

## Reducing your “wet print”

Water assessments for business opportunity

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## Contents

- Background to the issue
- Before assessment tips
- How to do a water assessment
- Next steps

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## Changes in the water cycle

- Increasing demand for freshwater
- Climate change reducing rainfall
- Water cycle damage reducing ability to supply fresh water

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## Where is the water going

### CONSUMPTION PROFILE QLD Capital



What types of consumption are having the biggest impact in this area? Click on items below for more information

Construction & renovations	2.7%	Household water use	14.8%
Other household operations	6.7%	Tobacco & alcohol	5.4%
Food	43.2%		
Clothing & fabrics	5.4%		
All other goods & services	21.6%		

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## Policy response

- Water Efficiency Management Plans (WEMP's)

Management Element	Description	Management Action/Response Indicator	Actual Rating	Minimum Potential Rating
1. Overall Management	Is there a water audit and action plan in place for the site?	Water audit completed and action plan implemented	4	4
1.1 Management commitment	Has senior management planned to take responsibility for water efficiency?	Senior management has been identified within organisation	4	4
1.2 Management responsibility	Has responsibility for water efficiency been assigned to a specific staff member or group?	Staff member has been assigned responsibility for water efficiency	4	4
1.3 Management resources	Does the organisation have adequate resources to manage water efficiency?	Resources are available to manage water efficiency	4	4
2. Management structure	Are there any water efficiency committees or working groups in place?	Water efficiency committee or working group is in place	4	4
2.1 Management processes	Does the organisation have a water efficiency policy?	Water efficiency policy is in place	4	4
2.2 Management systems	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
2.3 Management plans	Does the organisation have a water efficiency plan?	Water efficiency plan is in place	4	4
2.4 Management goals	Does the organisation have water efficiency goals?	Water efficiency goals are in place	4	4
2.5 Management reporting	Does the organisation report on water efficiency?	Water efficiency is reported on	4	4
3. Management	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.1 Management of water	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.2 Management of energy	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.3 Management of waste	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.4 Management of air conditioning	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.5 Management of lighting	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.6 Management of heating	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.7 Management of cooling	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.8 Management of ventilation	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4
3.9 Management of other services	Does the organisation have a water efficiency program?	Water efficiency program is in place	4	4

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## Before water assessment tips

- What are the goals - what if scenario
- Is management on board
- Right tools right data
- OH&S

## Benchmarks in water auditing

- Green Star
- NABERS
- WEMP's
- What is possible

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## Hotels



- Food preparation
- Amenities
- Cooling towers
- Cleaning
- Beer lines
- Irrigation
- Dishwashing/glass washing
- Ice machines
- Laundry
- Washing and hosing
- Leakage
- Functions

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## Sub meters

- Are there sub meters?



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## Estimating use



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## Estimating use



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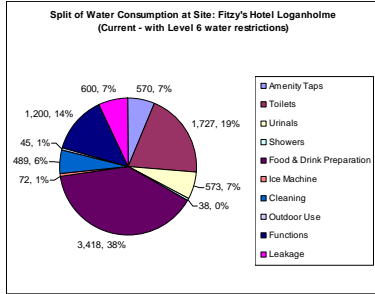
## Water balance

Water Group/Type		10/20/30/40	Patrons	Other Usage Types	Split of Current Consumption		Split of Current Consumption		Desirable Adjustments for		Split of Consumption	
Patterns		7days	7days		WITH water restrictions		WITHOUT water restrictions		NO water restrictions		WITHOUT water restrictions	
# of users		25	700	50	general	with	general	with	avg	NO water restrictions	with	with
# of days per year		365	365	365	%	%	%	%	%	%	%	%
= # of days per year		9,055	255,645	13,025	Total: 8,719kL/yr		Total: 8,719kL/yr		Total: 8,719kL/yr		Total: 8,719kL/yr	
<b>Amenity Usage</b>												
Flow Lines		0	0									
# of user/ator		0	0									
Duration of use s		0	0									
Consumption kL/yr		0	0									
Total		29.0	540.6									
<b>Toilets</b>												
% female users		60%	60%									
Flow L/MLP/ Bath		4.5	4.5									
# of user/ator		2	1									
Consumption kL/yr		0	5									
Flow L/PLL/ Bath		48.9	456.1									
# of user/ator		9	9									
Consumption kL/yr		1	63.6									
Flow L/PLL/ Bath		9	5									
Consumption kL/yr		48.9	456.1									
<b>% male users</b>												
Flow L/MLP/ Bath		4.5	4.5									
# of user/ator		2	1									
Consumption kL/yr		0	5									
Flow L/PLL/ Bath		9	9									
# of user/ator		1	24									

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## Water balance



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## Car wash



- Recycled water
- Different wash cycles
- Consistency between washes
- Metering and observed data

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## Assessment



Vehicle Number	Final rinse sprays duration (sec)
1	8
2	8
3	21
4	16
5	18
6	22
7	14
8	16
9	18
10	15
11	15
12	13
13	13
14	8
15	12
16	8
17	15
18	8
19	20
20	13
Average	14.05

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## Industrial processes – crate wash

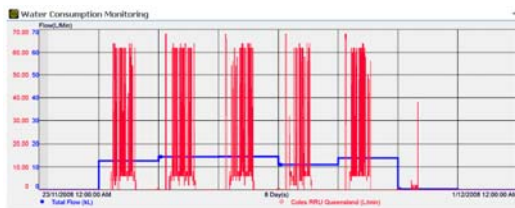


- Is water needed in the first place?
- Fit for purpose reuse
- System optimisation
- Rainwater
- Water recycling
- Smart metering

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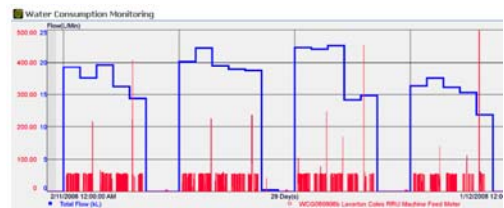
## Smart metering



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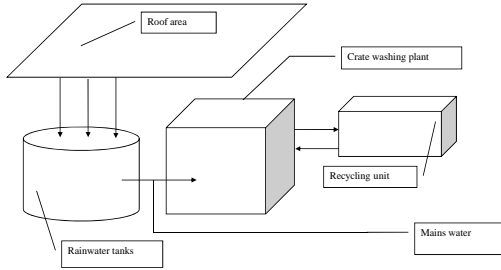
## Smart metering



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## Integrated opportunities



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## Assessing fit for purpose options

Key: ● Preferred use ● Compatible use ○ Non-preferred use ☉ Requires high level treatment

	Amenities/ Bathroom	Kitchen/ Food Prep.	Hot Water System	Toilet flushing	Laundry	Irrigation	Vehicle/Gear Washing	Cooling Tower	Pool Top Up Water	Other Process Water
Potable Water Supply	●	●	●	○	●	○	○	○	●	depends on process
Own Water Supply (eg bore water)	●	●	●	○	●	○	○	○	●	
Rainwater (from roof only)	●	●	●	●	●	●	●	●	●	
Stormwater (roof and ground)	☉	☉	☉	☉	☉	☉	☉	☉	☉	
Treated greywater	☉	☉	☉	●	☉	●	○	○	○	
Treated wastewater	☉	☉	☉	●	☉	●	○	○	○	

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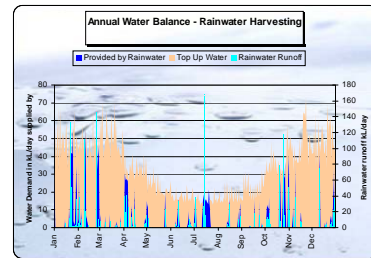
## Assessing rainwater capture



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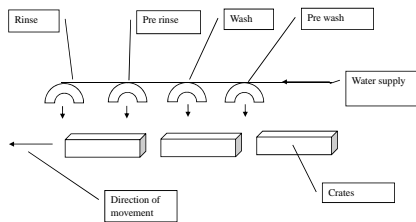
## Rain water Harvesting Design Model (RainHarD)



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## System optimisation - retrofit



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## System optimisation – built in



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## Commercial buildings

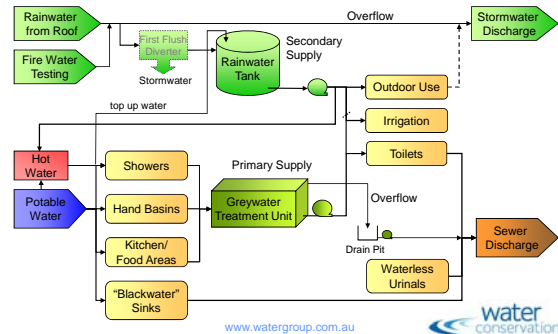


- Amenities
- Cooling towers
- Fire testing water
- Rainwater
- Water recycling
- Smart metering

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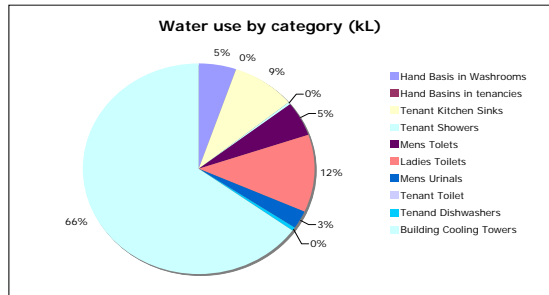
## Flow Diagram for an Integrated Water Conservation Concept at a Modern Office Building w/out cooling towers



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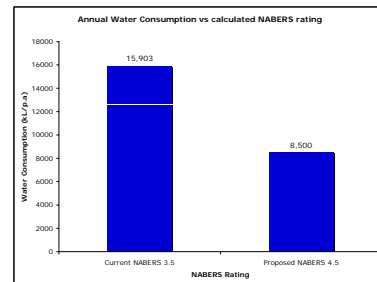
## Commercial building example



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## NABERS Rating assessment



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## Green Star Assessment

- 13 out of 129 points available
- Needs to be included in integrated design

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## Options

- Fit for purpose reuse
- Waterless urinals
- Cooling tower substitution
- User education

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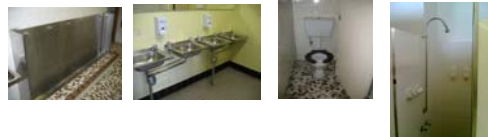
## What to do next

- Understand where you use water
- Do you really need to use water in the first place
- How do you reduce, reuse and recycle water

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## Reduce your use



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## New ways to operate

- Reduce
  - Water efficient shower heads, toilets, taps, monitoring leaks
- Replace
  - Rainwater, Stormwater, Grey water
- Recycle

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## Reduce your use - some other examples

- Waterless woks
- Water efficient rinse guns
- Process optimisation
- Smart metering - leakage

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## Challenging issues and situations

- Data issues
- Leakage
- People

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## Where to from here

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- Ask questions

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**Thank you**

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