PRIMER 9 New Technology & Next Generation WDM Strategies

How can your utility reach the next level of WDM?

Municipalities that have effectively implemented WDM initiatives for years with positive results may be at a stage where they are looking for new and innovative ideas that can provide further water efficiencies and behaviour change.

Water conservation technology is a quickly evolving field that may fulfill these goals, if resources are available for the typically higher costs associated with new technology. Adopting a more integrated systems approach for water management is another option, if there is sufficient political and operational support and a champion to lead the cause.

This primer highlights examples of innovative and emerging WDM practices and technologies.

What are "next generation" WDM strategies?

Kirk Stinchcombe, founding director of Econnics, a company specializing in innovative water conservation solutions for water utilities, has grouped past and present water demand management strategies under "generations".

First generation strategies focus on education and outreach, second generation strategies are driven by data and technology and third generation strategies include many tools and approaches showcased in this primer series (leakage reduction, conservation-oriented pricing).

Included in this third or "next generation" of strategies are more targeted WDM programs and sophisticated technologies, such as:

Rainwater harvesting and greywater technologies

- Large volume, all-season rainwater harvesting systems for indoor (e.g. toilets, laundry) and outdoor use.

water savings	revenue risk	ease of use	cost
high	low to moderate	difficult	high

Programs for construction sector

- Requirements for WDM initiatives in plans for new developments/sub-divisions.
- Green/blue building certification programs and financial incentive programs.
- Green approvals processes.

water savings	revenue risk	ease of use	cost
high	low to moderate	moderate	moderate

Stormwater management

- Pay-per-use fee for stormwater.
- Integrating stormwater management and water fees.
- Stormwater quality and quantity controls (rain gardens, infiltration gardens).

water savings	revenue risk	ease of use	cost
moderate to high	low	moderate to difficult	low to moderate

Targeted outreach (narrowcasting)

- Targeting WDM initiatives to specific groups (e.g. high water users or new building sector). See **Primer #3** – Community Outreach.

water savings	revenue risk	ease of use	cost
moderate to high	moderate to high	easy to moderate	low to moderate

Integrating pay-per-service utilities:
Halifax, Nova Scotia

In 2007, Halifax Regional Municipality (*pop. 350,000)* merged its water, wastewater and stormwater utilities into a single entity, *Halifax Water* – the first regulated utility of its kind in Canada.

In 2012, Halifax Water charged its customers a water rate of $\$0.509/m^3$ for all water consumed per month, and a wastewater and stormwater discharge rate of $\$1.296/m^3$ for all water consumed.

This system allows the integrated management of the full urban water cycle while providing customers with both direct information about the costs of these utilities and a better understanding of the linkages between them.

What are the challenges associated with next generation WDM initiatives?

Key challenges involved with implementing these strategies include:

1. obtaining funding
2. adequate political and community support and
3. coordinating resources with other municipal departments

Some of these challenges may be easier to overcome than others. For example, costs can be offset by rebate programs, such as Guelph's $2000 rebate for large volume rainwater harvesting systems.

Moving forward with other next generation WDM initiatives requires relationship-building, communications, champions, and political leaders.

Primer #2 provides some ideas and examples for overcoming challenges.

Case Study

Water efficiency from the ground up: Guelph's Blue Built Home program

Population (2011): 121,688
Density: 1,395.4/km²
Number of Meters/Services (2011): 40,032
Water Supply: Groundwater

Blue Built Homes is a certification program for new homes, administered by the City of Guelph with program support from Tarion-registered home builders.

It uses three water efficiency standards - bronze, silver and gold - based on the use of a third-party tested set of high quality home fixtures and appliances that save water.

Blue Built Homes can save up to $250 per year on water bills compared to conventional homes, with rebates provided directly to home owners. The program was endorsed by Guelph City Council in 2010, the first set of homes certified by September 2011 and in August 2012, 28 Blue Built Homes have been committed for construction.

The Blue Built Home program has faced challenges typical of a new certification with a new brand. Extensive stakeholder consultation went into the design of the program, along with research on the desired target audience and targeted communication methods.

The result has been a strong relationship with local home builders who support the program and actively promote it to their clients. The City of Guelph continues to explore opportunities for partnerships along with mechanisms to get the message out in new and innovative ways.

Wayne Galliher, Water Conservation Project Manager at the City of Guelph, notes that in trying to achieve active brand recognition for such a program you must "*make it look bigger than it is*". A sound piece of advice, as while the Blue Built Homes program is local to the Guelph community, it has the look and feel of a broader program.

Case Study

Partnerships in stormwater management: Kitchener, Waterloo, and REEP Green Solutions

In 2011-12, the cities of Kitchener and Waterloo initiated a user-pay stormwater utility to better link funding for infrastructure and operations management with the amount of stormwater property owners contribute to their municipal stormwater system.

It took six years for the fee-based model to be approved by both city councils. One particular challenge the city-partnership faced getting the utility off the ground was a lack of public understanding about stormwater in general and with being charged for property runoff through stormwater fees.

REEP Green Solutions, an environmental non-profit organization in the Region of Waterloo, has played a large role in addressing these challenges by partnering with the cities as a service provider for stormwater education programs.

The RAIN program, with the key message of "*Slow it down. Soak it up. Keep it clean*", raises the profile of urban stormwater and water re-use through tours of demonstration sites and workshops on topics such as water cisterns, rain gardens, permeable paving, greywater systems and planting gardens with drought tolerant native plants.

Andrew Marshall, RAIN Program

Andrew Marshall, Manager of the RAIN Program at REEP, notes that the keys to success of this NGO-municipal partnership have included being open to learn from mistakes, being inclusive and collaborative, and being aware of each organization's limitations.

He noted that any NGO-municipal partnership faces challenges due to the different cultures at each organization in terms of timelines, processes and approvals. As final words of advice, Andrew stated "*ensure from day one that all players understand their roles, responsibilities, and limitations, and that these are adhered to throughout the project to avoid duplication.*"

Resources:

- Halifax Water rates and fees: http://www.halifax.ca/hrwc/RatesAndFees.html
- *Guidelines for the Development and Implementation of Comprehensive Stormwater Management Master Plans in the Lake Simcoe Watershed*: http://www.lsrca.on.ca/pdf/reports/swm_master_plan_guidelines.pdf
- *Peeling Back the Pavement: A Blueprint for Reinventing Rainwater Management In Canada's Communities*. (2011). POLIS Project: http://poliswaterproject.org/publication/426
- *Low Impact Development Stormwater Management Planning and Design Guide*. (2010). Toronto and Region Conservation Authority and Credit Valley Conservation Authority: http://www.sustainabletechnologies.ca/Portals/_Rainbow/Documents/LID SWM Guide - v1.0_2010_1_no appendices.pdf
- Econnics eco-efficiency specialists: www.econnics.com
- REEP Green Solutions RAIN Education Program: http://www.reepwaterlooregion.ca/prog_rain.php

  Blue Built Home Water Efficiency Standards and Rebate Program: www.bluebuilthome.ca

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