

Addressing the Underlying Problems in Water Supply Management

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September 19th, 2006



Introduction

- ❖ Setting the scene for water use in BC
- ❖ Outline 4 steps for a strategic approach to water supply management
- ❖ Monitoring change through performance measurement & Benchmarking



Water in BC

- ❖ Abundant
- ❖ Cheap
- ❖ High quality
- ❖ Water is a right

Reality or ... perception?



Obstacles to Sustainable Water Use

- ❖ Need to fight these long-term perceptions
- ❖ Need to understand customer base
- ❖ Water is still cheap!



Reactive Approach to Water Supply Management

Water shortages



Build new treatment plants

Boil Water Advisories

Implement Water Use Restrictions

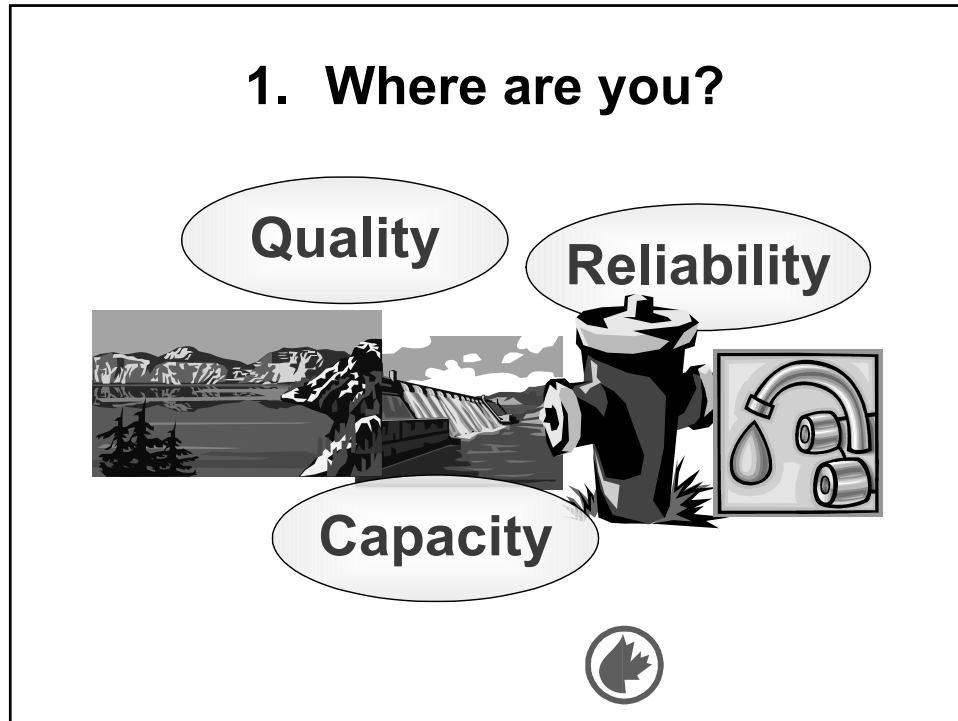


A Strategic Approach to Water Supply Management

Develop a Long-Range Life-Cycle Plan for Water Supply

1. Where are you?
2. Where do you want to be?
3. How will you get there?
4. How will you know when you have arrived?





Current Situation

Example scenario:

- ❖ Raw water storage only sufficient for 4 weeks under drought conditions
- ❖ Water treatment plant at peak capacity for 2 weeks during summer
- ❖ Frequent low pressure complaints from customers
- ❖ Water use restrictions common

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2. Where do you want to be?

Example Scenario:

- ❖ Storage capacity for 1:25 year droughts
- ❖ Plant doesn't exceed peak capacity for longer than 1 day
- ❖ 0 low pressure complaints from customers
- ❖ No sprinkling restrictions required
- ❖ Long term horizon 10 to 50 years



3. How will you get there?

Strategies to consider

- ❖ Water Loss Management
- ❖ Water Conservation
- ❖ Asset Management
- ❖ Source Planning
- ❖ Hydraulic Modeling



No need to rewrite the “book”

- ❖ Developing a Water Distribution System Renewal Plan

InfraGuide
Innovations and Best Practices

- ❖ IWA Water Balance for Water Loss (AWWA have free XLS available)



- ❖ Water use efficiency resources e.g. Waterbucket.ca



4. How will you know when you have arrived?

- ❖ Set up metrics to monitor change
- ❖ Measure your progress against goals
- ❖ Measure if your strategies are working
- ❖ Not just performance measures, but benchmarking



Benefits of Benchmarking

- ❖ Compare against your peers
- ❖ Compare against targets
- ❖ Identify areas for improvement
- ❖ Track annual improvement
- ❖ Peer to peer network
- ❖ Learn from the experiences of others



National Benchmarking Initiative



Progress in Performance Improvement

- ❖ Learn from the experiences of others
- ❖ Validate existing Best Practices
- ❖ Report back on PII at Annual Workshop – solutions, problems, ideas
- ❖ Group peer pressure
- ❖ Monitor change

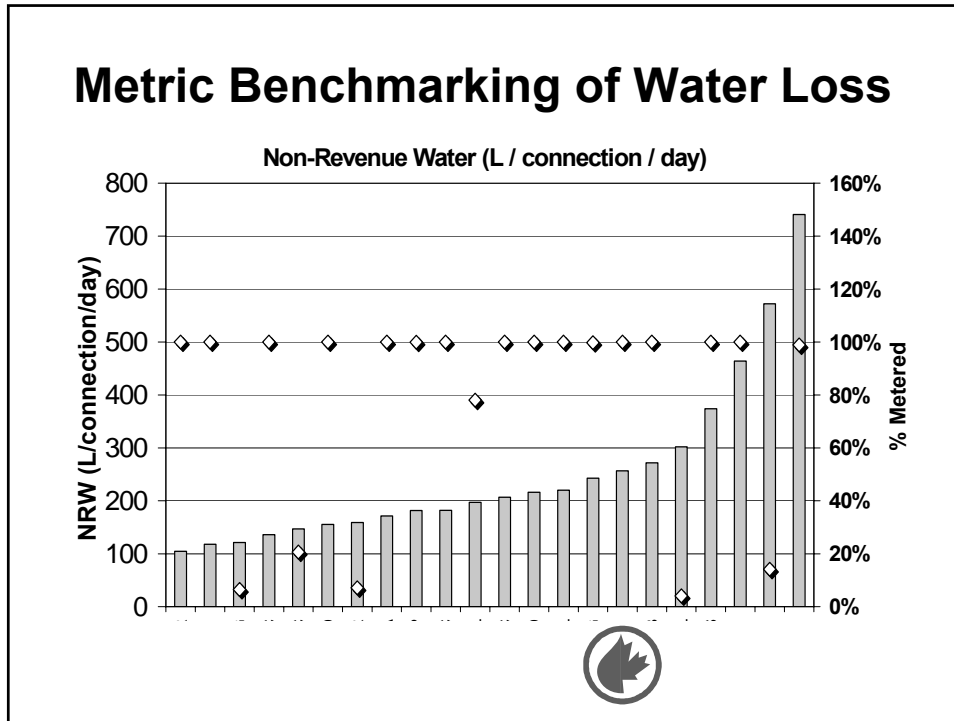


Water Loss as an Example

IWA Water Balance

System Input Volume	Authorized Consumption	Billed Authorized Consumption	Billed Metered Consumption (including water exported)	Revenue Water	
			Billed Unmetered Consumption		
(Corrected for Known Errors)	Water Losses	Unbilled Authorized Consumption	Unbilled Metered Consumption	Non-Revenue Water (NRW)	
		Apparent Losses	Unbilled Unmetered Consumption		
		Real Losses	Unauthorized Consumption		Customer Metering Inaccuracies
			Leakage on Mains		Leakage on Overflows at Storage
			Leakage on Service Connections Up to Point of Customer Metering		





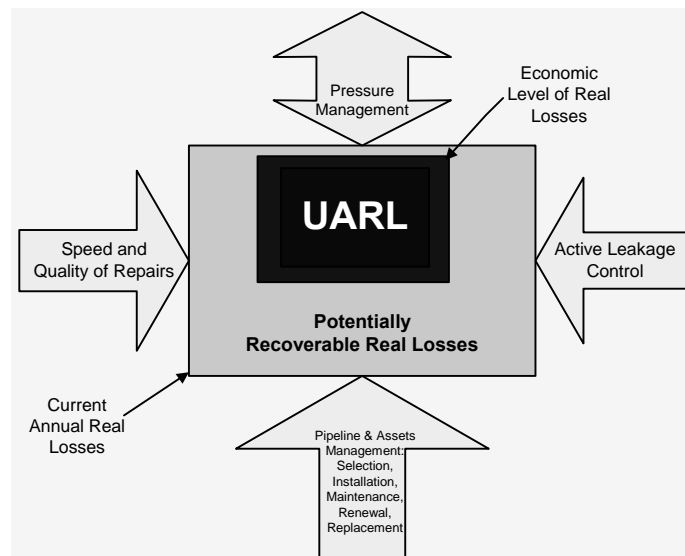
- ### Infrastructure Leakage Index
- ❖ Tested globally
 - ❖ Unit-less & based on real water loss
 - ❖ System specific – takes into account operating pressure, service connection length, pipe condition & meter location
 - ❖ Compare to an international data set

ILI Calculation

- ❖ $ILI = CARL / UARL$
- ❖ CARL = Current Annual Real Losses
- ❖ UARL = theoretical Unavoidable Annual Real Losses



CARL and UARL



Process Benchmarking of Water Loss

- ❖ Measure ILI & compare to local & international data set
- ❖ Share experiences in water loss reduction strategies
- ❖ Monitor change in ILI after implementation of strategies
- ❖ Validate existing best practices



Summary

- ❖ Currently a reactive approach
- ❖ Move to a strategic approach
- ❖ Plan → Strategies → Metrics
- ❖ Use metrics to monitor change and measure if your strategies are working
- ❖ Not just performance metrics, but ongoing benchmarking



Resources available at
www.nationalbenchmarking.ca

