permitted)?	<input type="radio"/>	<input type="radio"/>	Engineering
Do you have measures in place to minimise evaporation from water features (e.g. fountains and waterfalls) on your property?	<input type="radio"/>	<input type="radio"/>	Department Head
Have you considered the use of swimming pool blankets to reduce evaporation?	<input type="radio"/>	<input type="radio"/>	Engineering
Have you explored improving the filtration systems for swimming pools?	<input type="radio"/>	<input type="radio"/>	Engineering

Click here to go to [Action Plan](#)

Water Tips

- For additional guidance that can result in water use efficiency, visit www.energy.gov/eere/femp/best-management-practices-water-efficiency.
- For a comprehensive listing of best management practices for a range of properties, visit www.epa.gov/watersense/commercial/docs/watersense_at_work/.



Water Quality

Water quality is a major concern for guests, and issues with contamination can have serious consequences.

	Y	N	ACTION OWNER
Have you implemented a regular maintenance schedule?	<input type="radio"/>	<input type="radio"/>	Department Head
Do you monitor potable water for microbial activity?	<input type="radio"/>	<input type="radio"/>	Department Head
Do you have a Waterborne Pathogen plan? ³	<input type="radio"/>	<input type="radio"/>	Department Head
Does the Waterborne Pathogen plan make reference to potable water?	<input type="radio"/>	<input type="radio"/>	Department Head
Do you track room rotation?	<input type="radio"/>	<input type="radio"/>	Department Head
Do you have a protocol to flush water in vacant rooms?	<input type="radio"/>	<input type="radio"/>	Department Head
Do you have a program to test for the presence of pathogen bacteria <i>legionella</i> in your water?	<input type="radio"/>	<input type="radio"/>	Department Head

Click here to go to [Action Plan](#)

Water Tips

- In greywater reuse systems, the water is generally high in phosphates hardness and silica, which will reduce the number of cycles of concentration that can be maintained in the cooling tower system, without additional cooling water treatment.
- When managing cooling towers, the actual number of cycles depend on make-up water quality and cooling tower water treatment regimen. Depending on make-up water quality, treatment programs may include corrosion and scaling inhibitors along with biological fouling inhibitors.
- To reduce water use, incoming and pool water quality should determine the backwash frequency of Pool and Spa, instead of using a fixed schedule.

³More infrastructure, process and audit actions are available at ecolab.com.



Behaviours & Practices

Experience shows that no single water management measure will offer a total solution—a diversified water-saving approach is needed. Behavioural change, through the education of staff and customers, is a major component of this approach.

KITCHEN	Y	N	ACTION OWNER
Do staff, and in particular kitchen and cleaning staff, practice water efficient practices such as not defrosting or preparing food under running water?	<input type="radio"/>	<input type="radio"/>	Department Head
Are staff instructed to pre-soak soiled utensils before cleaning to reduce water use in cleaning?	<input type="radio"/>	<input type="radio"/>	Department Head
Is there a practice to run the dishwashers when there is a full load whenever possible?	<input type="radio"/>	<input type="radio"/>	Department Head
LAUNDRIES			
Is there a practice to run the washing machines when there is a full load whenever possible?	<input type="radio"/>	<input type="radio"/>	Department Head
Are any temporary holding tanks used for washing cycles reviewed periodically?	<input type="radio"/>	<input type="radio"/>	Department Head
EXTERIOR			
Do staff sweep outside areas instead of washing them down?	<input type="radio"/>	<input type="radio"/>	Department Head
Are water meters specific for swimming pools read first thing in the morning and last thing at night to monitor leaks and usage?	<input type="radio"/>	<input type="radio"/>	Department Head
Is swimming pool backwash completed daily?	<input type="radio"/>	<input type="radio"/>	Department Head
Could swimming pool backwash be less frequent, completed every second or third day?	<input type="radio"/>	<input type="radio"/>	Department Head
Are landscaped areas watered only at night?	<input type="radio"/>	<input type="radio"/>	Department Head

Click here to go to [Action Plan](#)

Water Tips

- In the Kitchen:** Use effective prewash chemistries like presoaks to reduce the use of water in prewash steps. Minimize dishwasher use with efficient racking and one-pass cleaning. Switch to low-flow spray valves and aerators; replace machine rinse jets and arm assembly. Use cold water, no-rinse floor cleaners like Ecolab's Wash 'n Walk™, which saves the average kitchen 5,500 gallons of water per year⁴.
- In Laundry:** Fill washers to proper load level. Reduce water usage on under-filled loads. Repair broken machine drain valves. Use proper stain management to help avoid rewash. Titrate each laundry cycle to avoid extra rinses. Eliminate "flushes" as there are seldom water-soluble soils in hospitality laundry. Water treatment with conditioners and sours help make washes more efficient, reducing water use. Ecolab's Optimized Low Temp Chemistry, combined with the Smart Wash Process, reduces wash steps, water usage and water temperature. Reduces water and energy use by up to 40%.

⁴No-rinse formula saves 10-20 gallons of water per application.



Action Plans

Action Plan Responsibilities

Review your answers to the previous questions, paying particular attention to the “no” responses. Each of these represents a potential for action. While reflecting on possible changes, discuss the following questions with your team:

- Where did you identify areas for potential improvement?
- Where did you identify potential risks?
- Do you need to budget for any infrastructural changes?
- What behaviours need to change in order to generate a business-wide reduction in water usage?

Click here to go to [Goal Setting](#)



Action Plan Responsibilities

Consider the Action Plan questions using the table below to generate an action plan, allocating responsibility to team members and other staff in the business.

In completing these tables, other water management issues may arise. Add these to your Action Plan where appropriate.

LOCATION

INFRASTRUCTURE

MANAGEMENT

AUDIT

WATER QUALITY

BEHAVIOURS & PRACTICES

Click here to go to [Goal Setting](#)



Goal Setting

Action Plans

Setting goals is a useful way to achieve positive changes in your water management practices. As you develop your action plans, please consider them in the context of the short, medium and long-term water efficiency goals established at the enterprise level for your business. And remember, while long-term goals frequently require capital investment, infrastructural changes often result in significant long-term savings.

Tips

- Establish property level water use goals (either absolute volumes or intensity per guest night) that align with your corporate enterprise goals.
- If you have a full-service property, consider goals for individual departments (food and beverage, pool and spa, laundry, etc.).
- Engage with other community stakeholders who share your water source, to align your property goals with local needs and expectations.

Next Steps

- Develop and implement your water risk management strategy at the property level.
- Engage with your strategic suppliers to optimize the use of water and associated embedded energy.
- Measure and track your performance against that of peers and best-in-class benchmarks.

Contact your Ecolab or EarthCheck representative and learn more: visit www.ecolab.com and www.earthcheck.org