

Annual water bill

What is your annual water bill? \$_____ (excluding 'fixed daily charge')

If your school reduced water use by 10% (achievable!), you could save \$_____ every year. By spending money on water saving measures, you can get your money back through lower water bills.

Part B – Ongoing monitoring of water use

Create a large water usage graph/chart that has the previous 12 months water use on it and room for the next 12 months. Put it in a prominent place (such as the front office). Fill in new usage as monthly bills arrive. Compare current use with the same time last year and with surrounding months. Note why consumption has fallen or risen. Is your water efficiency program working? Has usage risen sharply due to a new leak somewhere?

Notes and comments:

Part C – How much water is used indoors, outdoors and lost to leakage?

In this section you will learn how to read water meters and measure water use in different parts of the school.

How to read the meters

First find your main school meters. There should be a big meter and small meter near each other (measuring high and low flows). Meter readings are shown in kilolitres (1,000s of litres). Often the position of the decimal point is not clear and can vary from meter to meter. Usually the kilolitre columns are white and the hundreds, tens etc are another colour (red). When you record the value, put a decimal point after the kilolitre number.

You will need to record the meters twice a day for four days. This will give you lots of information to target your water saving program.

Before you start reading meters

Before you start, find out from the grounds staff how ovals and gardens are watered (probably overnight via an automatic irrigation system). If there are different zones (e.g. oval and gardens/lawns watered separately), ask them to change the controller for a few days so only the oval is watered on the first night, only the gardens & lawns the next night and nothing the night after. Turn off any irrigation during the day.

Now read the meters

Each evening after school activities finish note the water meter readings. Do the same early in the morning before school activities start (the janitor may be able to do this). The difference between each reading tells you how much water was used during that time.

Example: 'Central' Primary School (CPS)

Date recorded From: 1 Aug 07 To: 4 Aug 07	What was the water used for?	Meter 1 A	Meter 2 B	Total kilolitres used C = change in A + change in B	Litres used (C x 1000)
Mon 6.00pm		035624.8	0624.944		
Tues 7.30am	Oval	035713.9	0625.135	89.3	89,300
Tues 6.00pm	Indoors	035719.4	0626.019	6.4	6,400
Wed 8.00am	Gardens/lawns	035776.0	0626.259	56.8	56,800
Wed 6.30pm	Indoors	035779.2	0626.734	3.7	3,700
Thurs 7.30am	Nothing	035779.3	0627.804	1.2	1,200

Your School

Date recorded From: To:	What was the water used for?	Meter 1 A	Meter 2 B	Total kilolitres used C = change in A + change in B	Litres used (C x 1000)

Results:

In the CPS example, the oval received 89,300 litres of irrigation water overnight, gardens and lawns received 56,800 litres overnight and the school used 6,400 litres and 3,700 litres indoors on two days, averaging 5,050 litres per day. Leakage seems to account for 1,200 litres per night (12 hours), or 2,400 litres per day (check that water wasn't accidentally used, e.g. an evaporative air conditioner was left on overnight).

How much water is used in a month?

Now find out how many times a month each zone is watered. Compare this to the actual monthly use on the water bills. It should be close to the same (within 20%).

Example: Monthly water use – August 2006, CPS

Zone	Times used per month A	Volume per time (kilolitres) B	Total volume (kilolitres) C=(A x B)	% (percentage)
Oval	8	89.3	714	53
Gardens/lawns	8	56.8	454	34
Indoor	20	5.0	100	8
Leaks	30	2.4	72	5
TOTAL			1,340	100%

Calculated monthly water use = 1,340 kL

Actual monthly water use = 1,600 kL (from August 2006 PAWC water bill)

Monthly water use at your school:

Zone	Times used per month A	Volume per time (kilolitres) B	Total volume (kilolitres) C=(A x B)	% (percentage)
Oval				
Gardens/lawns				
Indoor				
Leaks				
TOTAL				

Monthly water use =

Actual monthly water use = (from PAWC water bill for same time period)

Results:

Now we know that 87% of CPS's water is used on the oval, gardens and lawns in winter, and only 8% is used indoors. Leaks are possibly up to 5% of water use, and should be tracked down. If we want to save water at CPS, then outdoor use is the obvious target!

Section 2: Knowing how water is used at your school

The following sections will help you to clarify who is responsible for water management at your school, where your water comes from, how it is used and how it can be saved.

Part A – Who is responsible for water management?

It is important to know who is responsible for setting policy on water or plumbing hardware in the school and who is responsible for maintaining the grounds, irrigation systems and indoor water fixtures. Work with the responsible people to get the best results. Share tasks around.

Who sets purchasing policies for water/plumbing hardware? Is water efficient hardware mandatory in the school's Environmental Management Plan?	
Who sets irrigation times for ovals, gardens, lawns?	
Who fixes minor sprinkler problems?	
Who mows and maintains the grounds?	
Who fixes indoor leaks (minor and major)?	
Who maintains the air conditioners?	
Who do you report water problems to at the school?	

Notes and comments:

Part B – Outdoor water use

1. Where does your school's irrigation water come from?

Several schools in Alice Springs use non-potable water from the Town Basin for outdoor irrigation (indicated by lilac coloured piping and signage). If your school doesn't use it, check availability with Power Water.

- Town water supply (potable) Borewater supply (non-potable)

2. Map all irrigation areas

This is a three-step process:

- a. Get an A3 or A4 map of your school.
- b. Use 4 coloured pencils to mark 1) ovals; 2) gardens; 3) lawns; and 4) dryland areas.
- c. Overlay the irrigation zones onto these (ask the groundsman for help)

7. Record how each area of lawn is used (students can do this at recess and lunchtime)

Are there alternative surfaces that could better meet the needs of users (e.g. paving for heavy foot traffic areas, fake grass for shady areas, garden beds for edges, left bare if no lawn required, sand). If so, ask the grounds staff to check the cost and practicality of making changes.

Lawn area	How the lawn is used?			
	Thoroughfare	Play/lunch	Seldom used	Looks/aesthetics
Oval				
Gardens/lawns				
Indoor				
Leaks				
TOTAL				

8. Talk to an irrigation specialist

See if irrigation times or frequency can be reduced without impacting on the lawn quality.

9. Ovals

Speak to your groundsman. How often is the oval watered and how much water does it receive each time? Can this be reduced? Talk to an irrigation expert. Are ovals watered at night-time? Is watering frequency reduced in winter?

Do the sprinklers cover the oval evenly? Are any areas outside the oval being watered unnecessarily? If so, arrange with the grounds staff to have them adjusted. Are there some parts of the oval that the sprinklers don't properly water? If so the sprinkler layout should be adjusted so that watering is even and some areas are not over-watered.

Is the grass on your oval more green and lush than it needs to be for school activities? If so, there may be an opportunity to reduce irrigation times.

Is the grass looking old and tired? There is a temptation to put more water on tired grass but this often does not revitalise it. Fertilising and aerating may be far better, resulting in lower irrigation requirements. Talk to a grounds management expert.

Stormwater harvesting

How does stormwater flow across the school grounds? Are there opportunities to harvest stormwater via contour banks or swales or depressions? Talk to the NT Government Vegetation and Land Management Branch (08 8951 9208) about soil management and erosion control.

Part C – Indoor water use

There are many new products and hardware items that save water indoors. WELS and SAWM are two labelling schemes that help consumers choose water efficient products. Visit the NT Government Waterwise website www.nt.gov.au/waterwise for more information on WELS and SAWM.

Out door taps and drinking fountains

1. How many of the following outdoor taps or fountains are in the school grounds?

Taps

- Vandal proof (no handle)
- Spring loaded
- Manual turn on/off
- Other _____

Drinking fountains

- Spring loaded
- Manual turn on/off
- Other _____

2. Do any of the taps or drinking fountains have leaks or drips?

If yes, record where they are and report them.

3. Can you change any outdoor taps or fountains to make them more water efficient?

If an outdoor tap is regularly left on (perhaps by weekend users), can a removable handle be fitted or can it be changed to a spring-loaded tap? Are the 'chiller units' on a timer switch or are they left on over weekends and over school holidays periods?

Cleaning

1. Are concrete paths or paved areas hosed down or blown clean?

If they are hosed, measure how much water is used each time. Run the hose into a bucket for 1 minute, measure how much water was collected and then multiply this number by how many minutes the hose is used for. If hoses are used, talk to the cleaner about using a vacuum blower or broom as it will save lots of water. If areas must be washed (e.g. bird droppings) consider using a high-pressure cleaner with a SAWM label as these are far more water efficient.

Air-conditioning

1. How many evaporative air conditioners are installed?

2. How much water do the evaporative air conditioners use?

School size units can evaporate 100+ litres per hour and also must bleed off some water to reduce salts accumulating in the system. Locate where the bleed water discharges (stormwater drain, roof gutter, garden, lawn, sewer drain, other). Measure how much water bleeds from the air conditioner. Place a 10-litre bucket under the bleed hose and measure how much water flows in for 15 minutes then multiply by 4 to get an hourly rate. If it is more than 10-15 litres per hour it is too high and could be adjusted down by your groundsman (check the recommended bleed rate with an air conditioner specialist first). Contact the school's air conditioner maintenance contractor to find out how much water is evaporated per hour by each air conditioner.

Location of air conditioner	Evaporation rate (litres per hour) A	Bleed rate (litres per hour) B	Hours used per day C	Water volume per day (litres) =(A+B) x C	Where does bleed water go?

3. Can the volume of air conditioner water be reduced?

Are air conditioners turned off at the end of each day? Consider installing an automatic timer (common in schools).

Could the running time be reduced?

Can the bleed volume be turned down?

Can the bleed water be reused on gardens or lawns?

Showers

Are there any showers in the school that are regularly used? Are they fitted with low flow shower heads? These use 40% less water than a regular shower head.

Hand basins and sinks (toilets, change rooms, science lab, canteen, etc.)

1. Do taps in hand basins & sinks have flow restrictors?

Feel inside the tap outlet. Does it have a 'mizzie wire' insert? If so, this is a flow restrictor that can reduce flow by 50%. If not, ask the maintenance person if they can be fitted. Do any taps have leaks or drips? If yes, record where they are and have them fixed.

2. Are there signs in bathrooms/toilets that remind people to conserve water?

Ask students to design signs that can be laminated and displayed.

Canteen / staffroom / science lab

1. Are dishwashers used only when full? Are there signs reminding people to save water? Can you identify any other ways to reduce water use?

Fire hoses

Are fire hoses regularly turned on (e.g. by vandals)? Can this be prevented? Are any fire hoses leaking?

Part D – Leakage

Alice Springs school audits in 1998 showed leakage accounted for up to 40% of total water use in some schools – wasting up to 26,000 litres per day.

1. If you have leaks

If your meter readings show high leakage rates, ask the janitor to check all toilets, taps, hot water systems and air conditioners. Check for unusual green spots around the school grounds. If your soil is sandy, then leaking water from underground pipes may be going straight into the ground with no surface signs.

2. If you cannot find the leaks

You may wish to employ an NT-licensed plumber to help locate leaks.

You are finished.

Now go to the next pages and summarise your findings.

