

# **Centroc Water Utilities Alliance Water Loss Management Toolkit**



# Who & Where is Centroc ?

Centroc Board comprises Mayors, elected representatives and General Managers of Councils across Central NSW

An area the size of Tasmania with about half the population and a bigger the GDP



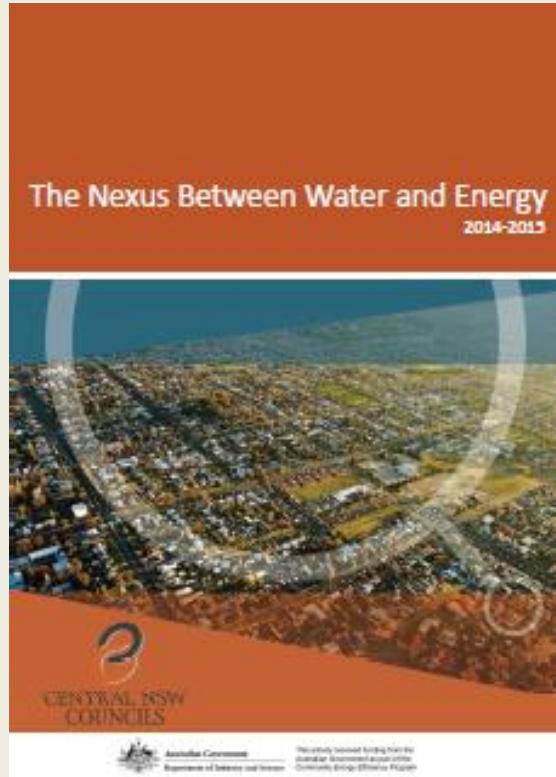
# Centroc Water Utilities Alliance

## Strategic Regional Collaboration

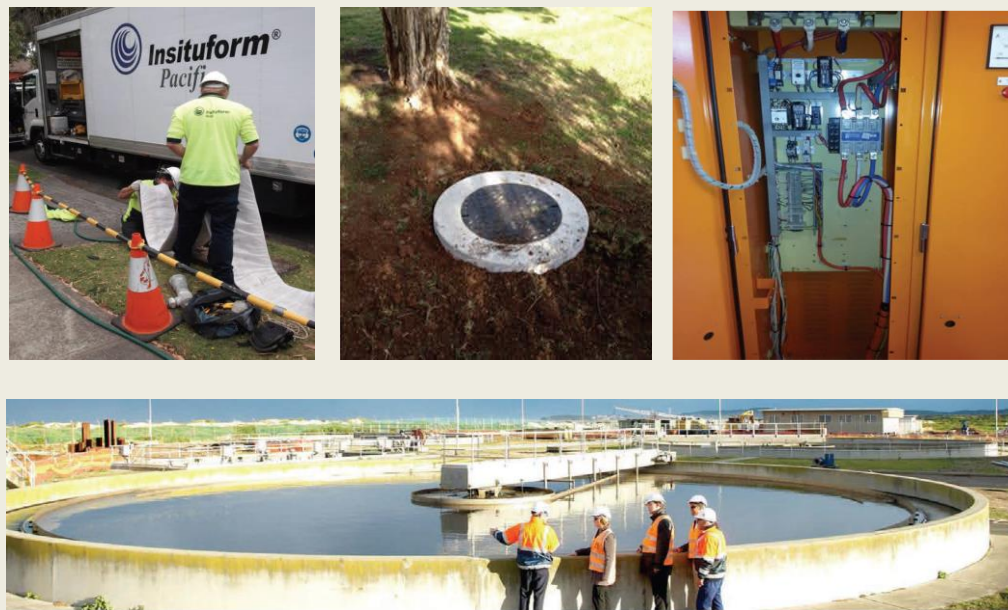


- Compliance with Best Practice
- Cost savings & efficiencies through procurement
- Skilled and sustainable workforce
- Grant funding
- Advocacy





- increase energy efficiency of Council water and sewer assets
- install energy efficiency products demonstrating effectiveness of technologies
- build regional capacity and be implementation ready for further programming
- promote energy efficiency to Councils and communities



- Sewer pipe relining at 11LGAs
  - Manhole repairs (Forbes)
  - VSD installation at WTP (Orange)
  - Audit of water treatment plant (Boorowa)
- Monitoring, location & repair of leakage & water losses (Parkes & Lithgow)





Central NSW Councils

# **Water Loss Management Toolkit Planning Guide**



## **Water Loss Management Toolkit:**

Explains the basic concepts involved with managing water losses from water supply networks.

- Identifies how water loss management saves water and energy
- Captures lessons learned from existing projects
- Builds capability
- Partnered with NSW Water Directorate to provide Toolkits to Councils across NSW.

*A Water Loss Management Plan is the primary tool for diligent water resource management.*

## *Why?*

- Saves both energy & water
- Reduces costs
- Can be avoided
- Can sustain water supplies
- Protect the environment



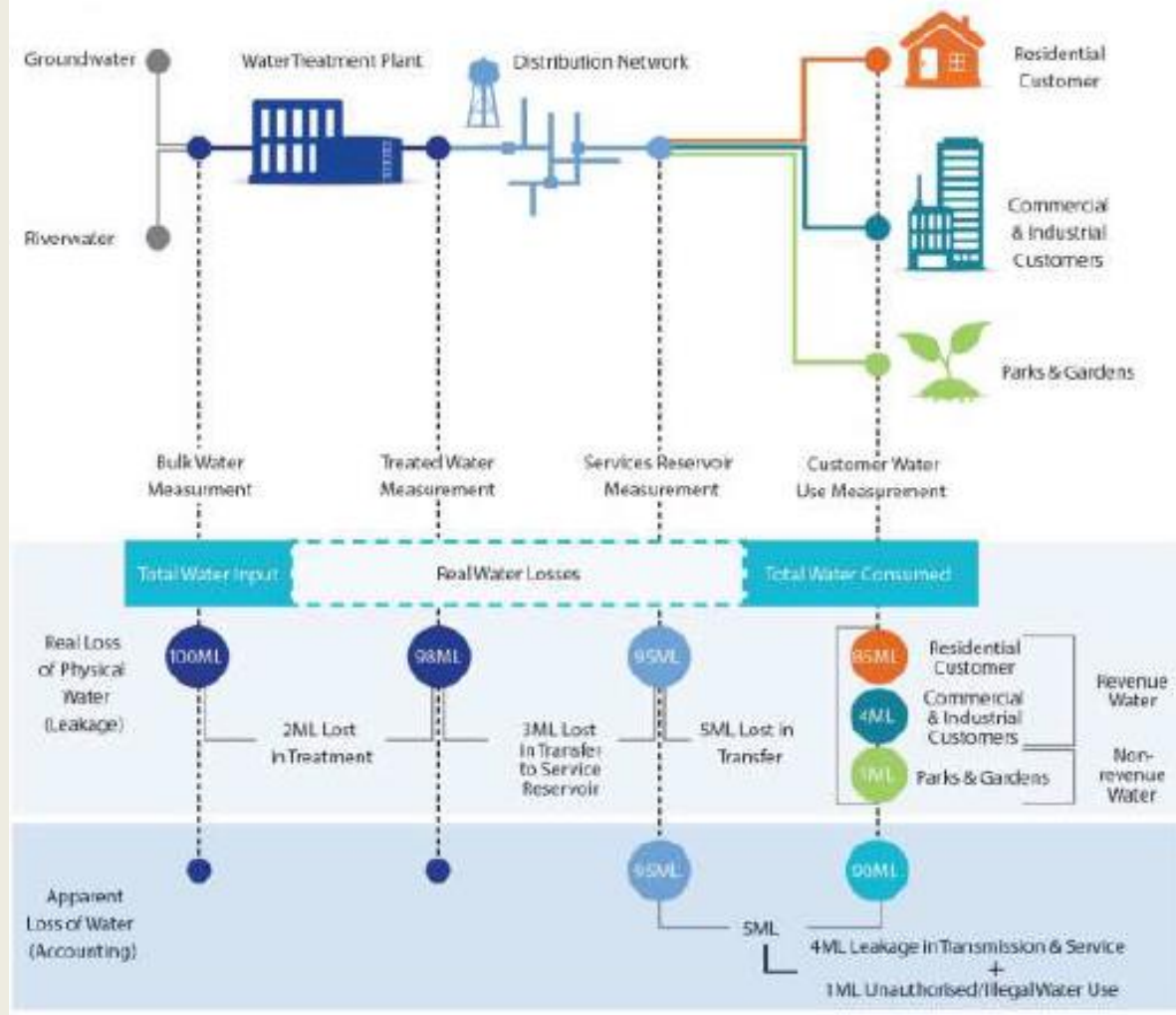
Water produced	Water consumed	Billed consumption	Billed metered consumption (including water exported)	Revenue water
			Billed unmetered consumption	
		Unbilled consumption	Unbilled metered consumption	Non-revenue water
			Unbilled unmetered consumption	
	Water losses	Apparent losses	Unauthorised consumption	
			Customer meter inaccuracies	
			Data inaccuracies	
		Real losses (or leakage)	Leakage on transmission and distribution mains	
			Leakage and overflows at storage reservoirs	
			Leakage on service connections up to the point of customer metering	

# What is water loss management?

Managing water supply networks to reduce water losses between supply and delivery to the customer.

**Figure 1: Components of the water supply**  
(Adapted from IWA)





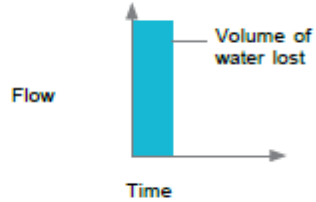
What causes water loss?

# Leak size and water lost

## Large breaks:



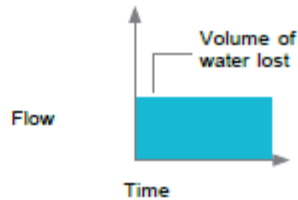
- Highly visible
- Quickly fixed



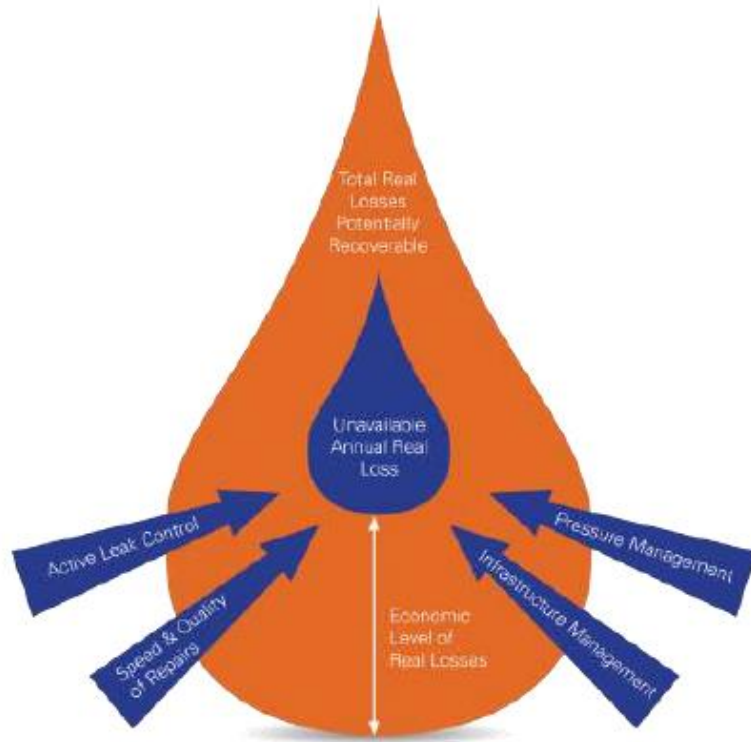
## Small leaks:



- Invisible
- Longer time to repair



# Four Basic methods for managing water loss



- Active leak control
- Pressure management
- Infrastructure management
- Speed and quality of repairs

# Water loss management planning: 5 elements

## 1. Determine your network's water loss performance

- Gather information
- Conduct top down water balance to determine losses
- Assess significance of losses
- Communicate with decision-makers and customers

## 2. Setting up your planning tools – best practice

- Design and review district metered areas
- Advanced planning tools
  - network hydraulic models
  - dashboard solutions



### 3. Developing and implementing your water loss management plan

- Verify water losses
- Set objectives and targets
- Identify and measure leakage
- Perform cost-benefit analysis
- Define the investment plan
- Incorporate into strategic business plan



### 4. Actions to support your plan

- Identify key stakeholders and their roles
- Audit data sources and business processes
- Develop a communications plan
- Review forward budgets for water loss management



## 5. Monitoring, reviewing and improving your plan

- Develop a monitoring strategy
- Determine a review cycle, including triggers for revising

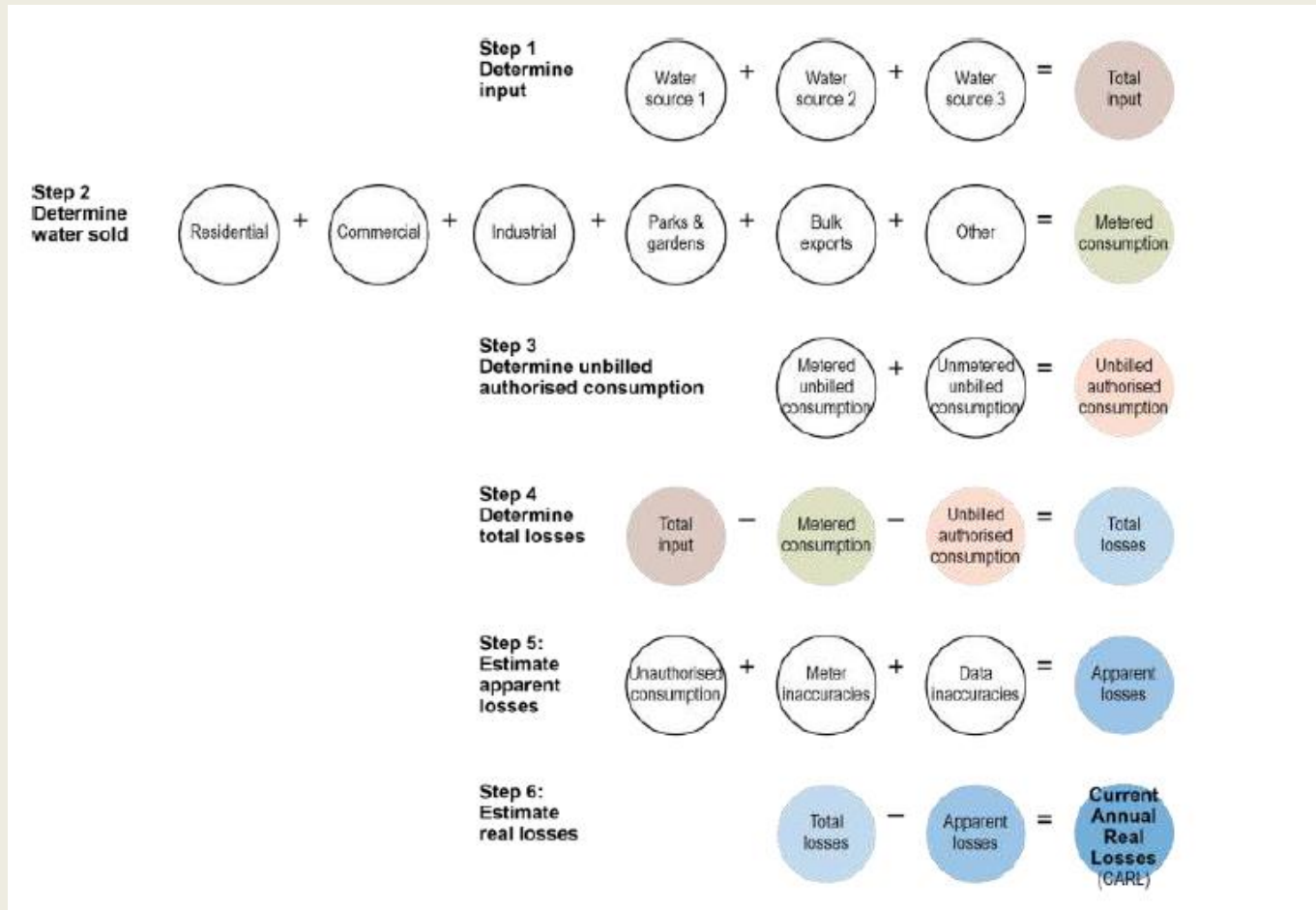


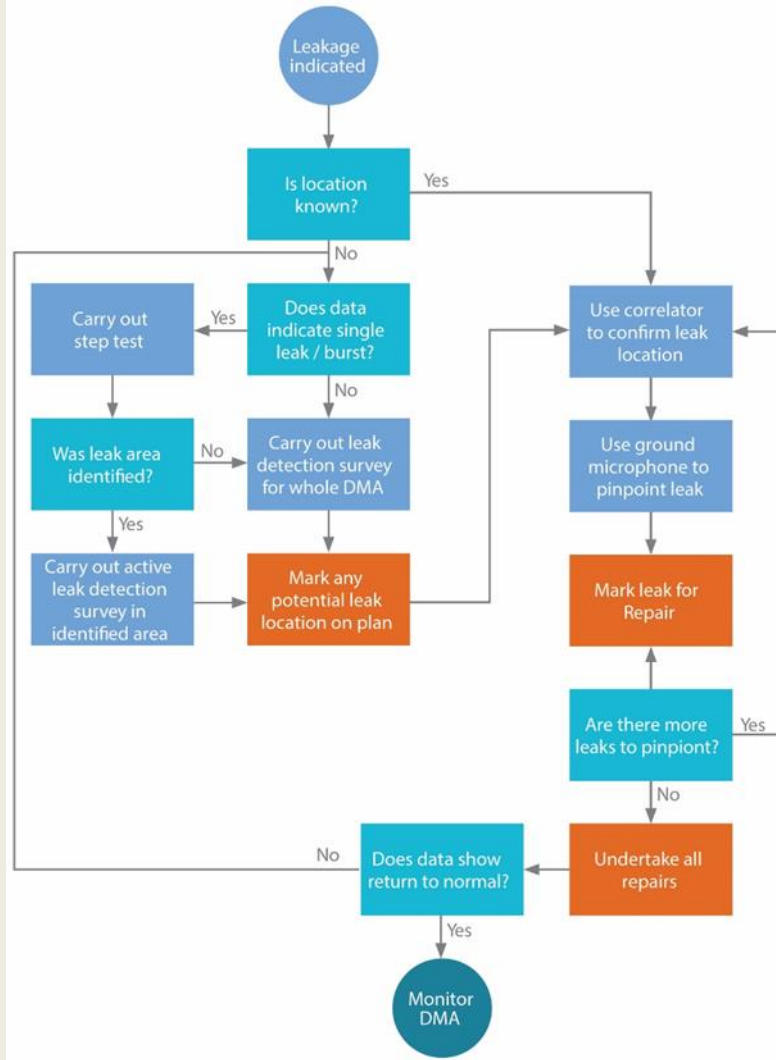
Central NSW Councils  
**Water Loss  
Management Toolkit  
Operators' Guide**



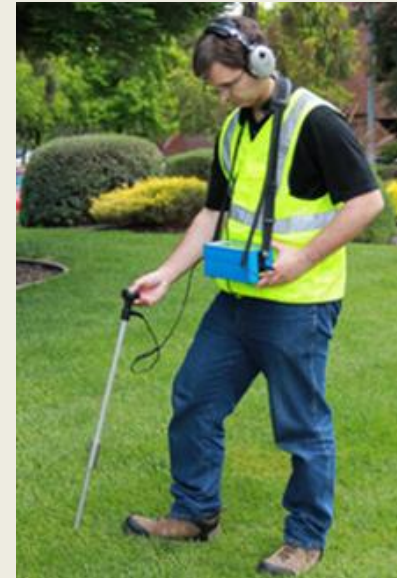


# Steps for conducting a top down water balance





## Locating and pinpointing leaks



# Parkes Shire Council's Water Loss Management Journey

## What?

We undertook our first investigation into water loss management between 2005 and 2007

## How?

- We engaged a consultant to assist us with the study
- With their help, we conducted a bulk water audit, undertook basic DMA planning and installed a bulk meter for 1 DMA/PMA
- The process was informed by the NSW Water Directorate program
- All of the physical works were done by Council

## Hurdles?

- The data collection work did not go as planned

## Successes?

- The pilot process was successful and was used to inform further planning in the remainder of the network

## What?

We developed a clear program water loss management projects for potential future funding

## How?

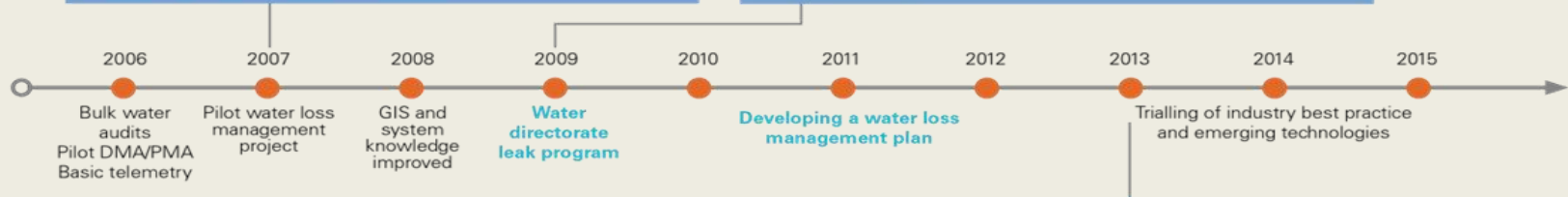
- Data from our project with the Water Directorate and from our pilot DMA/PMA was collated and analysed by a consultant to quantify system leakage and develop an active leak management plan
- A series of targeted repairs were undertaken and monitoring completed to demonstrate effectiveness

## Hurdles?

- No real hurdles were faced in this project

## Successes?

- This project quantified and resolved 200ML/a of water savings
- The project also developed a series of future work priorities based on monitoring



## What?

We used Federal government grant funding to trial industry best-practices and emerging technology

## How?

- We expanded our standard approach to investigating and monitoring demands and leakage to include economic analysis of assets and asset performance
- We installed online acoustic detection technology in the CBD and a data collection network
- We procured new data capture software to consolidate new and existing data and developed and implemented a repair plan based on data feedback

## Hurdles?

- No real hurdles were faced in this project

## Successes?

- This project was scoped as part of our WLMP and delivered real water savings



# Questions the toolkit will help answer



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**Water Loss  
Management Toolkit  
Planning Guide**



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**Water Loss  
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Operators' Guide**



- ✓ What is water loss & why does it matter?
- ✓ What are the causes & how to quantify?
- ✓ What triggers management of the loss?
- ✓ What activities to undertake?
- ✓ How water loss relates to energy savings?
- ✓ How to sustain savings made from investments in water loss management?

Thank you