

RENOVATING FOR HOPE

9 Step Guide to Making your Home more Water Efficient



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About Eco Abode

At Eco Abode, we believe Sustainable Design is not only in the terms of its Environmental benefits, which are highly significant, but also because Green Homes are extremely advantageous for everyone.

We firmly believe that you don't have to spend lots of money to guarantee you with the most efficient home. Instead, with the right design, right selection of materials, fittings and appliances you can build an Eco Home without being over budget.

We will always continue to design sustainable extensions and new homes because we believe in Protecting the planet that sustains us.

Join us in making every home more Water Efficient and forwarding this guide along to all your family and friends.

Warm Regards

The Eco Abode Team

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The Importance of Water

Humans, animals, plants, fishes and every other living thing on mother Earth needs water to survive.

How we need water

Us humans can live several weeks, some even months without food, but we can only survive a few days without water. Drinking water and other liquids provide about half of our daily water needs. The other half of our water needs come from the foods we eat.

The water we drink and use everywhere has been here since the earth originated. The water in the vegetables and fruits we eat can contain the molecules formed in the Earth from the bones and flesh of the animals that lived on Earth billions of years ago.

Did you know that only 1% of water that is available on Earth is fresh water even though three quarters of the earth's surface is covered in water? 2% of fresh water is locked in ice glaciers and the rest 97% is too salty for human and animal consumption.

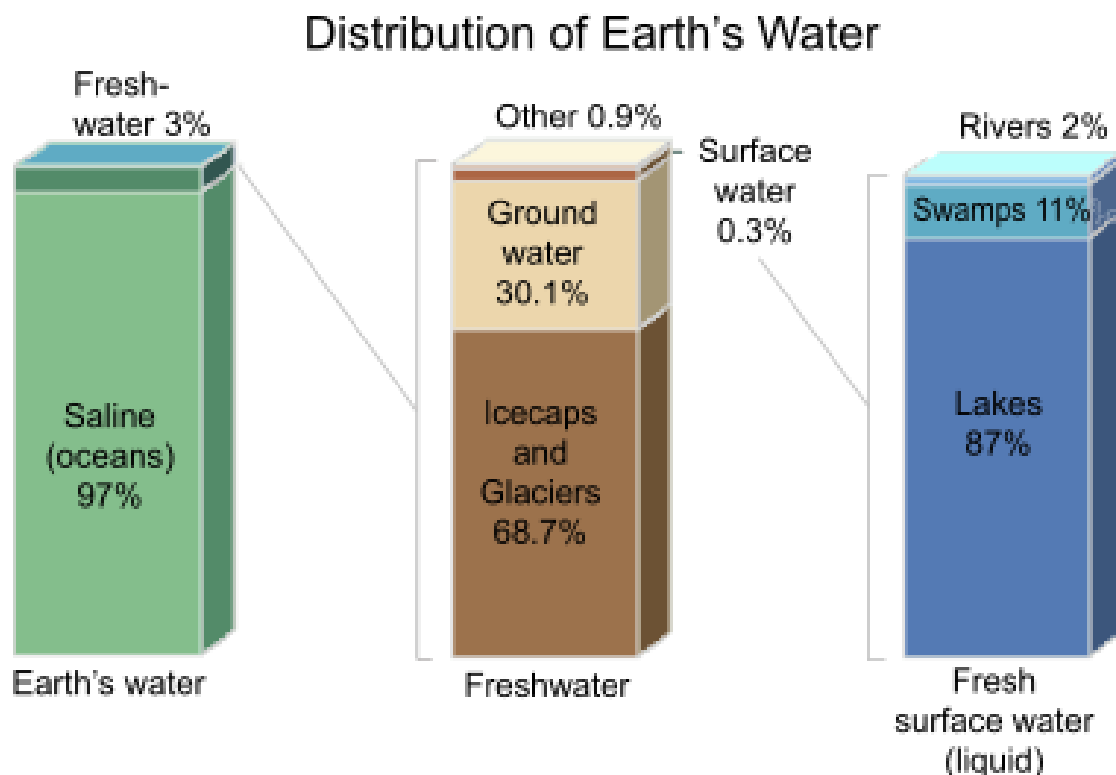


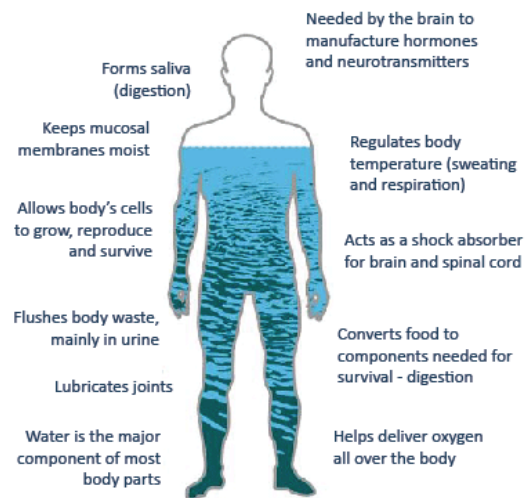
Image Source - <https://www.e-education.psu.edu/earth103/node/701>

Every system in our body needs water to function.

- 25% of our bones are water
- 83% of our blood is water
- Water helps in transporting body wastes
- Water helps in lubricating our joints
- Water stabilizes our body temperature
- Every cell in our body contains water

Image Source - https://www.usgs.gov/special-topic/water-science-school/science/water-you-water-and-human-body?qt-science_center_objects=0#qt-science_center_objects

What Does Water do for You?



The Hydrologic Cycle

All our fresh water recycles continuously. This water is what sustains us. The hydrologic cycle uses, purifies and reuses water in an endless cycle. We have no new supply of fresh water. It is this cycle that cleanses and recirculates our fresh drinking water. The hydrologic cycle can only do so much to purify water. We compromise this natural cycle when we waste and pollute our limited water supply. By reducing the way we use our water and also reducing our pollution footprint we help the hydrologic cycle do its purification process and protect our resource. The life sustaining resource – WATER

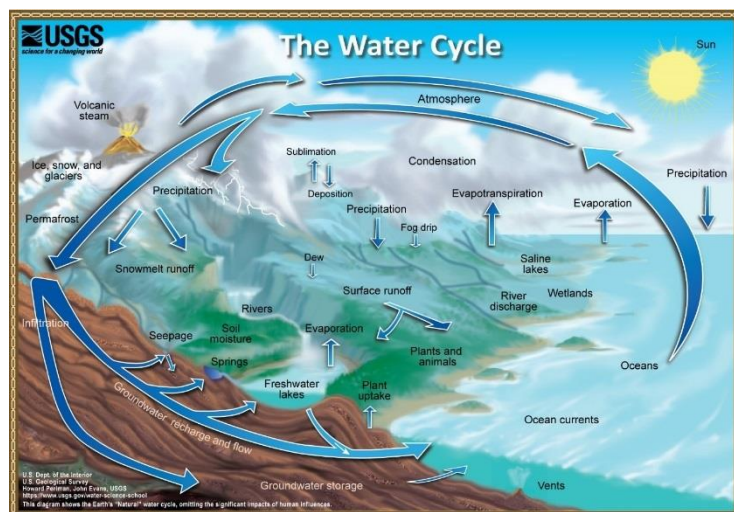


Image source - <https://www.usgs.gov/media/images/water-cycle-natural-water-cycle>

Water Use in Western Australia

From watering the lawn to flushing the toilets we are using the water faster than anything. Australia is the highest user of water per person in the world, despite being the driest inhabited continent (<http://www.blueplanet.nsw.edu.au/water-facts/.aspx>). Half of our water use is unnecessary and sometimes even wasteful. Leaking taps, running water whilst washing dishes and lathering soap, excessive watering of the lawn leads to our high consumption rates in the residential sector.

Did you know that we have lots of opportunities to reduce the way we use water? We can lower our water bills. We can make better use of waste water infrastructure and our water treatment facilities. We can protect our Water.

Water worries

There is no doubt that Australia has very little water. 70% of land is dry. Western Australia currently sources its water supply from groundwater, groundwater replenishment, desalination and our dams (surface water). (<https://www.watercorporation.com.au/home/education/students/water-supply>).

Water taken from ground water and dams may not be returned to those sources after we have used it. Our ground water sources are very vulnerable. The deeper the aquifer (groundwater source) the longer it will take to refill it. This can take from a few years to thousands of years. This in return depletes the natural source over time.

Reducing our water use and protecting our underground aquifers from pollution will help safeguard a clean and fresh supply of water.

Demand for water

In Western Australia we treat our water to a very high standard to make it potable. We use at least 550GL of water per year. (https://www.water.wa.gov.au/___data/assets/pdf_file/0016/8521/110200.pdf). Households, industries and other minor users use this water. Households use more potable water than any other sector in Western Australia and water wastage is the reason why.

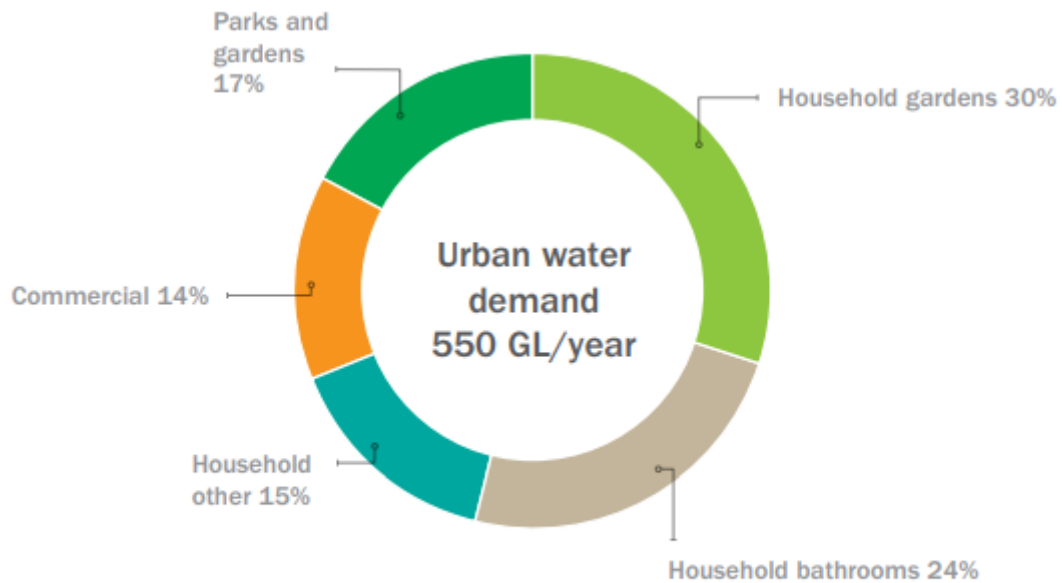


Figure 2 | Proportion of urban water uses in Western Australia

Image source - https://www.water.wa.gov.au/_data/assets/pdf_file/0016/8521/110200.pdf

Peak Demand during Summer

For Australia, the hot, dry and long days of summer always lead to peak water use. Summer is when we water our gardens and lawns, wash our cars and fill up the swimming pools. All these use up our precious water.

Although our personal water use has declined over the years individually, our growing population increases water usage and treatment requirements. Due to the increased water treatment requirements, significant costs are imposing onto our councils. Which in turn increases our water rates. By consuming our water more resourcefully, we can help contain these costs.

9 Steps to Water efficiency in our Homes

Reducing the volume of water, we use in the house doesn't have to be hard. It's easily done by making small changes in the way we use water. When we save water, we save money too. Repair leaks, replace faucets and fixtures and appliances with water efficient ones when needed. Being water efficient reaps us many rewards.

STEP 1 - The 4 R's of water efficiency in your home

- **REDUCE**

Be more conscious of how much water you consume and look for ways to use lesser. Don't run the taps unnecessarily. When only needing a small amount of water don't open the tap fully. Take shorter showers. Fill the sink when washing the dishes instead of running the water.



- **REPLACE**

When replacing older appliances choose water efficient appliances. Ensure your appliances are WELS approved. The more stars the appliance has, the more efficient the appliance. For more information here is a link to WELS - <https://www.waterrating.gov.au/>

- **REPAIR**

Stop the leaks. A leak of one drop a second for a whole year equals to 10,000 litres of water. 10,000 litres can supply you with one years' worth of water to cook with. Many leaks care easy to repair by changing either the washer or cartridge.

- **REUSE**

Consider reusing your water. Reuse the water from doing your dishes or your laundry to water your garden and lawns too. Use it to flush the toilets too. Collecting rainwater from the roof of your home is another way to save our potable water.

STEP 2 – Test for Leaks

The best first step to improve the water efficiency of your home is testing for leaks. Leaks waste a lot of water. They are often undetected for a long time.

When inspecting all of your fixtures and appliances that use water, ensure the house is quiet and there is no water being used. Look and listen for leaks in the laundry, bathrooms, powder rooms and kitchens. Check your water meter regularly. Record your water meter reading last thing at night after everyone is asleep and the next morning before anyone wakes up and uses the water. Compare the readings and if they differ something used water at night. There could be a leak that is undetected.



Dripping taps are easy to identify and repair, but some leaks such as toilets are hidden and difficult to find. If the toilet fills occasionally and hasn't been used it may mean you have a leaking toilet flapper or even a leaking fill valve in the tank. Sometimes it may not refill but there could be ripples in the toilet bowl which means there is a leak somewhere.

If the flapper leak is small it may not be noticeable, but can still test it. Add some food colouring to the tank water and let it sit for a few hours (do not flush). If there is colour in the bowl that means that the flapper is leaking. Toilet flappers are easy to fix. Ensure that you use the right flapper otherwise there could be an even bigger leak.

STEP 3 – Water Efficiency in the Bathroom

Bathrooms are where we use almost half of our water. This is a good place to start saving.

- **Toilets**

If the toilets in your home are old then they usually use 13- 20 litres of water. Newer toilets use 6l or less. A WELS 3-star toilet uses about 6 litres but a 4.5-star toilet uses about 3 litres.

(2019)

Comparing water consumption for water efficient toilets

13 litre toilet – 5 flushes/ day – 23,725 litres/ year

6 litre toilet – 5 flushes/ day – 10,950 litres/ year

3 litre toilet – 5 flushes/ day – 5,475 litres/ year



5-star Caroma toilet

- **Showers and Baths**

Usually showering uses less water than taking a bath. This is determined by factors such as shower head flow, size of the bath tub and how we bathe. A typical 8-minute shower using a 9 litre per minute shower head will use 72 litres per person. An inefficient showerhead can use more water. A full bath uses approximately 150 litres depending on the bath size and how much you fill it up.



4-star Methven Shower head
(Model: 13-3246)

A standard showerhead in Australia typically uses 9 litres per minute whilst there are other products out there that use only 5 litres per minute. Some of these products not only save water but also the energy needed to heat them up. Here is a link on understanding how WELS rates their showerheads.

<https://www.smartwatermark.org/WELS/showers/>.

Switching from a standard showerhead to a 4-star WELS rated showerhead can save a family of 4 about 58,000 litres of water in a typical 8-minute shower.

How to Measure the flow rate of your showerhead

1. Set your tap/ mixer to the position you normally use and turn on the shower
2. Hold a container under the showerhead for 6 seconds and then remove it
3. Measure the volume of water collected with a measuring cup
4. Multiply the volume of water you collected by 10 (to get a 60 second flow rate)
5. If your showerhead has a flowrate of more than 7.5 litres per minute you would want to replace the showerhead with a good WELS rated model.

Make additional savings by using a trickle switch. I found one at Bunnings the other day - https://www.bunnings.com.au/flexispray-chrome-trickle-switch_p5001170.

STEP 4 - Water Efficiency in your kitchen



We use about 15% of water in the kitchen. Most of it is used for cooking, drinking and sinks. This sort of usage requires a certain capacity of water and will not be affected by the flow rate of the tap. However, the flow rate of water can be adjusted when washing hands, rinsing fruits and

vegetables or even washing utensils. You can also install an aerator that will reduce the flow rate and increase the pressure of water.

Dishwashers are usually connected to the hot water tap. Ensure that it has been WELS rated and load it fully before running it to maximize your efficiency. A standard sized residential dishwasher should use no more than 16 litres of water per cycle, this is less than filling up a standard kitchen sink (18 – 20 litres). A 3-star dishwasher uses about 12 litres of water per cycle, whilst a 6-star dishwasher uses about 9 litres of water per cycle.

If you wash your dishes by hand, partially fill both sinks with water. Use one sink for soaping and the other for rinsing. If there is only one sink available, place the soaped dishes on the dish rack and rinse them at the end of the wash.

Other ways to reduce water wastage is to keep drinking water (covered) in the refrigerator to keep it cool instead of running the tap and waiting for cooler water to come through.

STEP 5 – Water Efficiency in your Laundry



Front loaders are more efficient than top loaders.

When buying your new machine, consider the amount of clothes you wash in a cycle. Most front-loading machines can automatically adjust the water level based on the size of the load. If you have a machine that doesn't adjust the water level to the load, be sure to fill it up full before running it.

A top rated 5-star eco washing machine would use approximately 50 litres per wash of 7kgs whilst a 3-star washing machine uses approximately 90 litres per wash of 7kgs.

Do your research before you buy and ensure that your machine fulfills your needs as a family.

STEP 6 – Water Efficient water heating systems

One of the ways we waste water in our home is when we run water till the hot water arrives at taps and showers. The pipes in our homes are always full of water and if we don't use water for 10 minutes, the water cools down to the surrounding temperatures. When turning on the shower and waiting for the hot water to arrive the rest of the water goes down the drain. Also, when the hot water initially enters the pipes, the initial hot water cools down whilst heating up the pipes. Hence, we waste a lot of water just for it to arrive at the shower or even the sink.

So, what can we do about all this water going down the drain?

- Collect it all and reuse it in the kitchen or garden.
- Install an 'on demand hot water recirculation system. These systems pump water between the hot water pipes and cold-water pipes under the sink. They are convenient and increase comfort too. An 'on demand hot water recirculation system can save about 40,000 litres a year that goes down the drain as a family would wait for the hot water to arrive at the taps. There are 2 systems available. One can be retrofitted to existing plumbing and the other needs to be pre planned for when building your home.



You can search for all plumbing products and their WELS star rating here -

<https://wels.agriculture.gov.au/wels-public/action/search-product-load?search=true>

STEP 7 – What goes down the drain?

Ever noticed what you wash down the drains? Paint, turpentine, other chemical cleaners, motor oil, even cooking fat can all damage your drainage system. These additions to your waste water are difficult and even sometimes impossible to remove at the sewerage treatment plants and even your septic tanks. This in return can harm the aquatic environment that the water is returned to.

So why are these products dangerous?

These products kill the bacteria that help in breaking down the organic matter in the sewage. The treatment process gets brutally weakened without these bacteria. The council waste water treatment plants can't remove many of these chemicals and they remain in the water when they are returned to the water source.



Switch to environmentally friendly cleaning products and we can reduce the burden caused by the chemicals to our water. Check with your council where your nearest household hazardous waste depot is to dispose of the chemicals and products like paint, turpentine and motor oils.

STEP 8 - Water efficient Landscapes



It is wholly possible to form stunning useful outdoor living spaces that echoes your personal style whilst being water efficient. It's all about understanding the landscape. It's about making the right choices for the land around your home. Forming and maintaining water efficient and beautiful

gardens and lawns would not be a lot of work if you understand and consider the natural conditions of the land around your home when planning the landscape.

Sometimes traditional landscapes can generate an endless battle against different conditions, there could be a weed infestation or insect damages, drainage problems or lawns that just wouldn't grow. By growing plants that thrive in the various conditions that exist around your home and working with the way nature blows, form a dynamic water efficient landscape that is beautiful and aesthetic. Best of all it's easier to maintain.

Site Conditions



It is important to know how the landscape works. Understanding the different areas of your yard and how nature functions with it makes a big difference in what you plant in those areas.

The areas of the yard that are exposed to direct sunlight and wind would need a lot more water than the shaded areas of the yard. Did you know that a shaded area can be at least 10 degrees cooler than an area exposed to full sunlight? As a result, there will be less water loss from the shaded area due to evaporation. Low water species of plants can survive in hot and dry areas. Similarly, there would be different species for different types of conditions.

Knowing how the water moves around your yard makes a difference too. This helps you make the best use of the rain water and ground water to water your plants. Gullies and slopes all direct the flow and collection of the water on the land. Water streams down slopes and gathers in low-lying areas whilst leaving the higher areas dry. By understanding and acknowledging in the landscape

design the water conditions around your home you can reduce the amount of water used to water your landscape.

Advantages of a water efficient landscape

- Visually attractive landscapes can be designed and planted as there are many different plant species out there to create a variability.
- They are cheaper and easier to maintain
- Plants are matched to the surroundings of your home so they can grow without the excessive watering
- Plants are more resilient to weeds, insect invasion, and diseases
- Areas that are difficult to grow anything (like slopes) can be designed into beautiful landscapes
- Create a natural oasis in your yard. You could grow plants that attract birds and butterflies.

Preparing areas for planting

Before planting, determine the state of the soil to comprehend which plants to plant and what their watering needs will be. Sometimes the soil on the land can differ from one area to the other. Select appropriate plants, trees and shrubs to suit the area. Ensuring a healthy and vibrant surrounding.



Adding organic matter, like manure and compost will help your land absorb and hold water whilst regulating soil temperature. If the soil holds some water and keeps a cooler temperature, then the plants can withstand the hot and dry weather without watering too much. One of the best organic matter is home compost if you have enough of it. A natural fertilizer like sheep manure or mushroom compost can do as well.

Group plants by their watering needs so you can provide adequate water to them. Ask your local garden experts for advice.

Use trees and shrubs as wind breakers and shaders. Use them to form beautiful fences to separate you from your neighbour.

Lawns

Lawns are very high maintenance. They require regular weeding, mowing and watering to stay green and healthy. Therefore, water efficient landscapes have a very minimal lawn area and some have none. Hence keeping smaller lawns frees up a lot of water, less mowing and creating stunning yards gives the homeowner more time and lovely space to enjoy.

Certain grass varieties flourish during hot, dry summers and cold winters, whilst other species are healthier where temperatures are more moderate all year round. Most new varieties of grass need less fertilizer and have a better resistance to pests. The best way to regrow your lawn is to speak with a specialist and find a variety of grass right for the conditions around your yard.

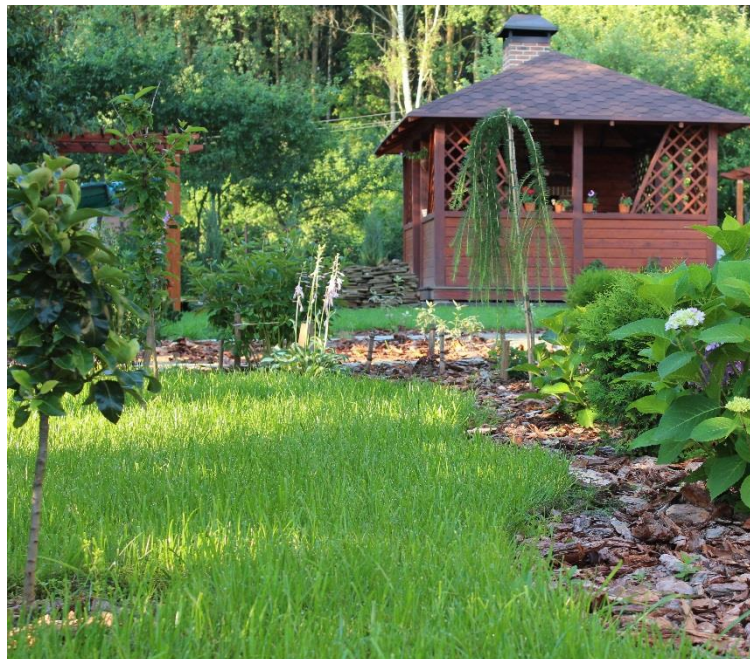
There are other plants that could cover lawns in lieu of grass, such as fairy fan flower or snake vine, climbing guinea flower and many more. There is a search tool available on the water corporation website for water wise plants - https://www.watercorporation.com.au/save-water/waterwise-plants-search?qclid=Cj0KCQiAgKzwBRCjARIsABBbFuhP-L7v0Z0pJxGlo8be3D3KzG-nltLNmlslKt6uuoSb1q2W-7d-TF4aAq-JEALw_wcB

For larger landscapes, native plants are amazing alternatives to lawns. They attract birds and butterflies and are visually interesting throughout the year. If you're replacing or maybe installing a new patio or driveway use semipermeable ground cover like cobblestones or bricks in lieu of asphalt or concrete to increase the amount of water that infiltrates into the ground. This water can help in replenishing the ground water system and also help feed your plants. The added

benefit of having semi permeable ground cover is that it blends in with the surrounding landscape.

Guidelines for healthy beautiful lawns

- Have lawns for a play area for kids
- Use it to define a space around gardens
- Grass is vulnerable to drought and water run-off from sidewalks and driveways, hence avoid lawns around paved areas.
- Use grass seeds that are resilient to the weather conditions around your property. Ask your local retail specialist to advice you about the grass that will work for you
- Water regularly until the grass has been established
- Top dress and aerate your lawn every year to assist the rainwater soak in lieu of running off into the lawn area.



Maintenance

A well designed and sustained landscape will always be healthy and will depend less on fertilizers and water.

Overwatering will lead to an unhealthy lawn and plants. Too much water will cause a shallow root growth. A weakened root growth will make the plants vulnerable to pests and diseases.

Weak rooted grass can easily surrender to insect damages, drought and weed infestations. Over watered garden plants become lanky and flop over. They are more vulnerable to slugs and snails, mildew and other moisture problems.

A well-designed landscape will require little or no watering once the plants have been established. If there is a vegetable garden or plants such as roses that need regular watering, install a soaker hose in the garden. This will keep the water at the level it is needed. Drip irrigation is a bit more complex but a much easier option. Drip irrigation distributes little water to the plant roots via flexible plastic tubes. They are more efficient and are best for watering garden plants and can be used for moderate to high watering plants.

Watering your landscape

All vegetation requires regular watering from when they are planted until they are well rooted. Depending on the plant it can take between one month to several growing seasons to establish a good root system. Talk to your local expert about specifics.

Once the plants are established, wean them to the point where they will require minimal or no water other than water that is provided by mother nature. When we wean these plants, they will develop deeper root systems and will be more drought tolerant.

Installing rainwater tanks at the downpipes from your roof is an excellent way to collect rainwater to use for watering your garden and lawns.

Mulch

Every landscape needs mulch. Mulch helps in keeping the soil cool and moist. It controls erosion of water and discourages weeds from growing. Organic mulches such as pine barks, wood chips, leaves and straw make the best covering for soils.

Watering your lawn and gardens

- Set your sprinklers so they water the plants and not the driveways and sidewalks
- If you have a slope in your garden, water the top, as the water will run down the slope and seep into the soil
- Sweep your driveways instead of washing it down with the hose.

Check our E-guide on how to create a rain water garden

STEP 9 - Cutting down on other outdoor water uses

Filling up swimming pools, washing driveways, washing cars and windows use up a lot of our water.

Outdoor water saving tips

- Sweep your driveways and walks instead of hosing them down
- Use a sponge and a bucket to wash and rinse your car
- Cover your swimming pools when not using them to reduce evaporation
- Water guns are more effective at cooling our children down on a hot day than running a sprinkler.
- Buckets and squeegees are more water efficient than hosing down windows and you get the same outcome.
- Don't keep your fountains running when not you are not next to them enjoying them
- Reuse the water from your ornamental ponds to water your garden when cleaning them

There is no doubt that Australian households are becoming more water efficient than they were previously.

In 1984 in WA alone we were using 250KL per person, by about 2011 we were using 215KL per person. This reduction was more noticeable after the year 2000 when the government introduced the sprinkler regulations.

If we can reduce the amount of water, we use by about another 15% per person by the year 2030 we can save at least another 100 GL of water per year by 2030. (https://www.water.wa.gov.au/___data/assets/pdf_file/0016/8521/110200.pdf) This is just the Western Australian figures, imagine what happens if we do this all over Australia.

Achieving these targets would delay or even possibly avoid the need for developing new water resources. We need to be more water wise and water efficient to help us protect our water dependency. We need to adapt to our dry climate and save the energy we use to supply our water.

Are you wanting to add extra space to your home and be sustainable at the same time? Don't know where to start?



Contact us [here](#) for a free strategy session

Wishing you success and happiness on your sustainable journey

The team at 'ECO ABODE'