This presentation premiered at WaterSmart Innovations

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The New IWA Best Practice Guide for Preparing Urban Water Use Efficiency Plans

Water Smart Innovations 2014

October 8, 2014

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and

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Agenda

1. Why This Guide
2. Contents
3. Sample Case Studies &
4. Melbourne Case Study
5. How to Order
Why This Guide?

- There are others – but not for an international audience
- 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
Who Should Purchase & Use This Guide?

- Water System Government Agencies and Regulators
- Water Resource Planners
- Consultants
- Public Interest Groups
Contents of the Guide

- Assess current water supply sources and the benefits of water efficiency
- Evaluate current water use and develop a demand projection
- Develop water efficiency goals
- Identify/evaluate water use efficiency measures
- Evaluate cost-effectiveness of measures
- How can water efficiency be funded?
- Implementation planning and public participation
- Case Studies
25 Case Studies

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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 achieved a significant reduction in per capita water use using:
  - Water pricing
  - Encouraging water conservation
  - Mandating plumbing and appliance standards
- Water use declined 13% since 1994 and 8% since 2003
CASE STUDY 8: Water Use Reduction in Public Schools, São Paulo, Brazil

- Companhia de Saneamento Básico do Estado de São Paulo S.A (SABESP) and Miya Corp
- Achieved reductions of water consumption through:
  - High efficiency toilets
  - Automatic taps
  - Leak detection services and leak repairs
  - Infrastructure maintenance
- Water consumption decreased by 30% within 12 months

Replacement taps with automatic shut-off taps
CASE STUDY 12: Cost Effective Domestic Rain Barrel Education
Honolulu Board of Water Supply, Hawaii, USA

- 4-5 workshops per year attended by total of 150 persons and distributed
- 150 rain barrels at a cost of $35 each
- 5-yr program total barrels = 775
- Total annual water savings = 6.1ML/yr
- Total lifetime savings (15-year life) = 91.5ML
- Utility Benefit to Cost Ratio = 3.1
- Discounted cost of water saved (Utility perspective) = $28.80/ML
- Net Present Value (NPV) to the Utility = $47,000
CASE STUDY 22: Leakage Reduction Through Pressure Management in Khayelitsha, South Africa

- Two stage pressure management project
  1. Reduce pressure at night
  2. Reduce pressure at periods of low demand

- Results
  1. Stage 1: 24% reduction
  2. Stage 2: Added 16% reduction
  3. Overall 40% reduction in water supplied
Case Study 4 – Changing Water Use – Melbourne Australia

Bruce Rhodes
Manager Water Resource Management
Melbourne Water
Millennium drought bought about significant and sustained water use changes and a driver for whole of water cycle water management.
The Millennium Drought

Water flowing into Melbourne’s main water supply reservoirs - annual totals (GL/year)

Long term average inflow (1913-1996)
Pre Millennium drought 615 GL/year
500,000 acre ft

Short term average inflow (2010-2013)
Post Millennium drought 573 GL/year

13-year average inflow (1997-2009)
Millennium drought 376 GL/year
304,000 acre ft

Storage Volumes and demand since 1960

Millennium Drought – Melbourne Responses

Permanent Water Savings Rules (from 2005)

• Staged water restrictions
• Domestic Water Use Target

Demand Management Initiatives
• Domestic and Industry programs
• Shower and toilet exchange
• Social marketing
• Government rebate programs

Supply Side
• Operational efficiencies
• Leak and pressure reduction
• Reinstatement low level diversion weirs
• Environmental flow qualifications
• Water quality management
• Access to low reservoir levels
• System Augmentation

Other
• Research studies
• Water pricing
• Water Efficiency Labelling (WELS)

National Water Efficiency Labelling
2008 Print advertisement
Stage 3a Water restrictions

2009 Victorian Government Advertisement
Target 155 l/c/d (40 G/c/d)
Communications and Engagement

Website
Daily storage information
Water Bill Information
Advertising Campaigns
Media Advice
Education
Brochures and Booklets
Partnerships
Research
Stakeholder Engagement

Water Restrictions
Fridge magnet
2006
Changing trends in demand - Melbourne

Analysis of Melbourne Total per capita per day Metropolitan Consumption

Acre-ft

Per Capita Per Day Consumption (g/p/d)

Annual Consumption (ML)

Total Annual Consumption
Calendar Year Average per capita per day Consumption


468,000 405,300 324,285 243,210 185 158 132 105 79 53
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 from IWA or Amazon
  - Price: US$ 153.00 (IWA) $117 (Amazon)
  - IWA members price: US$ 114.75
    http://www.iwapublishing.com/template.cfm?name=isbn9781780405230

• Check IWA Water Efficient Specialist web site for updates and additional information including benefit-cost analysis spreadsheet that goes with the Guide.
  - http://www.iwaefficient.com
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