

Water Management Plan

<Insert Company Name>

Company Address

Telephone:

Facsimile:

Email:

Website:

Date:

PREPARED BY:

Name:

Title:

Telephone:

Email:

Signature:

Date:

AUTHORISED BY:

Name:

Title:

Telephone:

Email:

Signature:

Date:

Contents

Contents	2
Executive Summary	4
Key Issues	4
Recommendations	4
Water consumption comparison	4
Introduction	5
Organisation profile	6
About <insert company name>	6
Water management history	6
Site/property Information	6
Current water use profile	6
Water Management Team	6
Site water audit	7
Water process flow (including waste water streams)	7
Water balance	7
Water balance analysis	7
Long-term water use outlook (5yr plan)	7
Water Consumption Benchmark	7
Insert water consumption benchmark applicable to your business/industry	7
Opportunities to save water	7
Identification process	7
Efficiency opportunities	7
Rainwater management	7
Water recycling	7
Water harvesting	7
Innovation measures	7
Action plan	8
Water conservation and efficiency	8
Waste water management	9
Culture and education	10
Operational efficiency	11
Worksheet 1 – Water consumption history	12
Worksheet 2 – Trade waste volume history	13

Worksheet 3 – Building water survey form.....	14
Worksheet 4 – Existing plumbing features.....	15
Worksheet 5 – Water conservation checklist.....	16
Worksheet 5 – Water conservation checklist (cont.).....	17
Worksheet 5 – Water conservation checklist (cont.).....	18
Worksheet 5 – Water conservation checklist (cont.).....	19
Worksheet 5 – Water conservation checklist (cont.).....	20

Executive Summary

Key Issues

Recommendations

List key recommendations for implementing the action plan including:

Short term/ quick payback options

Redevelopment/major works opportunities

Loan funds to be pursued eg. Smart Water Fund, Urban Water and Conservation Funds.

Water consumption comparison

Insert summary of water consumption and reuse consumption figures; and water consumption graph for historic usage for comparison against previous years (most agencies have reported this to the AIMS system).

Benchmarks

Insert current benchmark based on consumption per m²/separation/occupied bed day (whichever most appropriate)

Vision & Mission Statement

Environmental Focus

Each hospital may consider an Executive statement on their water management policy and consider nominating a water reduction target eg. Volume and % if possible.

Risks

Insert major risks or threats that may effect service delivery eg interruptions or contamination to supply (with a response measure if known eg contract with water tanker supply company and separate tapping point)

Introduction

The preparation of a Water Management Plan (WMP) involves the time and effort of your staff and company in looking at ways to manage and implement water efficient practises and water conservation projects. The plan will bring together all the thinking and work to date including, water use data and ideas for efficiency and conservation that your company has put in place to reduce the use of potable water.

The WMP will provide the ideas and monitoring platform for future work on water reduction identified in preparing your WMP.

This template provides a standard format and headings for you to follow in writing your plan.

The plan should include, but is not limited to the following:

- Introduction – a general introduction to your health facility, its business and its activity.
- Background – an out line of how your health facility uses water, its importance to your business and historical information on consumption over the last 4 years.
- The Process you have followed in preparing the plan – this may include objectives in preparing the plan and who was on the team and any long term planning.
- A process flow diagram that shows
 - Fresh water use
 - Trade waste streams
 - A water balance for the site and information on how this was arrived at.
 - An action plan as outlined in the information Kit. The action plan includes a costing on each project to determine payback on investments. In developing an action plan, projects should be costed to determine financial viability, and payback periods

The worksheets attached as an appendix to the WMP can be used to do the site water audit /analysis and development of the water balance.

Organisation profile

About <insert company name>

Type body here

Water management history

Provide water consumption history (most agency have reported 4-5 years).

Site/property Information

Type body here

Current water use profile

Type body here

Water Management Team

Type body here

Site water audit

Water process flow (including waste water streams)

Type body here

Water balance

Type body here

Water balance analysis

Type body here

Long-term water use outlook (5yr plan)

Type body here

Water Consumption Benchmark

Insert water consumption benchmark applicable to your business/industry

Opportunities to save water

Identification process

Type body here

Efficiency opportunities

Type body here

Rainwater management

Type body here

Water recycling

Type body here

Water harvesting

Type body here eg retention pond/car park catchments

Innovation measures

Type body here



Worksheet 1 – Water consumption history

Year:

Monthly consumption by billing units (Kilolitres of usage):

	Acc. No:	Acc. No:	Acc. No:	Billing Days	Average KL PWD*
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Total					
Average					

*Kilolitres per workday assuming 5 days per week



Worksheet 2 – Trade waste volume history

Year:

Monthly consumption by billing units (Kilolitres of usage):

	Acc. No:	Acc. No:	Acc. No:	Billing Days	Average KL PWD*
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					
Total					
Average					

* Kilolitres per workday assuming 5 days per week



Worksheet 3 – Building water survey form

Surveyed By:	Date:
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General Information		
Name of building:	Address:	
Building contact:	Telephone:	Email:

Building dimensions	Occupancy schedule				Building occupancy data	
Width:	Weekdays	From	A.M.	To	P.M.	Average number of occupants:
Length:	Saturdays	From	A.M.	To	P.M.	Number of women:
No. of floors (height):	Sundays	From	A.M.	To	P.M.	Number of men:
	Holidays	From	A.M.	To	P.M.	

Current building waste water management	Alternate water sources	Notes
Building waste water is currently:	Are other sources of water used in any of the following:	
<input type="checkbox"/> Connected to sewer	Urinals: <input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Discharged to treatment system	Cooling towers: <input type="checkbox"/> Yes <input type="checkbox"/> No	
<input type="checkbox"/> Other	Irrigation: <input type="checkbox"/> Yes <input type="checkbox"/> No	



Worksheet 5 – Water conservation checklist

Water conservation practices	We are doing this	We should do this	We need to evaluate this measure	Not applicable
Building operations				
• Install check water meters	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Read all water meters on a regular basis	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Shut off water to unused areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Regularly check building for leaks and water waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Install water reducing valves if pressure is high	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• To the extent possible quantify water use by each operation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Where feasible, investigate recycling and re-using water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Where feasible, investigate rainwater harvesting and use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Eliminate unnecessary wash downs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Ensure fire water hoses are not in use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Toilets and changing rooms				
• Repair leaks and plumbing problems	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use water conserving plumbing fixtures:				
o Install low-flow showers, taps (or flow controls)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
o Install spring loaded taps or taps with sensors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Adjust plumbing to use the minimum amount of water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Retrofit old fixtures	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Remind users to conserve	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Worksheet 5 – Water conservation checklist (cont.)

Water conservation practices	We are doing this	We should do this	We need to evaluate this measure	Not applicable
Kitchens / Cafeterias				
• Look for water waste	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Install check water meters for large operations (dishwashers)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Install water efficient hose water nozzles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Dish washing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Operate equipment only when needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Wash only full loads	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use final rinse for pre-washes and waste disposals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Hand scrap dishes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Install an automatic shutoff so water does not run when waste disposal is not in use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Ice making machines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Control bleed-off from clear ice machines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Ice flake machines usually use less water than ice cube machines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use air cooled machines where possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use bleed-off water for condenser cooling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cleaning				
• Ensure fire water hoses are not in use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Sweep when you don't have to mop or wash down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Be sure that hoses have shutoff nozzles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use high pressure cleaning units in place of hoses	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Reduce / Remove chemicals from cleaning	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use steam cleaners in place of chemicals	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Worksheet 5 – Water conservation checklist (cont.)

Water conservation practices	We are doing this	We should do this	We need to evaluate this measure	Not applicable
Cooling systems and cooling towers				
• Meter and record water use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Never use once through cooling, or reuse the water elsewhere in the building	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use air cooling where feasible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Maximise cycles of concentration for cooling towers by providing efficient water treatment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Establish performance-based specifications when contracting with a cooling tower supplier / water treatment company	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Reuse cooling tower effluent where possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Investigate wet-dry cooling towers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Reuse treated wastewater or other sources of water for cooling tower make-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Boilers and heating				
• Establish performance-based specifications when contracting with boiler supplier / maintenance contractor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Check steam taps regularly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Reuse steam condensate water and boiler down water where practical	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Avoid once-through operations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Meter and record water use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Record water use and check for leaks	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Worksheet 5 – Water conservation checklist (cont.)

Water conservation practices	We are doing this	We should do this	We need to evaluate this measure	Not applicable
Garden & turf irrigation				
• Establish a monthly budget based on plant water needs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Make sure that automatic irrigation equipment is operating properly				
○ Inspect system regularly to ensure that there are no leaks and that sprinkler heads are not broken off	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
○ Adjust pressures to the specification for the equipment used	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Water only when needed				
○ Determine water needs based on evapotranspiration needs or soil moisture	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
○ Water infrequently, but deeply, not everyday for a few minutes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
○ Turn off system controller if it has rained or link to rain sensor / gauge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
○ Adjust controller times seasonally	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Install timers, soil moisture sensors, and rainfall shutoffs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use drip irrigation wherever possible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Do not over-fertilise or over-prune	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use heat resistant, drought tolerant plants	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Limit turf areas	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Use mulch around groundcovers, trees and shrubs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Mow regularly and avoid scalping grass (high cut)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Pools and spas				
• Use filter backwash for lawn watering / other use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Cover pools and spas when not in use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
• Adjust pool levels to minimise splash out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Worksheet 5 – Water conservation checklist (cont.)

Water conservation practices	We are doing this	We should do this	We need to evaluate this measure	Not applicable
Vehicle washing				
<ul style="list-style-type: none"> • Keep records of water used per vehicle washed 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Install equipment that recycles water 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Adjust solenoids, valves, nozzles, and equipment to minimise water use 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Inspect and replace worn jets and parts 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Reduce “show foam” to reduce need for rinse water 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Use high pressure rinses instead of flood arches 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Use chemically compatible washing solutions / waxes to recycle together 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Laundries				
<ul style="list-style-type: none"> • Consider and investigate water use when purchasing equipment 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Use a continuous-batch tunnel where volumes of laundry justify one 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Use hot water reuse systems and other water conserving technology where feasible 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Evaluate wash cycles and detergent / chemical formulations for maximum efficiency 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Wash only full loads 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Consider reuse of final wash for pre-wash or other uses 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other water using equipment and operations				
<ul style="list-style-type: none"> • Examine ways to modify existing processes & use alternative processes when replacing units 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Use automatic valves that shut off water when equipment is off 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Consider water use when purchasing equipment 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Use mechanical / oil seals instead of water packing glands on pumps where possible 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Regenerate water softeners only when needed 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<ul style="list-style-type: none"> • Capture reject water from reverse osmosis units and reuse it where feasible 	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>