Water - Choosing Sustainability for Life & Livelihoods:
An Introduction to the Water Sustainability Action Plan for British Columbia

Kim A Stephens, MEng, PEng
Program Coordinator, Water Sustainability Action Plan for BC
Water Sustainability Committee of the BC Water & Waste Association
Seek to Understand:
To Build Trust & Respect,
It Starts with a Conversation.

Listen, Listen, Listen.

Because…

Conversations ➔
will lead to Dialogue ➔
will lead to Consensus
Water Sustainability Action Plan for British Columbia

- Why a Plan?
- Who is involved?
- What is it?
- How is it being implemented?
- How can our experience help you?
Build a Vision, Create a Legacy

- **Issue:** How Will We Accommodate Settlement Pressures?
- **Impact:** The Landscape is Being Transformed
- **Sustainability:** Means Design with Nature
- **Built Environment:** We Can Improve It
- **Natural Environment:** We Can Protect It
- **Cumulative Benefits:** Accrue Over Time
- ** Desired Outcome:** Sustain Community Livability
Talk is cheap. So what does it take to trigger the move to action?

Drought, Forest Fires and Floods in 2003 Created a ‘Teachable Moment’ for Change that resulted in the Water Sustainability Action Plan for BC
The Water Sustainability Action Plan for BC....

... provides a partnership umbrella for an array of *on-the-ground* initiatives that promote a ‘water-centric’ approach to community planning.
Water-centric planning means...

- We will plan with a view to water – *whether for a site, a region, or the province*
- We will integrate missions, mandates and accountabilities
- We will move towards a water balance way-of-thinking and acting to deal with risk and manage uncertainty

**Water OUT = Water IN**
Because ‘everything is connected’, we start with this frame-of-reference.

The Way We Develop Land Determines How Water is Used and How Water Runs Off the Land.
Another way to view the relationships between land and water:

Will it be Cumulative Impacts or Cumulative Benefits?
BCWWA is partnering with the Province to deliver the Action Plan.
What You Should Know About the BCWWA Water Sustainability Committee

1. Roundtable of government and non-government organizations

2. Each has a specific interest or mission in implementing the Action Plan

3. Membership based on feeding back Action Plan outcomes into member organizations
The challenge

Make informed choices that will produce cumulative benefits over time, and thereby ensure long-term community vitality and livability.
Water Sustainability Action Plan for British Columbia

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The Action Plan comprises these interconnected program elements:

- Water Balance Model
- Water Bucket Website
- Green Infrastructure Partnership
- Water-Centric Planning

Convening for Action in British Columbia
“Convening for Action” is designed to turn ideas into action

- **What** is the problem?
- **So What** can be done about it?
- **Now What** will be done?
Addressing Challenges, Problems, Issues and Crises

Apply Systems Approach

Determine Options

Define Opportunities and Overcome Barriers

Choose Options

Plan for Security, Certainty & Well-being

Prepare Strategy

Implement Action Plans

Commit to Results

Generate and Transfer Knowledge

Monitor Performance

Then What?

Adaptive Management

What?

So

Now What?

Erik Karlsen - January 2005
When ‘convening for action’, we build capacity by creating a picture of the future:

1. **Vision**: What do you want this place to look like in 20 years, 50 years?

2. **Starting Point**: What are you doing to achieve this?

3. **Strategy**: What are you going to do better or differently to get from here to there?
The Core Issue:
How Will We Accommodate
A Doubling of the Population &
What Will British Columbia Look Like Then?
We are having conversations with a Mayors and Chairs Focus Group

OUR PREMISE: We can achieve environmental, economic and social objectives through our choices.

1. Is there a window of opportunity to move from talk to action?

2. What is your local perspective on these?

3. What do these words mean to you?

4. Where does your community want to be?

5. How (can, will) this help you get there?

What will your community look like in 50 years?
When ‘convening for action’, we also build capacity by showing how to create the future:

1. **Challenge** practitioners and others to step back from existing ways-of-thinking
2. **Inform** them regarding alternatives
3. **Provide** the tools & experience to develop land and use water differently
We are building capacity through regional pilot programs:

- **South Okanagan** –
  *Water for Life & Livelihoods*

- **Vancouver Island** –
  *Framework for Water-Centric Land Development Approvals*

- **Greater Vancouver** –
  *Celebrating Green Infrastructure & Showcasing Innovation*
Convening for Action in British Columbia is about…

- Making things happen on-the-ground
  - Having conversations
  - Bringing people together
  - Listening, listening, listening

- Aligning federal/provincial programs with local government needs
waterbucket.ca is the recognized water portal for British Columbia
waterbucket.ca is a resource-rich ‘destination location’ for timely and provocative information
WaterBucket Website Partnership
The South Okanagan Regional Growth Strategy is a pilot for “Water for Life & Livelihoods”
At the April 2005 Penticton Workshop, we unveiled Water OUT = Water IN
This deceptively simple equation embodies the basic principles and concepts for dealing with uncertainty and managing risk.

Over time, the safety factor has been shrinking:

**The Water Balance**

**OUT = IN**

**IN**

\[ = f \text{(hydrology, weather, time, infrastructure, ...)} \]

**OUT**

\[ = \text{Uses} + F_{\text{safety}} \]

\[ = (U_{\text{essential}} + U_{\text{excess}}) + F_{\text{safety}} \]

*where....*

\[ U_{\text{essential}} = f \text{(population, ecology, industry, time, ...)} \]

\[ U_{\text{excess}} = f \text{(wealth, society, technology...)} \]
Building on Case Study Experience: Convening for Action in the South Okanagan

- Water-Centric Planning: A Guidebook for British Columbia
- South Okanagan Regional Growth Strategy
- Convening for Action in the South Okanagan
- Town of Oliver: Smart Growth on the Ground
The process has crystallized this framework for action on-the-ground by local governments

1. Build Capacity through Outreach & Continuing Education
2. Develop a Water-Centric Plan for Land and Water Use
3. Establish Reachable Targets for Reducing Total Water Use
4. Implement a Showcasing Innovation Series
5. Report Back Yearly on Progress
Our goal is to establish a precedent at the sub-regional scale for the water balance way-of-thinking and acting.

Okanagan-Similkameen Regional Growth Strategy:

Moving Towards a Water Balance Way-of-Thinking and Acting in the South Okanagan:
A Synthesis of Conversations With Okanagan-Similkameen Residents

An Initiative of the
Water Sustainability Committee of the
British Columbia Water & Wastes Association
In Collaboration with
The Town of Oliver
Real Estate Foundation of British Columbia
Regional District of Okanagan-Similkameen
Okanagan Water Board
Province of British Columbia

Final Release: November 2005
Updated: February 2005
This is how we conceptualized what we learned from our conversations:

- Agricultural Legacy Defines Sense of Place
- Strengthening Communities is Key to Protecting Water

Water is the #1 concern of the public
We have been ‘connecting the dots’ in Oliver

The March 2006 Working Session was the first step in an educational process to change water-use habits, technologies and practices.
A Key Message: Celebrate & Build on Success!

Reclaimed water is used for fire protection in the Town core

Reclaimed Water Applications:
- 18 hole golf course
- Vineyard
- Hobby Farm
- Municipal Park
- Municipal Cemetery
- Public Works Yard
- Hayfield on Airport
Water-Centric Planning in Oliver:
Dealing with Uncertainty & Managing Risk

Convening for Action: The ‘Oliver Process’ demonstrates how to bring provincial programs and local needs into alignment
Water for Life and Livelihoods:
Protecting the Agricultural Legacy and Strengthening Communities

In May we held a ‘Mini-Summit’ at the BCWWA Conference in Whistler to “provincialize” the South Okanagan Case Study

A Key Message:
Role of local government is to lead by example
The water component of the Regional Growth Strategy will reflect these Guiding Principles

- Improve water use efficiency in the non-agricultural sector to support population growth in settlement centres

- Improve water use efficiency in the agriculture sector to adapt to climate variability and/or expand irrigated farmland
In conclusion, the take-away message is...

Ensure Decision Makers, Practitioners and the Public are Well-Informed on Water Issues
Anybody with a computer and Internet connection can access the Water Balance Model.
Water Balance Model Outcomes:

Visualize the ‘how to’ details of source control implementation

Model scenarios at the site, neighbourhood and watershed scales

Make decisions through a defensible, interactive, and transparent process
The Water Balance Model has been developed as an extension of the Guidebook methodology.

Guidebook Premise: Land Development and Watershed Protection can be Compatible

**Policy** Level Development Objectives

Science-Based Understanding of Development Impacts

**Site Design** Practices that achieve Objectives
Inter-Governmental Partnership:
Vision

To promote changes in land development practices so that:

- The built environment will preserve and/or restore the natural water balance over time
- Performance targets will be achieved for rainwater runoff volume and flow rate reduction at the source, *where rain falls*
The Partnership has broad provincial and national representation
The Design Objective is to Infiltrate the First 30mm of Rainfall
Flood Overflows in Some Areas are Chronic Because

- Too Much Runoff Volume
- Culvert Constrictions Cause Backwatering
- Pump Station is a Bottleneck
“Sustainable Subdivision Design is Part of the Flooding Solution”
The Home Depot in Courtenay has a deep well injection system designed for the first 20mm of rainfall.
The Water Balance Methodology at a Glance

Percentage of Annual Volume

RAINFALL SPECTRUM
- Light Showers: 75%
- Heavy Rain: 20%
- Extreme Storms: 5%

INTEGRATED STRATEGY
- SITE: Keep Rain on Site
- NEIGHBOURHOOD: Delay the Runoff
- WATERSHED: Reduce Flooding

Water Infiltrates and Moves Slowly Through Soil

Conventional Hydraulic Modeling

Water Balance Modeling
The ‘Light Shower’ Category Accounts for Most of the Rainfall Days

Light Showers Account for Most of the Annual Rainfall Volume
Light Showers Account for Most of the Annual Rainfall Volume in British Columbia and Alberta
It enables users to test the achievability of Performance Targets

Single Family Residential Example – Regional Comparison
A Key Consideration is Understanding How Water Moves Through Soil
KEY MESSAGE #1: The Water Balance Model enables changes in land development practices...

...by quantifying the benefits – in terms of reducing rainwater runoff volume - of installing source controls under different land use, soil and climate conditions
KEY MESSAGE #2:

Water Balance Model promotes Integration of Perspectives

- **Planners**: Tool for Better Use of Space
- **Engineers**: Tool for Pre-Design
- **Landscape Architects**: Tool for Green Solutions
- **Ecologists**: Tool for Watershed Function
- **Educators**: Tool for Social Marketing
KEY MESSAGE #2:
How the Water Balance Model can be used to make better decisions:

- **Local Governments** - when communicating with the public
- **Planners and Engineers** – when setting performance targets
- **Developers and their Consultants** - when testing scenarios
- **Environmental Agencies** - when monitoring watershed health
We have partnered with UBC to develop a ‘Tree Canopy Module’ and implement an applied research program to populate the model with data.

Dr. Markus Weiler
Integration with QUALHYMO will provide engineers with “one-stop shopping” for:

- Stream Erosion
- Water Quality
- Rainwater Storage Routing
- Drainage Area Flow Routing
- Snowmelt Runoff

Coming Next Spring.....
Practitioners will be able to correlate runoff volume and stream health
The mission of the Green Infrastructure Partnership is to promote implementation of ‘design with nature’ infrastructure practices and regulation.
Green Infrastructure Partnership
A ‘Design with Nature’ approach to community design means...

- Develop compact, complete communities
- Increase transportation options
- Reduce the loads on water, waste and energy systems
- Protect and restore urban ‘green’ space
- Strive for a lighter ‘hydrologic footprint’
- Achieve higher levels of receiving water protection
In May 2005, we convened a Consultation Workshop that resulted in ‘Celebrating Green Infrastructure’.

Because it is lonely being a champion, and everyone in local government is so busy, participants expressed a strong desire to pool resources and convene on-the-ground to share ‘how to do it’ experiences.
The Green Infrastructure Partnership is ‘turning ideas into action’ on-the-ground!

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A provincial pilot has been implemented in the GVRD.
Through the Showcasing Innovation Series, the goal is to build regional capacity …

… by sharing green infrastructure approaches, experiences and lessons learned as an outcome of ‘designing with nature’.
North Vancouver used a lane, an arterial highway and the Maplewood community to illustrate the benefits of innovation.
The Surrey focus was on what can be accomplished on-the-ground, now and over the next 50 years, to restore watershed function.
UBC and Vancouver have demonstrated how to build truly ‘green’ streets by integrating rainwater management and transportation design.

David Desrochers: “Someone has to build the first one so that others will follow.”

David Grigg: “Beyond the Moment”
The Way We Develop Land Determines How Water is Used and How Water Runs Off the Land

So, We Can Achieve Cumulative Benefits One Site at a Time
By Implementing ‘Design with Nature’ Infrastructure Practices & Regulation
Water Sustainability Action Plan for British Columbia

- Why a Plan?
- Who is involved?
- What is it?
- How is it being implemented?
- How can our experience help you?
Inform, inspire and enable people to work together through partnerships to act now.

In conclusion, to achieve water sustainability....