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# Fresh Perspectives from The International Water Conservation Community: Share-out from the IWA Efficient 2017 Conference in Bath, England

Mary Ann Dickinson



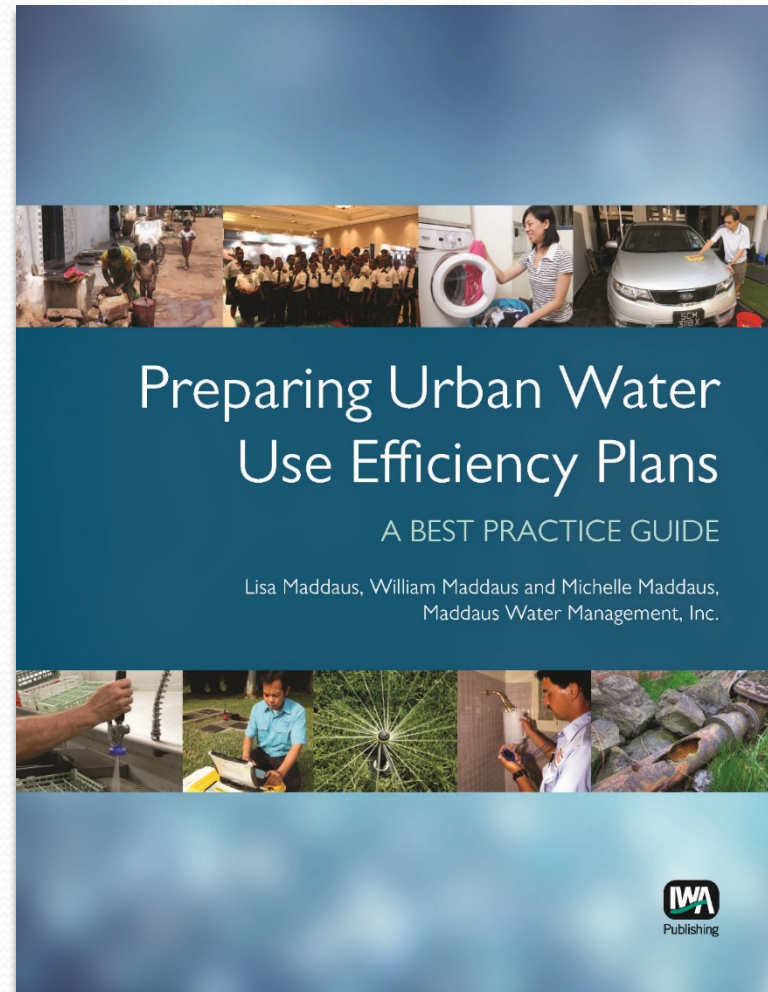
October 4, 2017

Lisa Maddaus



# Agenda

1. Overview
2. Water Loss
3. AquaRating Workshop
4. Benefit Cost Workshop
5. IWA Guidebook Panel



# Overview



IWA EFFICIENT, BATH, 18-20 JULY 2017



# IWA Efficient Specialist Group

- International Water Association
- Efficient Urban Water Management Specialist Group
- Conferences held every two years since 2001 on a wide variety of efficiency topics
- 300-600 attend from all over the world
- Spain, Canary Islands, Chile, South Korea, Australia, Jordan, France, USA, England
- Next conference in 2019 will be in the Philippines (Manila)

IWA EFFICIENT2017 CONFERENCE



BATH, ENGLAND

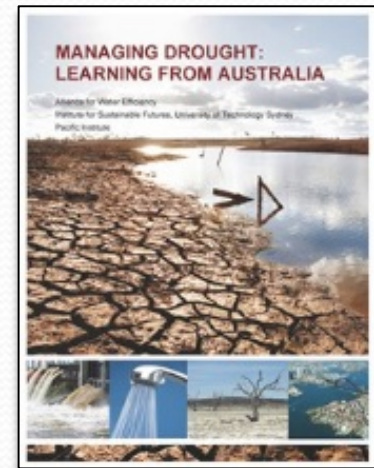
**2017**

# Efficient2017 Conference Sessions

- Water Efficiency in Buildings
- Conservation Programs
- Water and Energy Nexus
- Drought and Resiliency Planning
- Climate Change
- Policies and Legislation
- Public Involvement
- Rainwater and Greywater Management
- Non Revenue Water Management
- Demand Forecasting

# Sample Experiences Shared

- Australia Millennium Drought Lessons for California
- Micro-component demand analysis in Spain
- Alternative water sources in New Zealand commercial buildings
- International water labeling program experiences (Smart Approved WaterMark in Europe and Australia)





# Water Loss



# IWA Water Loss Specialist Group

- Composed of international experts on water loss who have been doing research for years
- Devised the methods for calculating and validating the IWA standard water balance, now used in AWWA M36 Manual
- Developed performance indicators such as the ILI, Leakage per connection per day, Leakage per mile of main

# Standard Water Balance

<b>System Input Volume</b>	<b>Authorized Consumption</b>	<b>Billed Authorized Consumption</b>	<b>Billed Metered Consumption</b>	<b>Revenue Water</b>
			<b>Billed Unmetered Consumption</b>	
		<b>Unbilled Authorized Consumption</b>	<b>Unbilled Metered Consumption</b>	<b>Non Revenue Water</b>
			<b>Unbilled Unmetered Consumption</b>	
	<b>Water Losses</b>	<b>Apparent Losses</b>	<b>Unauthorized Consumption</b>	
			<b>Customer Meter Inaccuracies</b>	
		<b>Real Losses</b>	<b>Leakage on Transmission and Distribution Mains</b>	
			<b>Leakage and Overflows at Storage Tanks</b>	
	<b>Leakage on Service Connections up to point of Customer Meter</b>			

# International Water Loss Issues

- Asset Management
- Pressure Management
- Intermittent supply
- Theft and unauthorized use
- DMA Design and operation
- Hydraulic Modeling
- Meter inaccuracy and apparent loss management
- Performance Contracting
- NRW Training

# AquaRating System



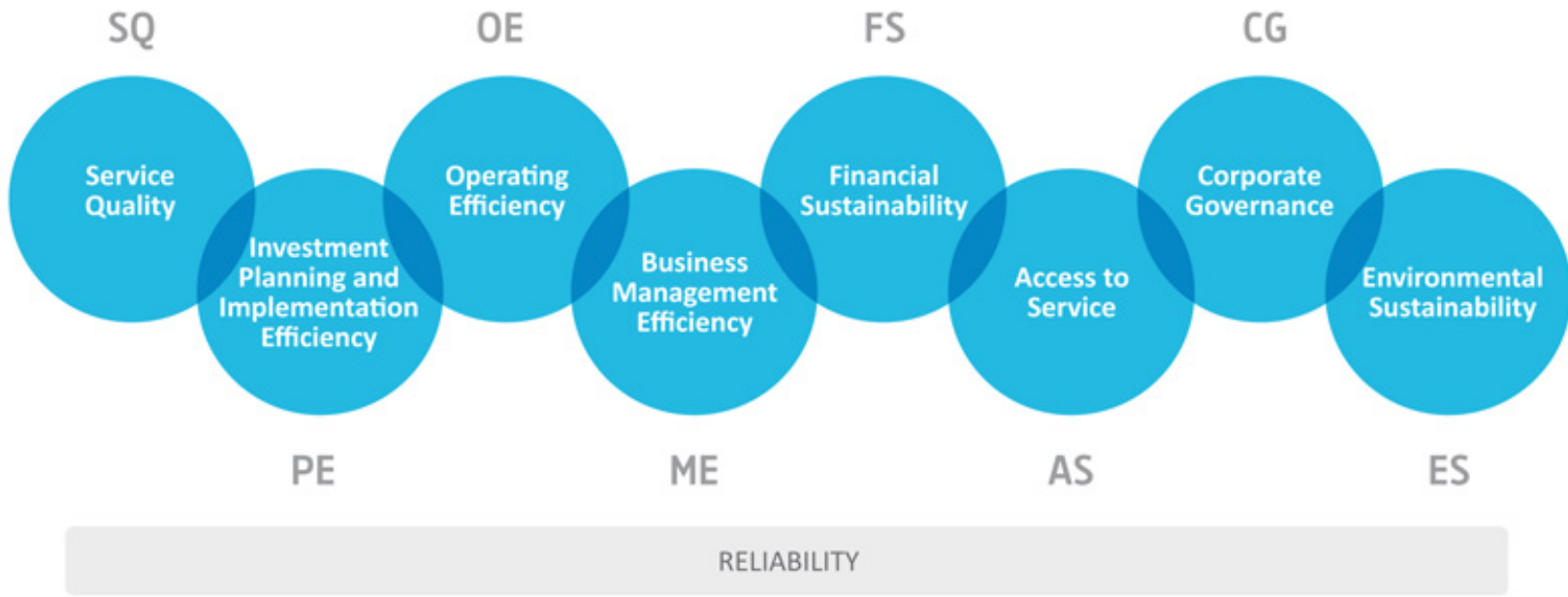
# AquaRating

- A rating system for water and sanitary service providers, piloted in South America
- Joint project of IWA and the International Development Bank (IDB) to improve water sector performance
- Evaluates water and sanitation services in an integrated way through 112 assessment elements organized in 8 areas, providing a rating in each
- Scoring from 0 to 100 by third party evaluators

# AquaRating System Structure

## SYSTEM'S STRUCTURE

AquaRating is structured in 8 rating areas:



# Benefits of AquaRating for a Utility

- Receives an external and credible performance rating
- Identifies areas of improvement and receive guidance
- Gets access to a living knowledge framework that fosters continuous learning for the sustainable progress
- Establishes a baseline to monitor the services improvement



# More Benefits of AquaRating

- Allows government to use the rating system as a standard to stimulate utilities to maintain or improve their performance
- Allows the targeting of incentives, technical assistance or finance according to performance
- Establishes a baseline to monitor the improvement of services
- Allows consumers to obtain better services in terms of access, quality, efficiency, sustainability and transparency in their utility

# How Does It Work?

- Participating utilities enter data in an on-line portal
- An independent and accredited auditor prepares the following:
  - An off-site audit of the AquaRating assessment elements
  - An on-site audit of the AquaRating assessment elements
  - An audit report of the AquaRating evaluation process
- A certified report is provided to the utility of the AquaRating results and performance improvement recommendations

# So Why Isn't It Here?

- We could use a benchmarking rating system in the US for water utility performance
- IDB is interested in bringing it to the US, at least on a trial pilot basis
- Possible IWA/AWWA turf issue
- Local third party auditors would have to be trained, as AquaRating is not a self-certified program
- Free webinar on October 17, 2017
- Register on AquaRating website: <http://aquarating.org>

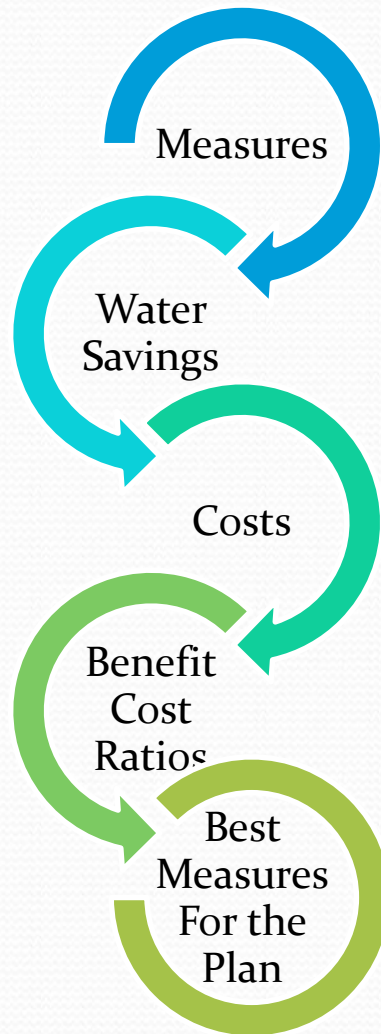
# Benefit Cost Workshop



# Benefit-Cost Workshop Overview

1. Why do a Benefit-Cost Analysis?
2. How to Define Benefits from Water Efficiency
3. How to Navigate the Maze of Conservation Measures
4. Proven Techniques to Calculate Water Savings
5. Understanding the Challenges of Benefit-Cost Analysis
6. Forming Programs of Cost-Effective Measures
7. Software Demonstration

# Overall Evaluation Process



# Proven Techniques to Calculate Water Savings



Water Savings, Year n =

No. Accounts Year n x Market Penetration Year n x Unit Water Savings (volume/day/connection or percent of current use)  
= volume / day

**Example:**

**Water Savings (Year 1) = 1,000  
accounts x 10% x 50 litres per  
unit**

**Water Savings (Year 1) = 5,000  
litres per day**

# IWA Guidebook Panel

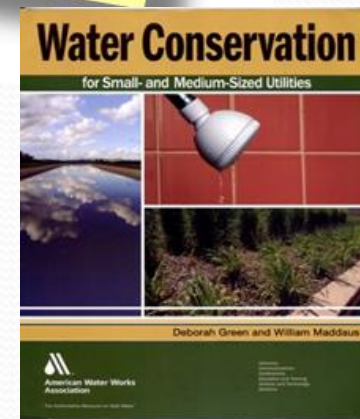
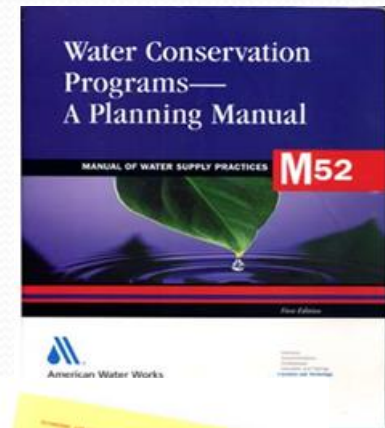
- Mary Ann Dickinson, IWA SG Chair
- Lisa Maddaus, Maddaus Water
- Wai Cheng Wong, Singapore PUB
- Toby Goddard, City of Santa Cruz, CA, USA
- Peter Macy, CDM Smith, South Africa





# Why This Guide?

- There are others – but not for an international audience (i.e., metric)
- Similar manual written for United Nations in 2001 but out of print
- Water demand continues to grow and efficiency needed to stretch existing supplies
- Water efficiency often the quickest and most cost-effective option to meet new demands



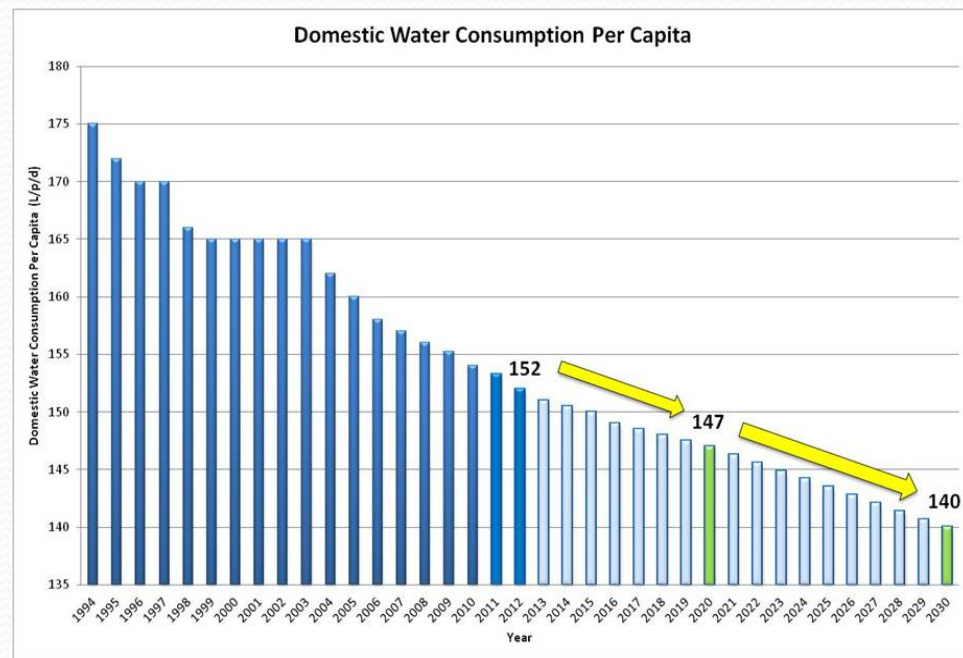
# 25 Case Studies

Asia	Middle East	Latin America	North America	Europe	Africa
<ul style="list-style-type: none"> <li>▪ Using water wisely</li> <li>▪ Climate change</li> <li>▪ Singapore &amp; Sydney programs</li> <li>▪ CII benchmarking</li> <li>▪ CII Cost effectiveness</li> <li>▪ Partnerships</li> <li>▪ Integrated programs</li> <li>▪ Stakeholder participation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Reuse in Jordan</li> </ul>	<ul style="list-style-type: none"> <li>▪ Public school programs in Brazil</li> </ul>	<ul style="list-style-type: none"> <li>▪ State scorecard</li> <li>▪ Plumbing codes</li> <li>▪ Assessing Baseline Survey</li> <li>▪ Rain barrels</li> <li>▪ Conservation pricing</li> <li>▪ Government financing</li> <li>▪ Self funding</li> <li>▪ Public participation</li> <li>▪ CII reduction</li> </ul>	<ul style="list-style-type: none"> <li>▪ Appliance and fixture labeling</li> <li>▪ Rainwater harvesting</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pressure management</li> <li>▪ Leakage reduction</li> </ul>

Guide also includes additional 15 Box Story Examples and links to hundreds of online examples and resources

# CASE STUDY 5: Singapore's Water Demand Management Programme

- Singapore PUB is striving for significant reductions in demand using “One Water” concept:
  - NEWater
  - Stormwater
  - Water pricing
  - Mandating plumbing & appliance standards
  - Mandated facility audits
- Water use declined 13% since 1994 and 8% since 2003



# Case Study Commonalities

- Many agencies looking to expand water supplies
- Where the new supply projects are controversial and or expensive lessons learned include:
  1. Water efficiency programs are often the least expensive way to increase water supplies or accommodate system growth is established before actively seeking new supplies.
  2. Droughts show effectiveness of water conservation.
  3. Assess the water use profile and opportunities and pick the “low hanging fruit”
  4. Public Involvement is a fundamental need at all stages of water planning – the earlier the better!

# How to Get the Guide

## Order the Guide

- <http://www.allianceforwaterefficiency.org/Publications-for-Sale.aspx> (35% off standard price)
- <http://www.iwapublishing.com/books/9781780405230/preparing-urban-water-use-efficiency-plans>
- **Check IWA Urban Water Efficient Management Group** web site for updates and additional information.

<http://www.iwa-network.org/groups/efficient-urban-water-management/>

# Contact Information

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