



Yarra Valley Water | a fresh approach



Learning from case studies

To help inform the future

Francis Pamminger

Localised solutions: Building capacity and resilience with distributed production systems

30 November 2009

Examples of what has been done

Aurora – third pipe system



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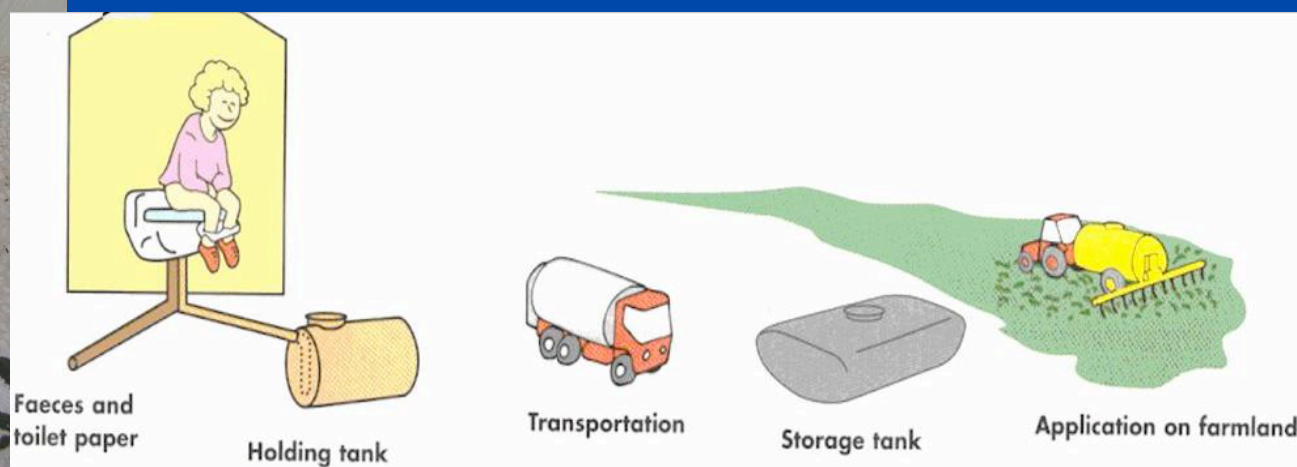
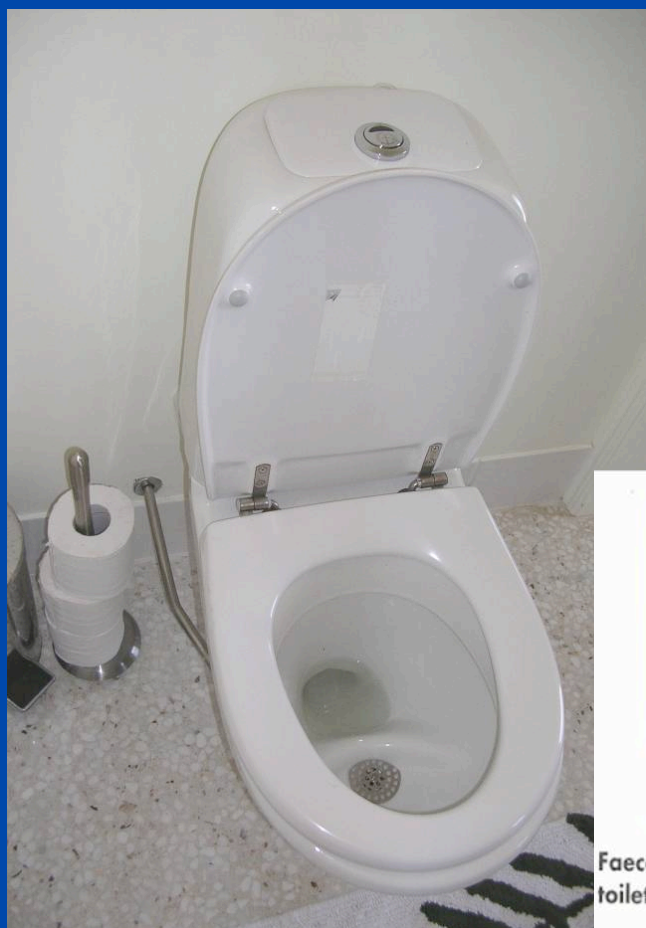


Examples of what has been done

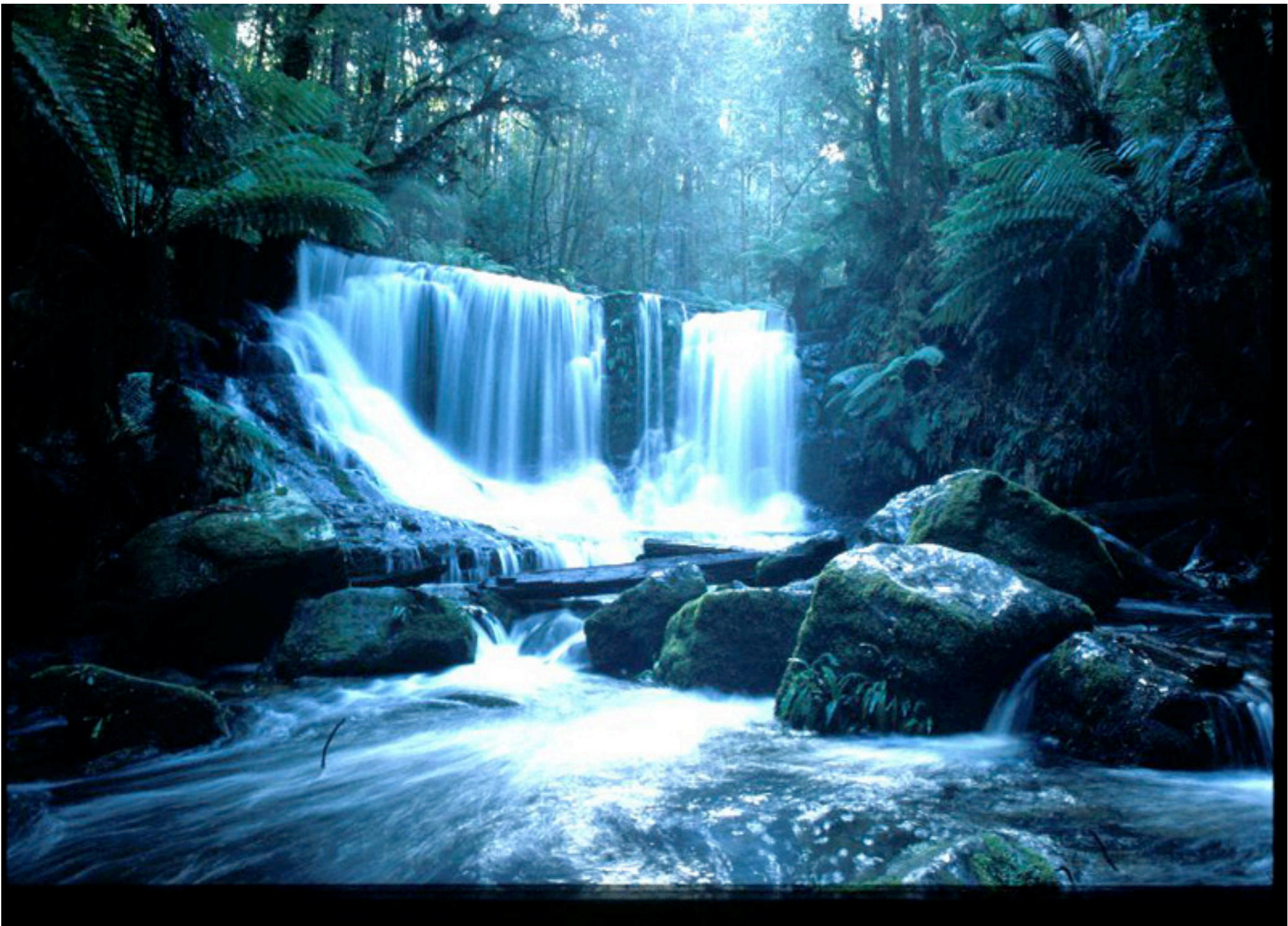
Kinglake – urine separation toilets



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Water saving



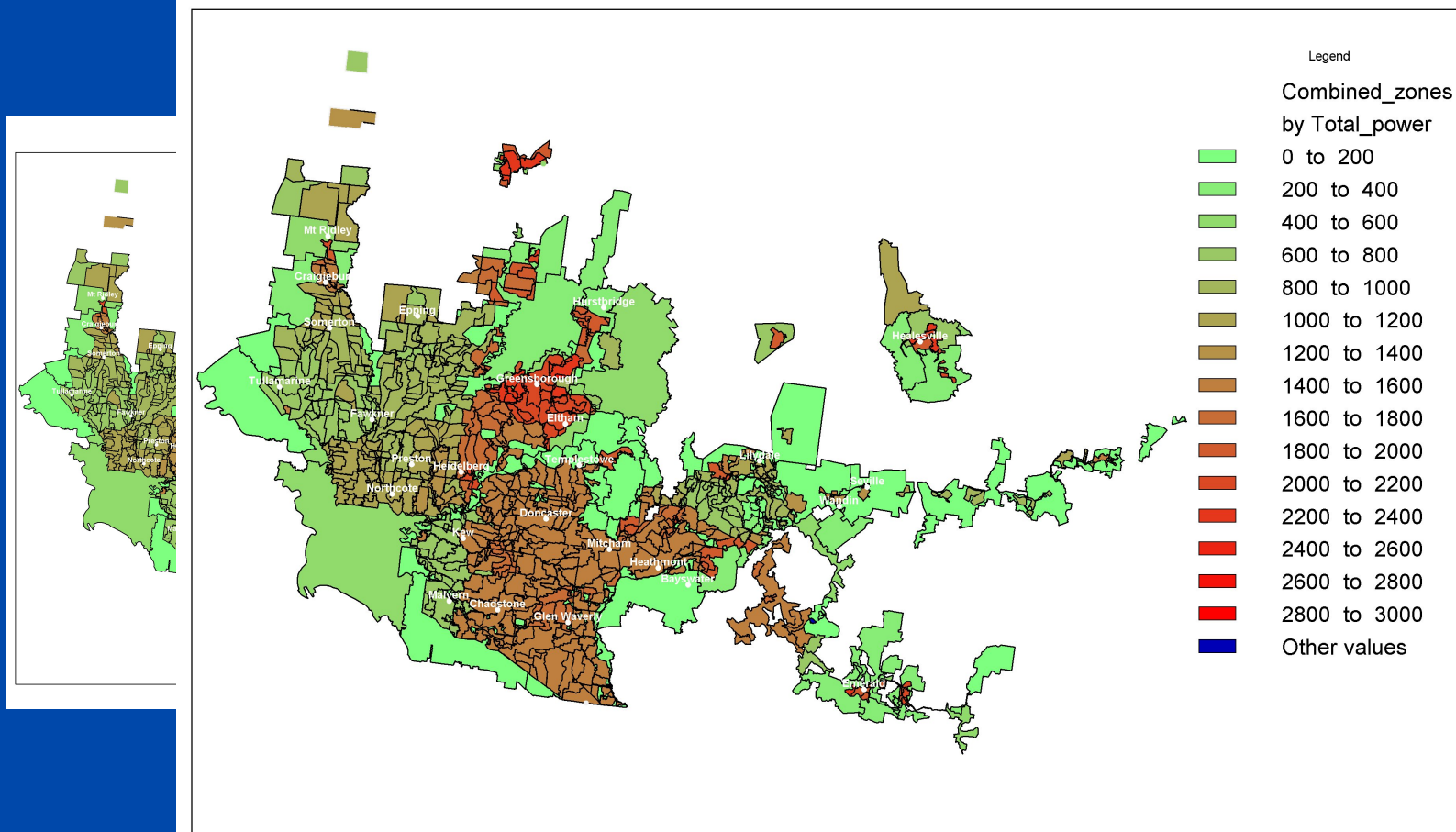
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- 💧 Aurora – 50% to 70%
- 💧 Kinglake – from 90% to 100% reliability
- 💧 Kalkallo – up to 90%

Reduce greenhouse gas emissions



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Energy use
(kWhr/ML)

40-450

140

50

200

400

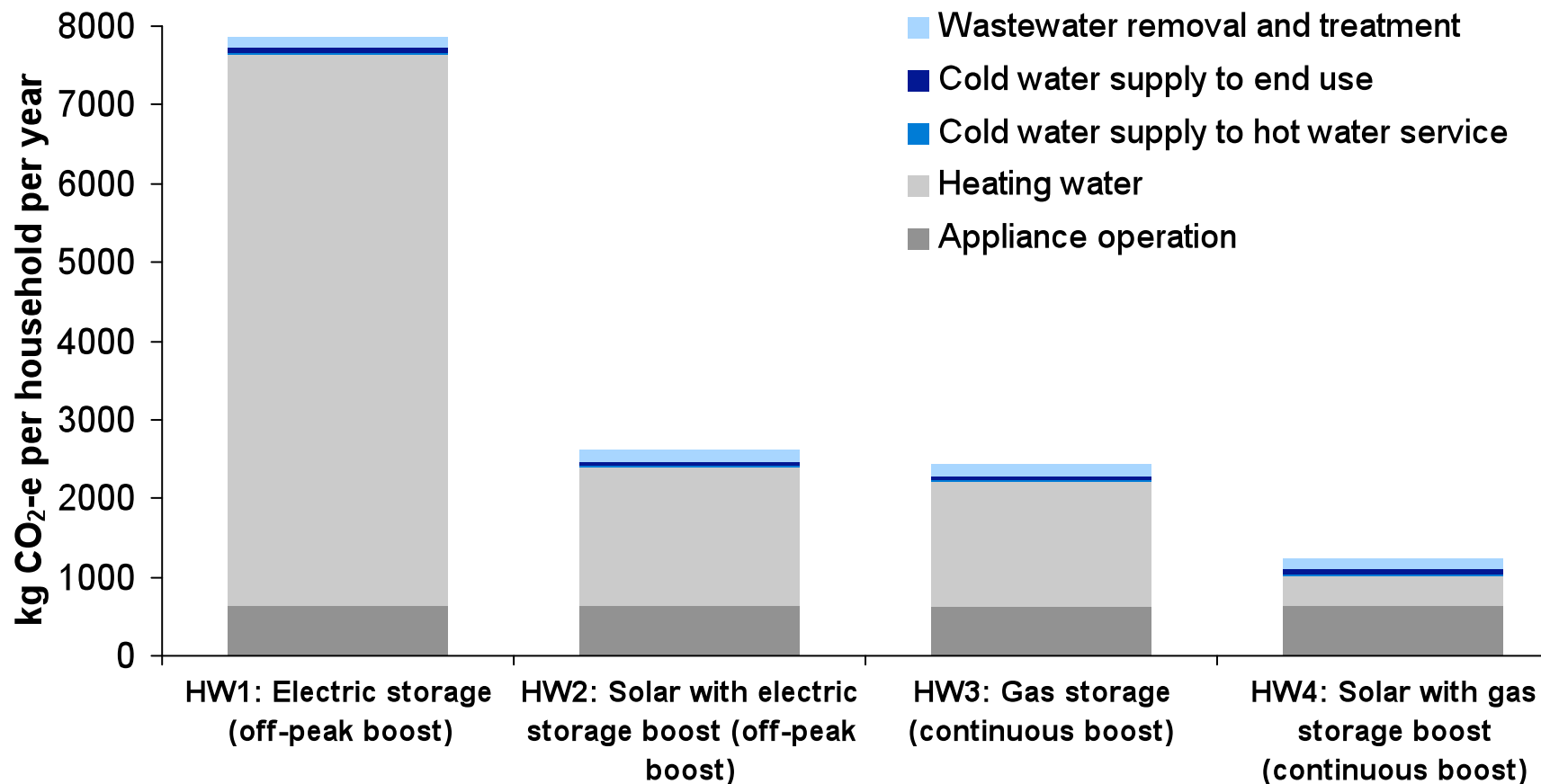
500-1000

230-3100

Understand points of leverage



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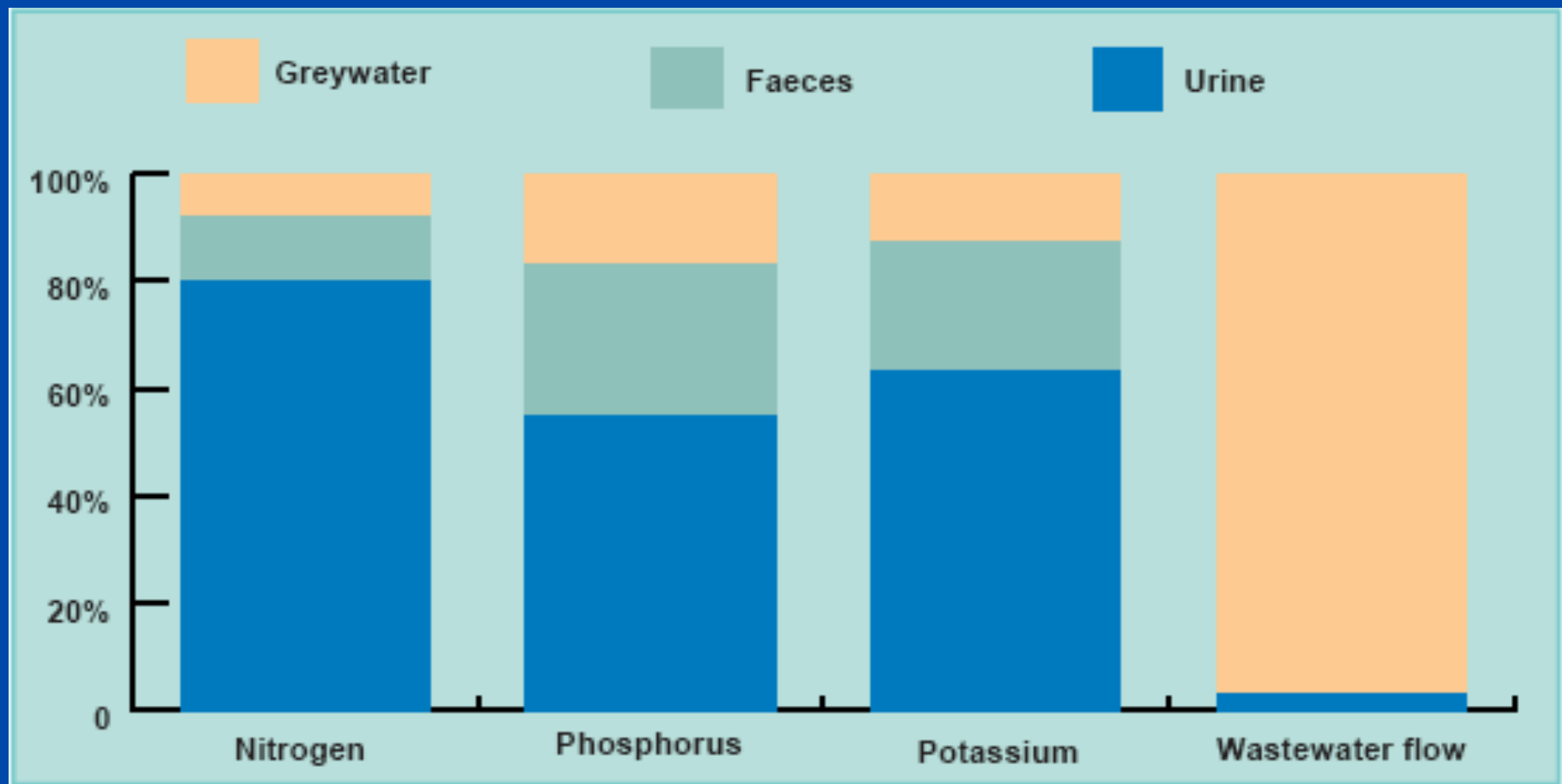


David Flower: Monash University

Nutrient recovery



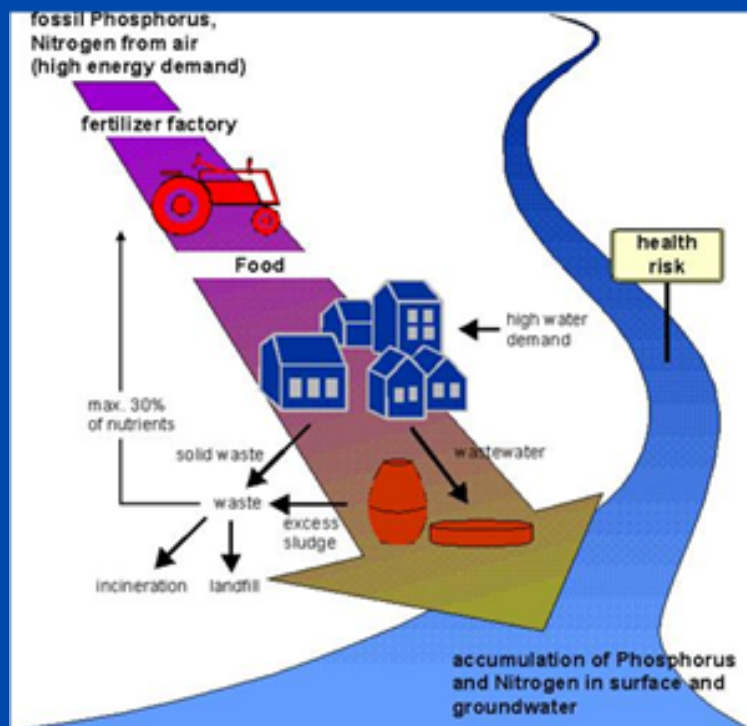
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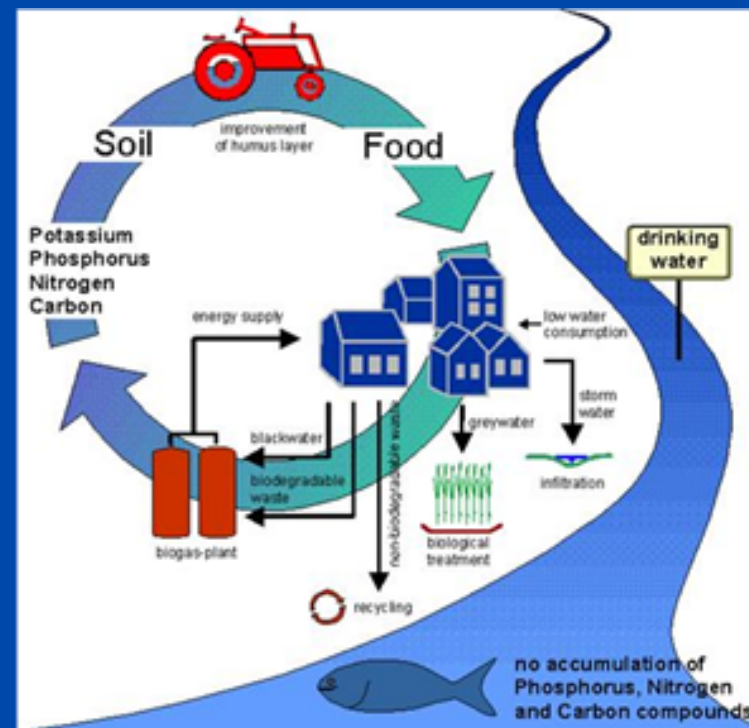
Nutrient recovery



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Current water and wastewater management



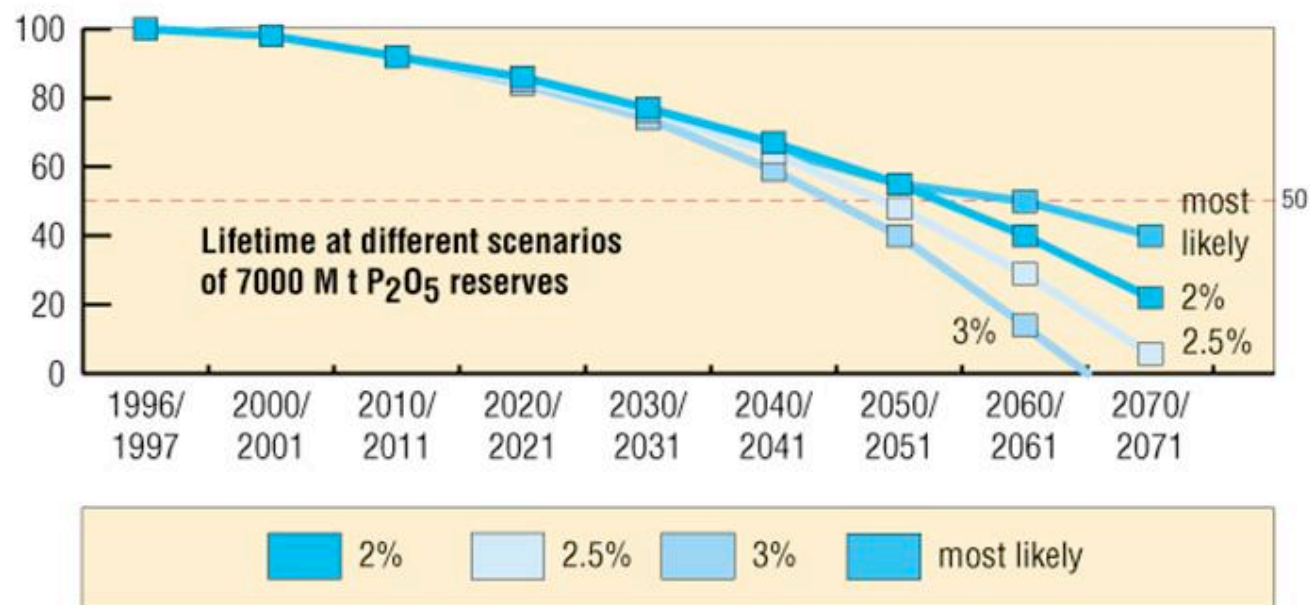
Closing the loop

Nutrient recovery



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Fig. 5: Lifetime of reserves



World Phosphorus Reserves Journal (1998).
Phosphorus and Potassium. Issue No: 217
(September-October, 1998)

Benefits to local stream



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Parameter	% Reduction		
	Current Minimum Requirement	Traditional Stormwater Design	Amended Stormwater Design Incorporating Harvesting
Gross Pollutants	70%	100.0%	100.0%
Total Suspended Solids	80%	89.6%	94.3%
Total Phosphorous	45%	73.8%	82.7%
Total Nitrogen	45%	45.5%	70.9%
Flow Volume	-	5.3%	50.5%

Utilise science



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- 💧 Heavier-than-air flying machines are impossible.” *Lord Kelvin, British mathematician, and president of the British Royal Society, c.1895*
- 💧 “There is no reason for any individual to have a computer in their home.” *Ken Olson, president, Digital Equipment Corporation, 1977*
- 💧 “No matter what happened, the US Navy is not going to be caught napping.” *Frank Cox, Secretary of the Navy, 4 December 1941, just before the Japanese attack on Pearl Harbour*





Summary



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Need to answer	Key learning
Why	<ul style="list-style-type: none">💧 Need to be committed to sustainability💧 Better to be part of change💧 Good for organisation culture
How	<ul style="list-style-type: none">💧 Pick projects that deliver benefits💧 Work with stakeholders💧 Use science