

# Greening Our Hospitals Water Program

**Sarah Bending: DH**

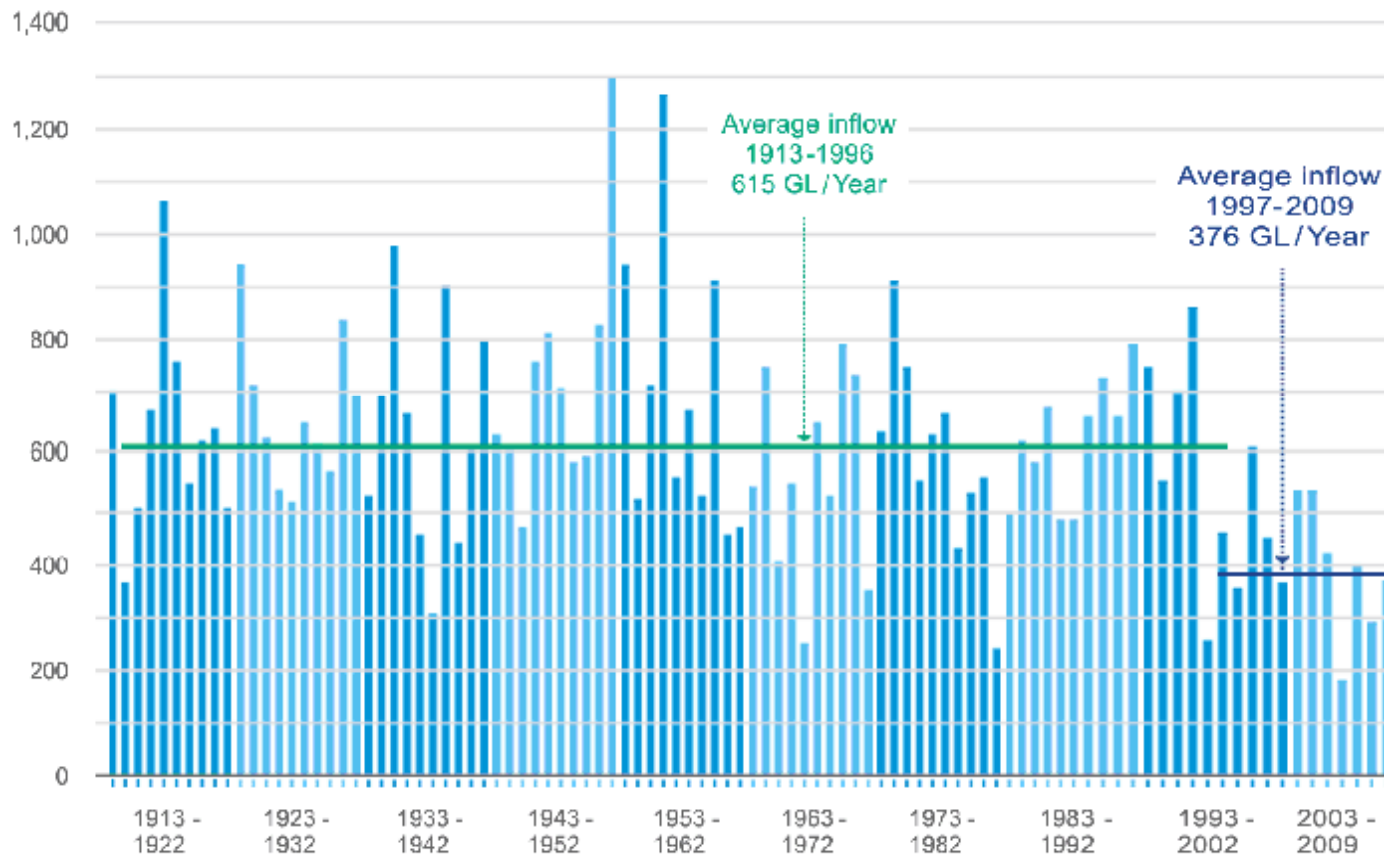
**John Dixon: FG Dixon Group**

- Background to program
- Summary of key initiatives under GOHW
- Outcomes
- Evaluation
- Where next

# Need to reduce water usage- inflows

Total Inflow GL

Source: Melbourne Water



# The need to reduce water consumption

- Hospitals are large consumers of water consuming approximately 5GL (5,000MI) potable water per annum (2006)
- In 2006, water storage levels were at critical levels in some areas and drastically declining in Melbourne
- Former government policy supported a 15% reduction
- River condition health was low, with lack of environmental flows

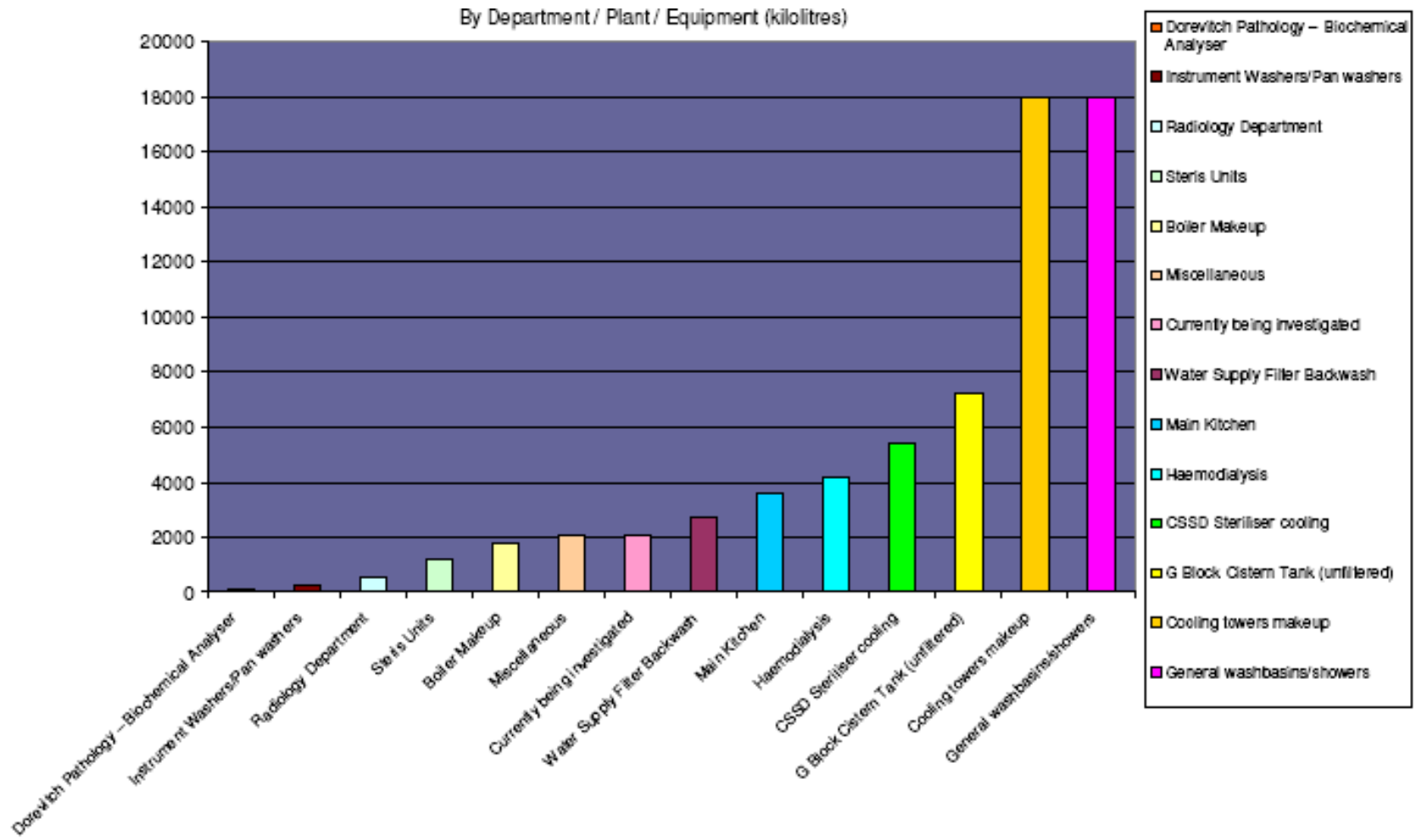
**BUT**

- Major barriers to implementing cost savings with low paybacks

# Greening Our Hospitals Water: Business Case

- DH applied for statewide funding for implementing a water saving program
- Information from audits and other initiatives undertaken by agencies used as foundation for development of Business Case (Metro water retailers and Alfred Health, Western Health and Southern Health)
- Program was staged, and followed an audit phase and targeting the key water use areas that were cost effective

# Breakdown of uses (one sample site)



# Greening Our Hospitals-Water Original Program

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\$3.9 Million program funded by VWT over 4 years (2007-2010) under the Environmental Sustainable Action Statement based on the business case which included:

- 40 audits
- 40 retrofits (water efficiency measures, eg flow restrictors)
- 29 steriliser retrofits (Recycle or Reclaim)
- 3 ozone laundry trials
- 4 dialysis water (reverse osmosis) reuse pilots

## Expanded program

VWT gave permission (2009) to expand scope after initial savings achieved ahead of program end and need to reallocate funds

- Additional sites targeted for steriliser program
- Further Laundry projects proposed to gain knowledge of Low Alkalinity and Rinse Water re-use to confirm findings especially in smaller laundries
- Use of dialysis RO reject water to provide opportunities for 'satellite' units, and potentially home dialysis
- Storage, multipurpose (combination of rainwater and other).



# Greening Our Hospitals-Water Revised Program

Revised program included:

- 70 audits
- 64 retrofits (water efficiency measures, eg flow restrictors)
- 21 steriliser retrofits (Recycle or Reclaim)
- 11 ozone laundry trials
- 12 dialysis water (reverse osmosis) reuse
- 8 rainwater substitution
- 16 metering

# GOH-W Process

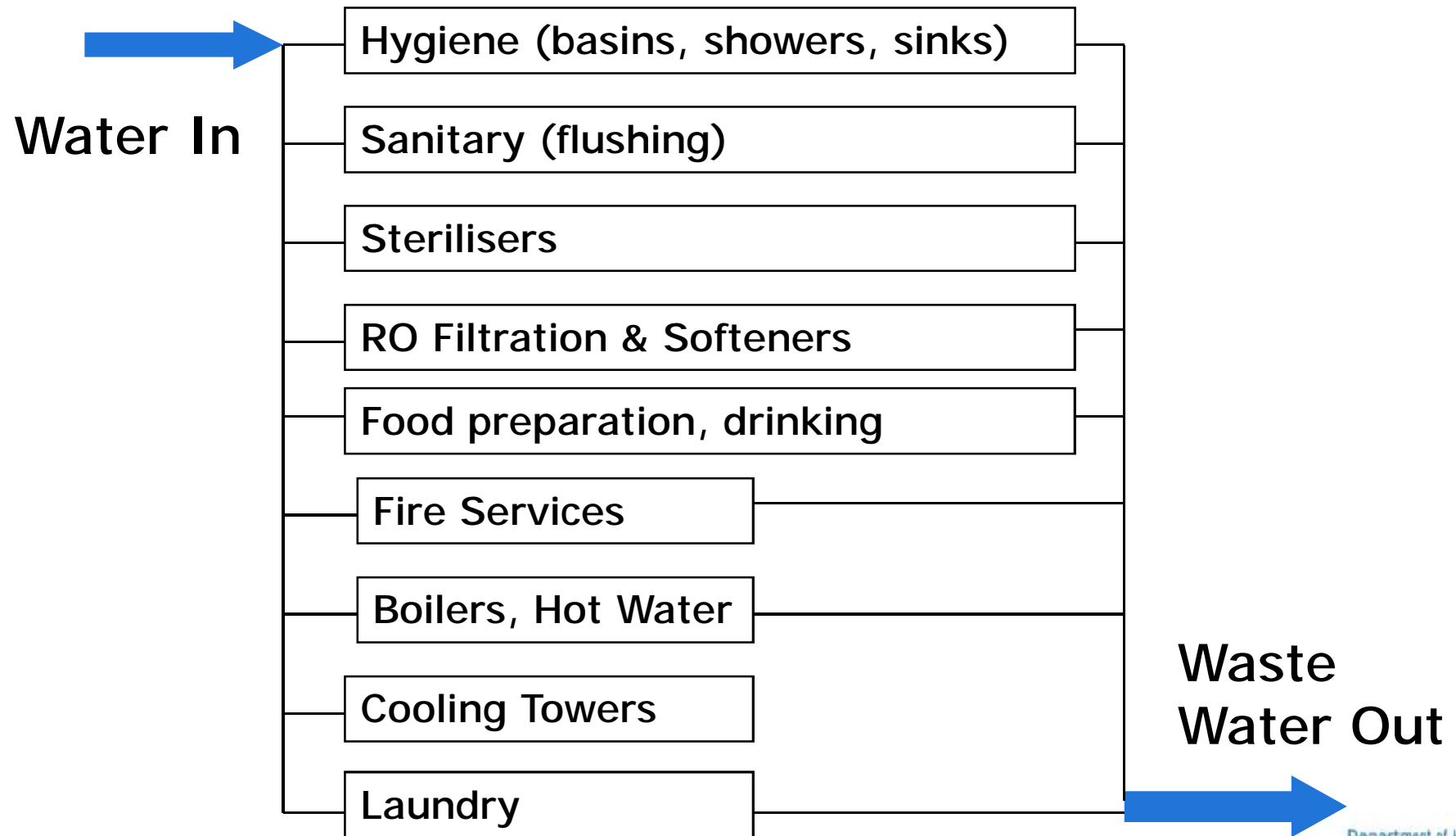
- Audit
- Identify High Value projects
- Develop Business Case
- Report Progress
- Report Results

## Findings – Water Use

- |  |         |
|--|---------|
| •Ablutions (basins, showers, sinks)          | •20-40% |
| •Sanitary Flushing (toilets, pan sanitisers) | •15-30% |
| •Process (sterilisers, laboratories)         | •15-40% |
| •Food Preparation (kitchen)                  | •5-25%  |

(excludes Dialysis, Cogeneration, Laundries, Pool)

# Water Uses (Typical)



High Value projects

Flow Control

Process Water Reclaim

Process Water Recycle

## Water Efficiency Measures

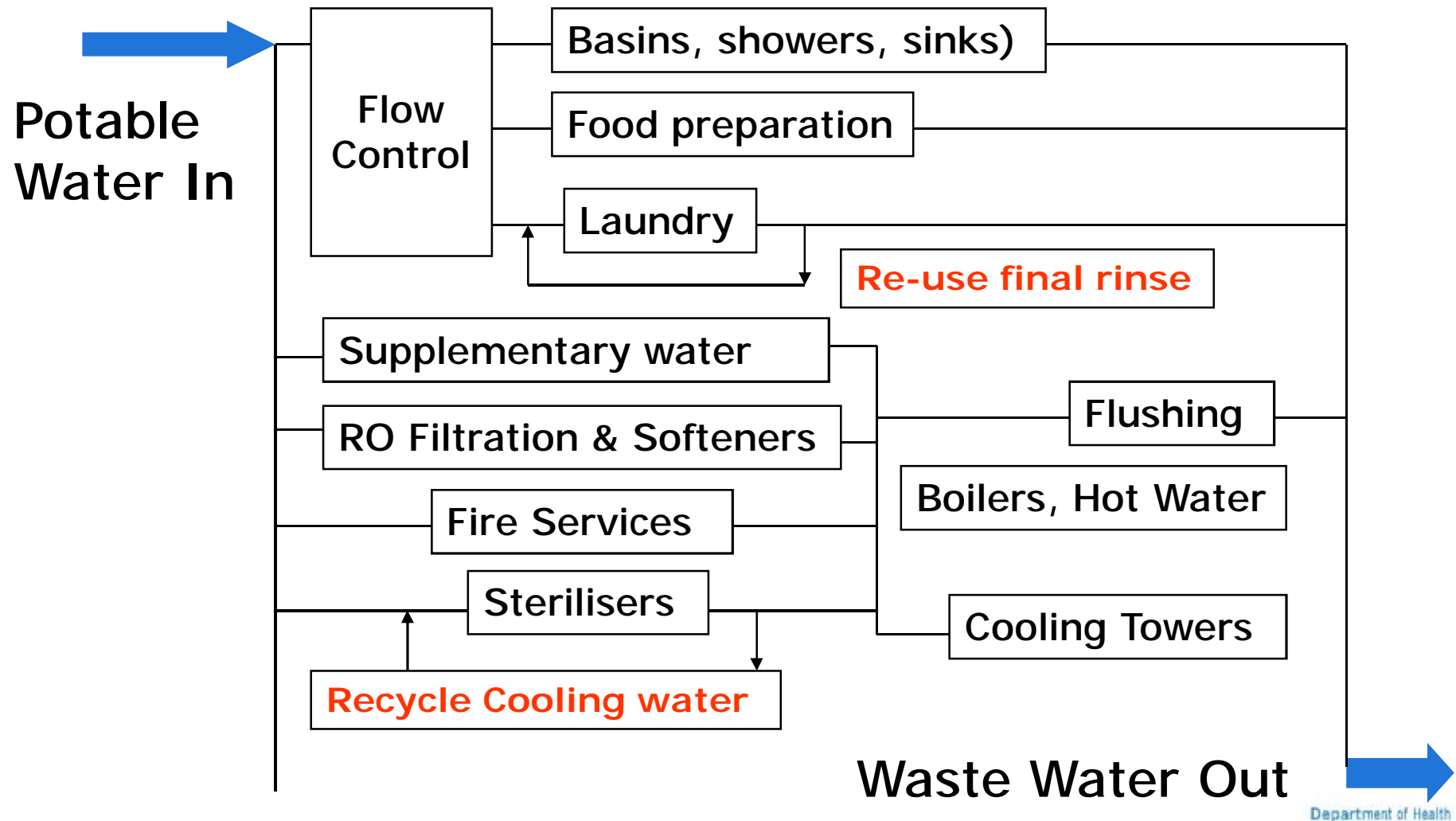
Reduce – restrict flow (handbasins, sinks), alter Laundry processes, chemicals

Re-use – reclaim clean waste water for (eg) sanitary flushing

Recycle – steriliser cooling water

GOH-W Program estimated to save over 274 ML per annum.

# Water Uses (Improved)



## Water audit outcome

### 79 Audits completed

- Critical first step
- Enables better understanding of water use
- Identifies leaks
- Approximately 15% of Project funds
- Average cost reduced as Audit process refined
- Water consumption savings of 10-30% identified



# Re-use, Recycle Steriliser Retrofits

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- Program delivered to retrofit sterilisers at 24 sites
- Mix of Re-cycle and Reclaim
- Recycle using chilled water, cooling tower, natural ventilation
- Reclaim water for use in flushers, boiler/hot water make-up

# Reuse Backwash Water

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- Backwash water collected from Reverse Osmosis units associated with Dialysis units at 16 sites
- Re-use opportunities include sanitary flushing, boiler/hot water make-up, steriliser cooling water

## Project Types:

- Ozone technology (6)
- Low Alkalinity chemical (2)
- Final Rinse water recycling (3)

## Savings achieved:

- Water (30-50%)
- Energy (up to 90%)

1: What did the program deliver?

## Final: Projects delivered:

- 79 audits
- 57 retrofits (water efficiency measures, eg flow restrictors)
- 24 steriliser retrofits (Recycle or Reclaim)
- 11 ozone laundry trials
- 16 dialysis water (reverse osmosis) reuse
- 12 rainwater substitution
- 13 metering

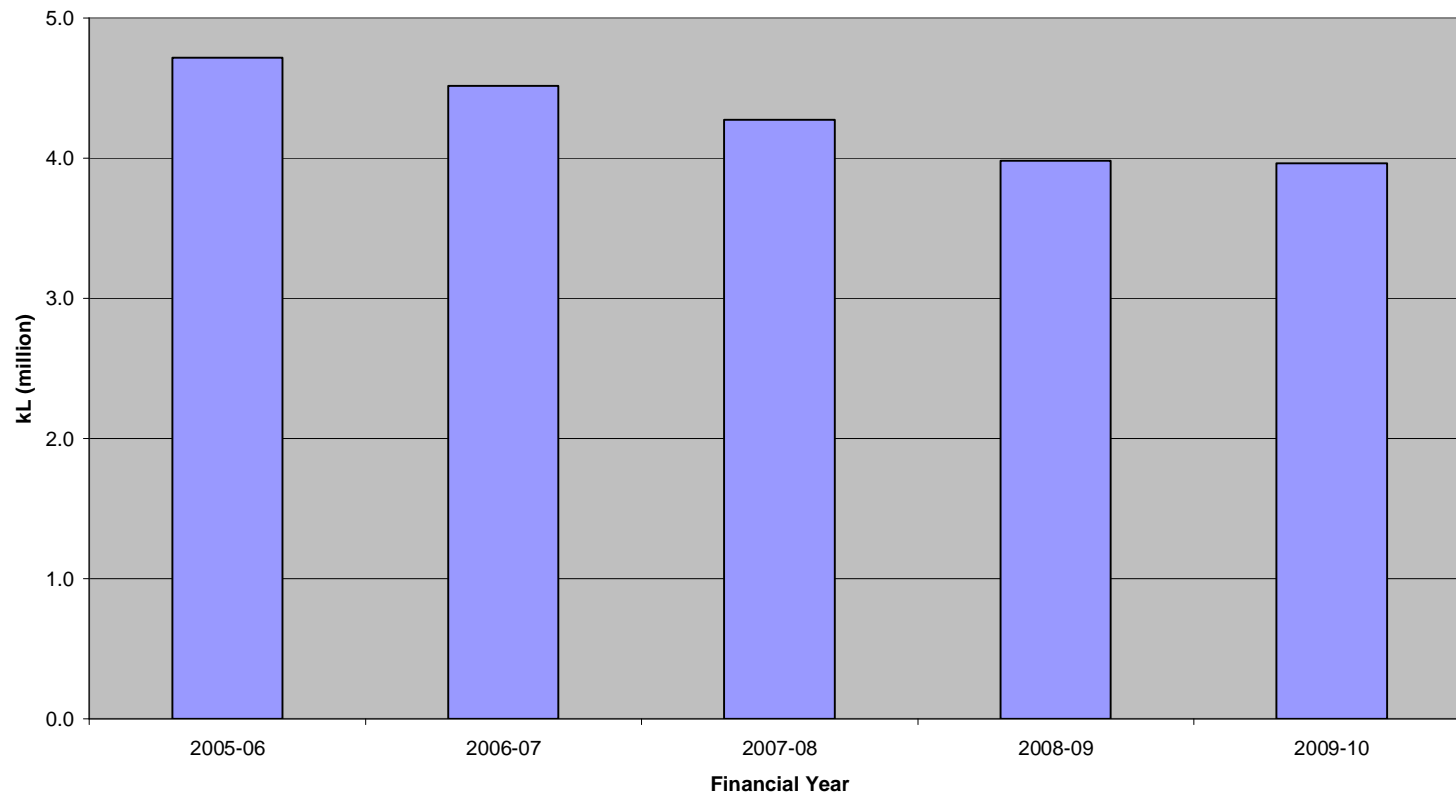
Estimated savings: 330 ML per annum (original estimate: 274ML)

2: Did the project meet the original business case?  
(we can answer this....)

Firstly: need to establish the baseline (using AIMS data)

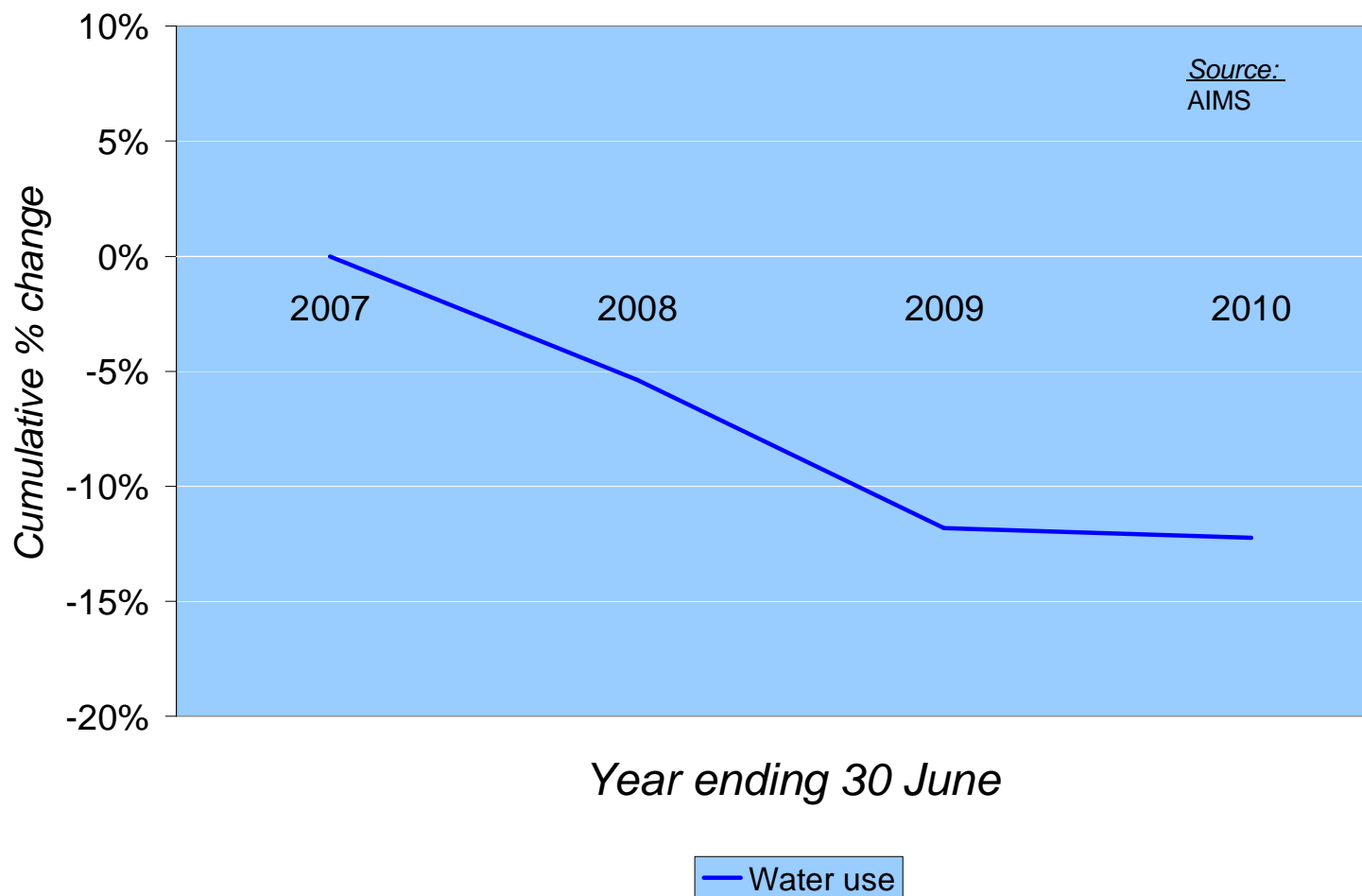
# Whole of portfolio water consumption

Whole-of-portfolio water consumption



# Water Reduction between 2006 and 2010

Health portfolio water consumption 2006-2010





## 3: How has each initiative performed?

- Collecting individual project data (in final stages)
  - Easy where metered, eg steriliser, etc and where submetering installed. More difficult in general due to lack of submetering
- Development of case studies (in final stages)

## Results by initiative

### Project Expenditure

Water-saving Projects	76%
Non-water-saving activities	24%

### Costs vs Savings

Project Type	% Spend	% Savings
Backwash	14%	8%
Laundry	6%	2%
Other	3%	2%
Retro-fit	37%	55%
Steriliser	28%	25%
Rainwater	11%	8%

## Evaluation : issues and challenges

### 4: What lessons have been learnt and where do we go beyond this program?

- Engaging with the industry
- Technical issues
- Priorities
- Measuring outcomes (metering)
- Maintaining the Savings

# Independent Evaluation Report

Evaluation to be undertaken by evaluation consultants

Aims to answer key research questions and to

1. Review outcomes against business case, and review quantitative outcomes
2. Provide a qualitative review of the program, include capacity building and other lessons about the implementation approach
3. Provide directions for the development of future water policy and programs

Will include: interviews and surveys with participants

## Next steps

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- Case studies will be available on the new DH website (due mid year)
- Evaluation summary will be made available once finalised
- IHEA National Conference
- Keep saving water