

Canada Mortgage & Housing Corporation
Sustainable Planning & Development Workshop
Dawson Creek, December 2006

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

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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?

Okanagan Lake

Kelowna

Active
Burning

**Drought, Forest Fires and Floods in 2003
Created a 'Teachable Moment' for Change
that resulted in the
Water Sustainability Action Plan for BC**

Burn Scar

The Action Plan builds on the lessons learned from the 1998 Water Conservation Strategy for British Columbia



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



Creating
the
Future
Together

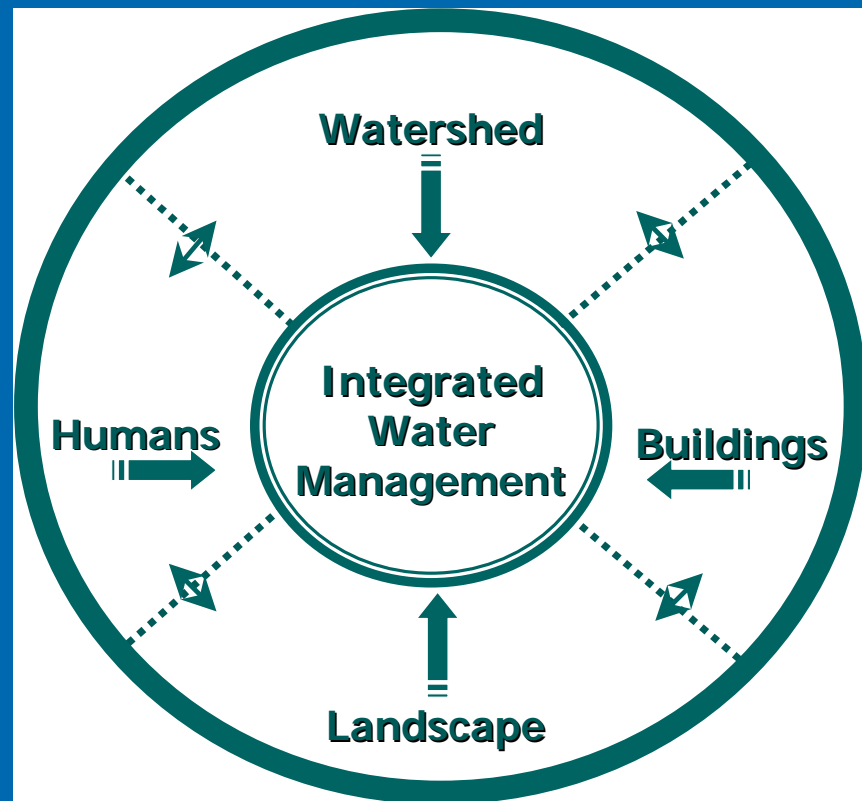
Because *'everything is connected'*,
we start with this frame-of-reference



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
British Columbia Water
& Waste Association

**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

- **Why a Plan?**
- **Who is involved?**
- **What is it?**
- **How is it being implemented?**
- **How can our experience help you?**

The Action Plan comprises these interconnected program elements:



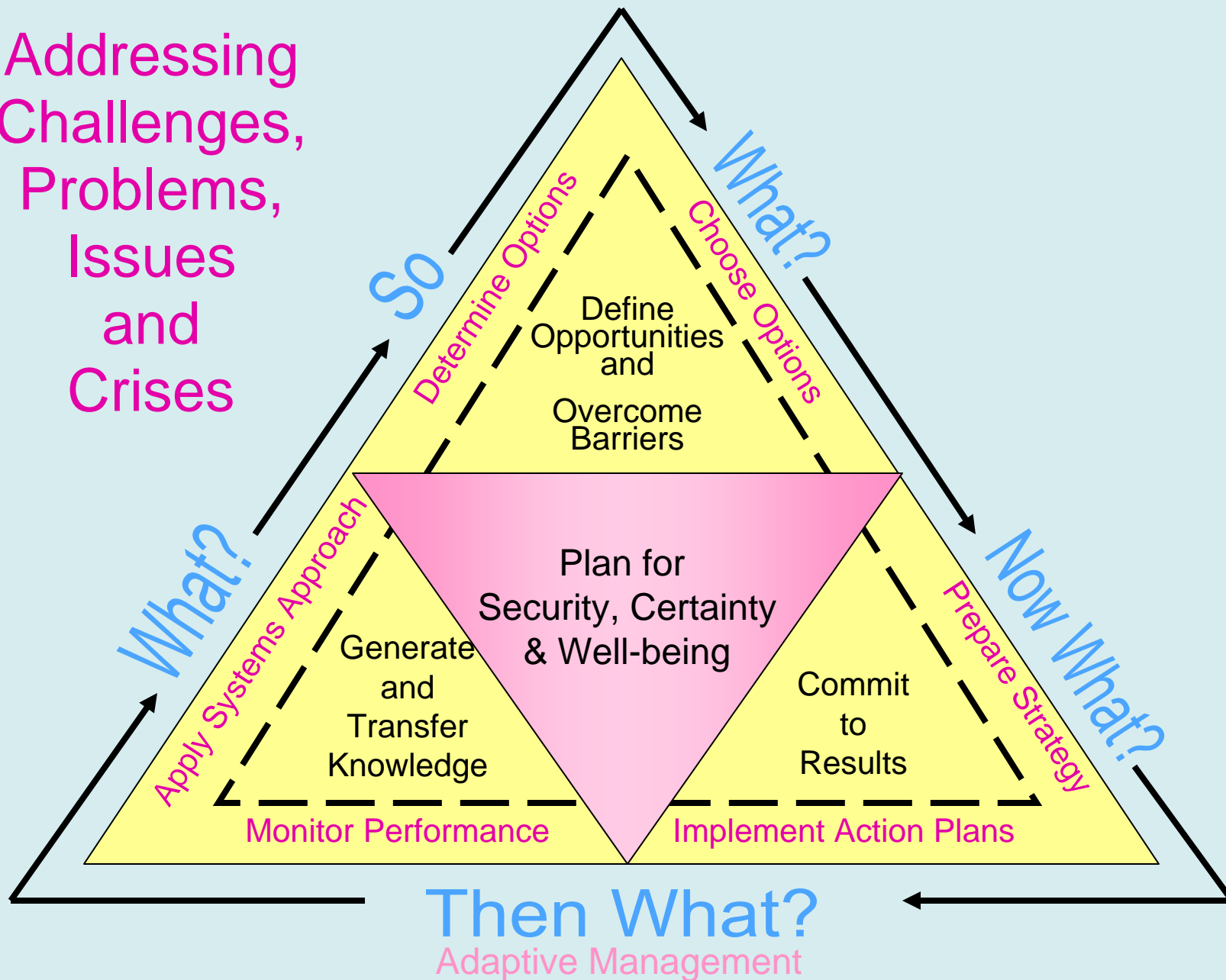
“Convening for Action”

is designed to turn ideas into action

- **What** is the problem?
- **So What** can be done about it?
- **Now What** will be done?



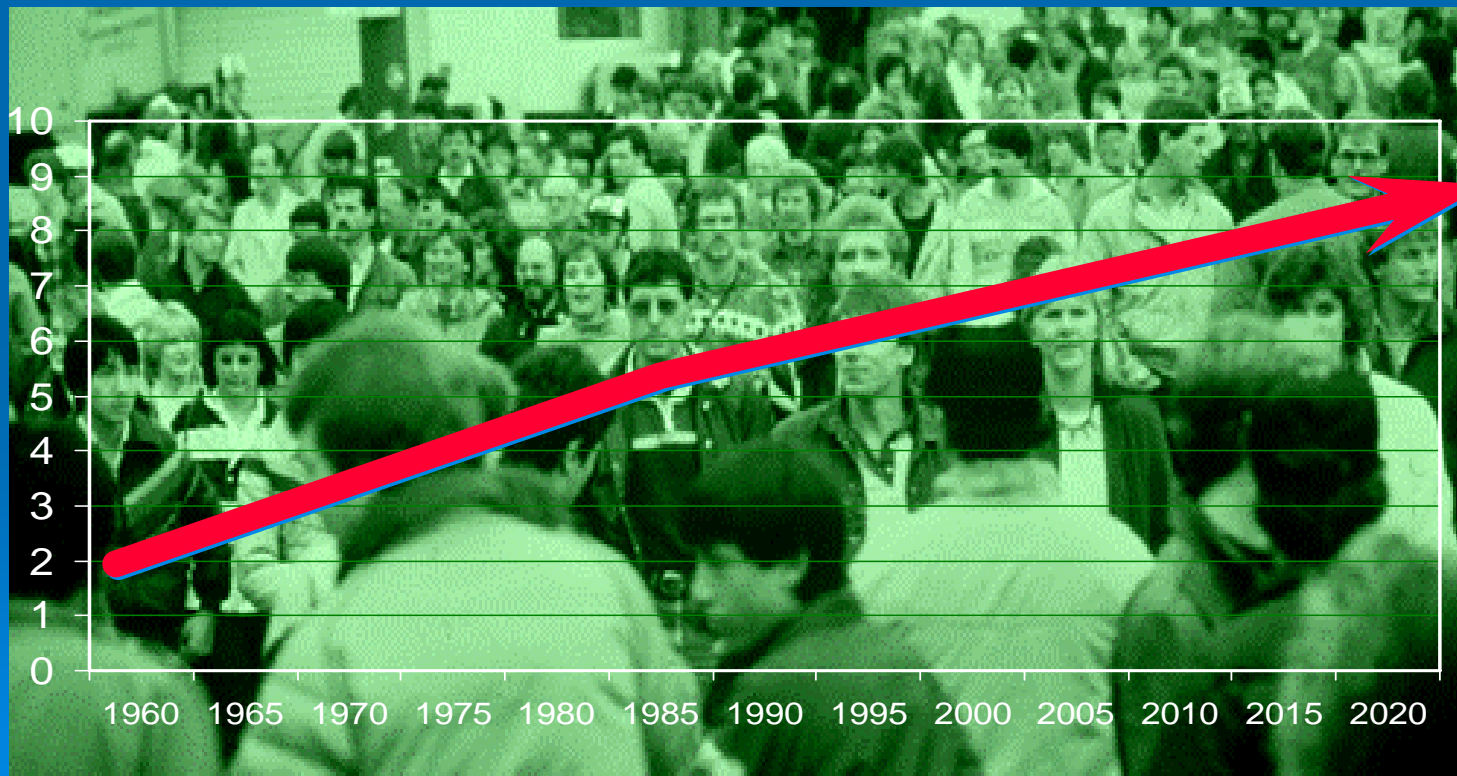
Addressing
Challenges,
Problems,
Issues
and
Crises



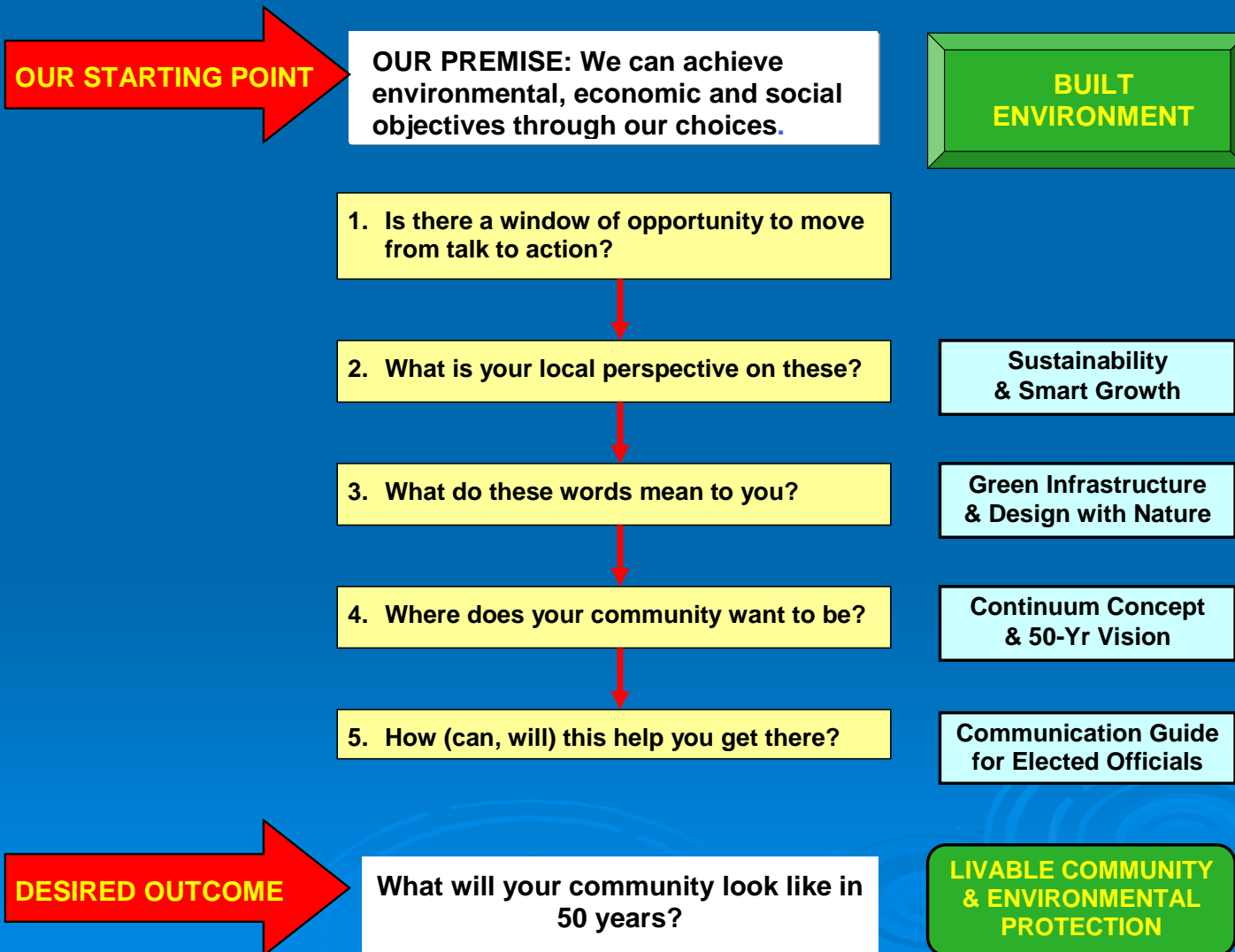
When 'convening for action', we build capacity by creating a picture of the future:

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



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

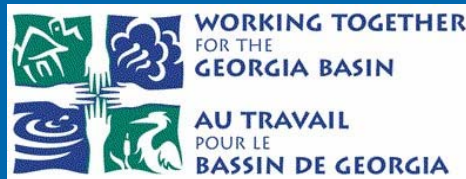
waterbucket.ca is a resource-rich 'destination location' for timely and provocative information

The image displays a collage of overlapping screenshots from the waterbucket.ca website, illustrating its diverse content and user interface. The screenshots are arranged in a layered, overlapping fashion, showing different sections of the site. Each screenshot features the 'waterbucket' logo and the tagline 'sustainable approaches to integrated water management'. The visible sections include:

- AGRICULTURE & WATER:** Features a search bar and navigation links for Water Management, Drought, Water Use, Water Stewardship, and Resources.
- WATER SUSTAINABILITY COMMITTEE:** Includes a search bar and navigation links for Design With Nature, Outreach & Training, Construction Details, and Resources.
- WATER USE & CONSERVATION:** Includes a search bar and navigation links for Design With Nature, Outreach & Training, Construction Details, and Resources.
- GREEN INFRASTRUCTURE:** Includes a search bar and navigation links for Design With Nature, Outreach & Training, Construction Details, and Resources.
- CONVENING FOR ACTION:** Includes a search bar and navigation links for Understanding Water Supply, Limiting Water Demand, Watershed / Ecological, Upstream / Downstream, and Resources.
- RAINWATER MANAGEMENT:** Includes a search bar and navigation links for Turning Ideas into Action, On the Ground Changes, Resources, and Networking.
- WATER CENTRIC PLANNING:** Includes a search bar and navigation links for Understanding Water Supply, Limiting Water Demand, Watershed / Ecological, Upstream / Downstream, and Resources.

Each screenshot also shows a sidebar with a 'Partners' section listing 'BRITISH COLUMBIA' and 'Visit Ministry of Environment'. A 'Toolbox' section is visible on the left side of the top-most screenshot, featuring a 'WATER BALANCE MODEL' and a 'More Information...' link. The overall design is clean and professional, with a focus on providing accessible information and resources.

WaterBucket Website Partnership



Environnement
Canada

Environment
Canada





**The South Okanagan
Regional Growth
Strategy is a pilot for
“Water for Life &
Livelihoods”**



Toolbox



Landscape
Irrigation
Scheduling
Calculator

[More Information...](#)

[Home](#) » [Regional Events](#)

WATER OUT = WATER IN:

Penticton Workshop launches Convening for Action initiative for 'Achieving Water Balance'



After the Convening for Action (CFA) initiative was unveiled in February 2005 at a conference organized by the [Canadian Water Resources Association](#), the Penticton Workshop in April 2005 was the first regional event organized under the CFA umbrella.

This full-day technical transfer session connected the dots between water resource planning, climate variability and risk management;

Syndication (RSS) Feeds

[RSS](#) [Subscribe to this section](#)

[RSS](#) [Subscribe to entire site](#)

[What is this?](#)

**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

$$\text{OUT} = \text{IN}$$

$$\text{IN} = f(\text{hydrology, weather, time, infrastructure, ...})$$

$$\begin{aligned} \text{OUT} &= \text{Uses} + F_{\text{safety}} \\ &= (U_{\text{essential}} + U_{\text{excess}}) + F_{\text{safety}} \end{aligned}$$

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



**Communities in Transition:
Convening for Action in the South Okanagan**

**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 & Waste Association**

In Collaboration with the

**The Town of Oliver
Real Estate Foundation of British Columbia
Regional District of Okanagan-Similkameen
Okanagan Water Board
Province of British Columbia**

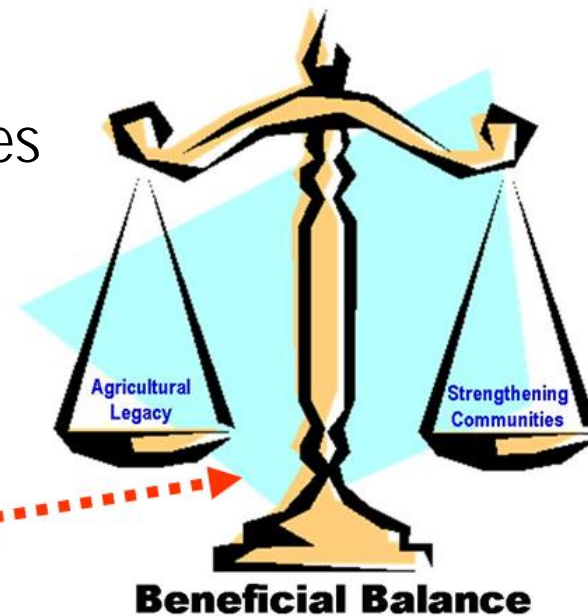
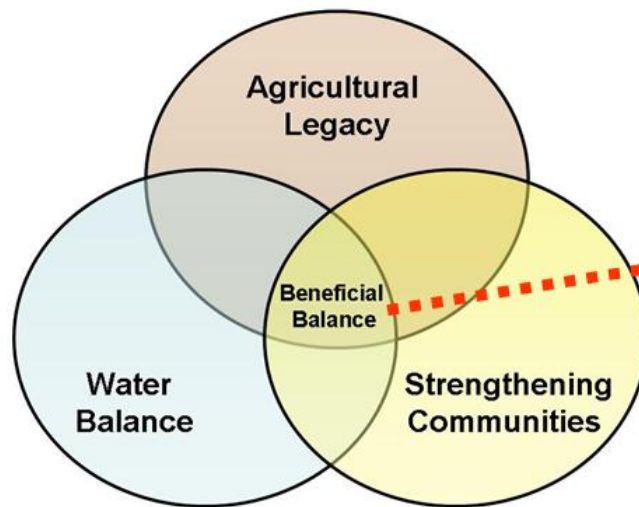
First Release: November 2005
Updated: February 2006

Okanagan-Similkameen Regional Growth Strategy:

**Our goal is to establish
a precedent at the
sub-regional scale for
the water balance way-
of-thinking and acting**

This is how we conceptualized what we learned from our conversations:

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



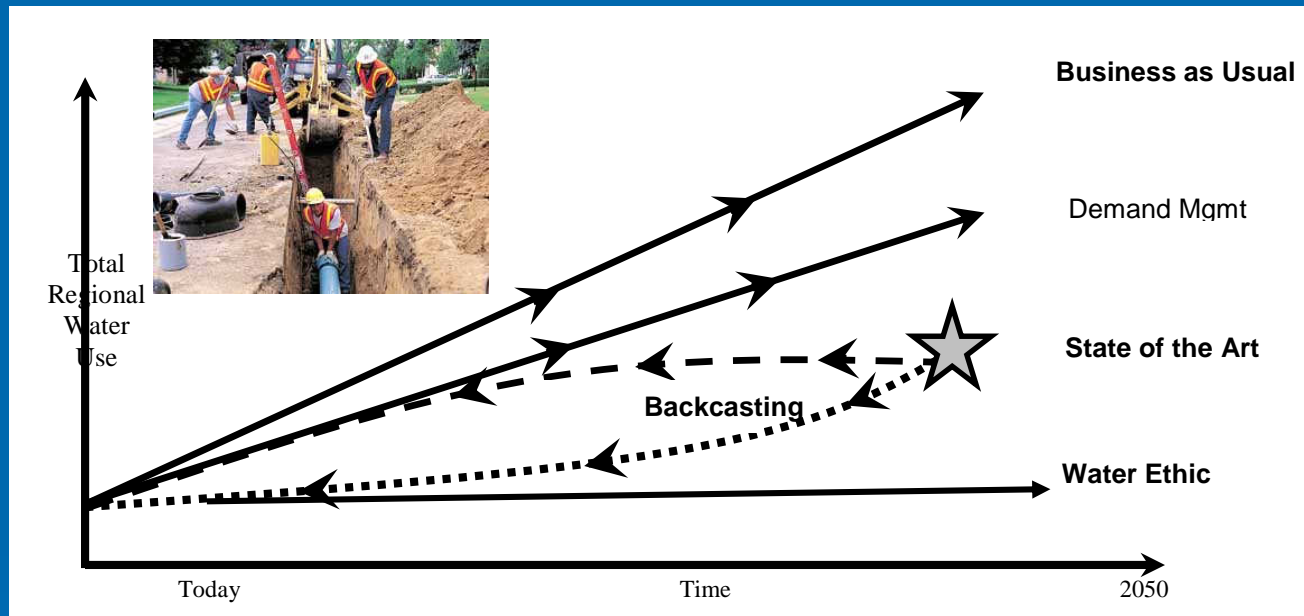
Water is the #1 concern of the public

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



Convening for Action in the South Okanagan

Water-Centric Planning in Oliver: Dealing with Uncertainty & Managing Risk

A Synthesis of Outcomes
Arising from a Working Session on March 30, 2006
Organized By

Water Sustainability Committee of the
British Columbia Water & Waste Association

In Collaboration With The

The Town of Oliver
Province of British Columbia
Oliver & District Community Economic Development Society
Real Estate Foundation of British Columbia
Regional District of Okanagan-Similkameen
Okanagan Basin Water Board

First Release: April 2006

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

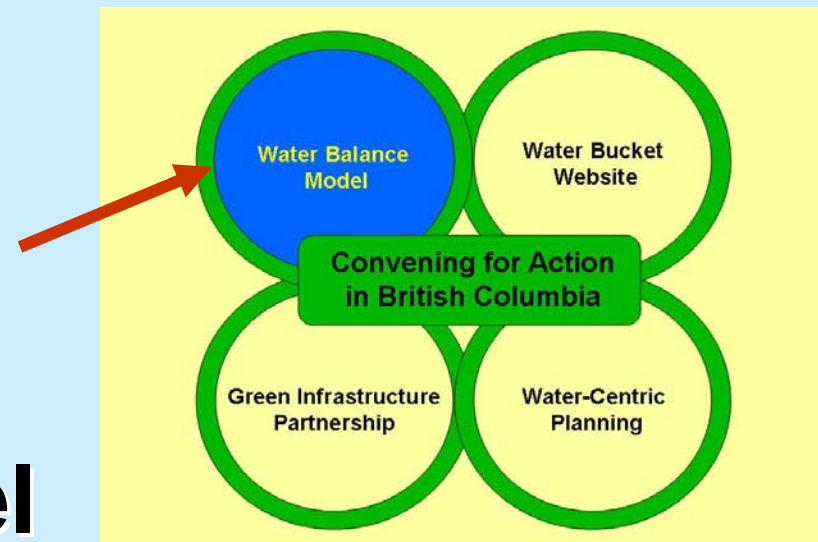


In conclusion, the take-away message is...

Ensure Decision Makers,
Practitioners and the Public are
Well-Informed on Water Issues

The bottom right corner of the slide features a decorative graphic of several concentric, light blue circles that resemble ripples on water, set against the solid blue background.

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



A GUIDEBOOK FOR BRITISH COLUMBIA

Stormwater Planning

The Water Balance Model has been developed as an extension of the Guidebook methodology

An aerial photograph of a residential development nestled within a dense forest. The houses are scattered across the landscape, with winding roads connecting them. The greenery is prominent, suggesting a focus on land preservation alongside development.

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



WATER
Balance
MODEL
FOR BRITISH COLUMBIA

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*



WATER Balance MODEL FOR BRITISH COLUMBIA

The Partnership has broad provincial and national representation

WORKING TOGETHER FOR THE GEORGIA BASIN
AU TRAVAIL POUR LE BASSIN DE GEORGIA

Greater Vancouver Regional District

BRITISH COLUMBIA

westvancouver
THE WATERFRONT COMMUNITY

SURREY
CITY OF PARKS

CITY OF COQUITLAM

CITY OF COURTESY

ALIDP
Alberta Low Impact Development Partnership

THE CITY OF CALGARY

BCWWA
British Columbia Water & Waste Association

CMHC SCHL
HOME TO CANADIANS

Township of Langley

the city of NORTH VANCOUVER

CITY OF Abbotsford
Est. 1873

City of Chilliwack

City of Kelowna

DISTRICT OF HIGHLANDS

Environment Canada / Environnement Canada
Fisheries and Oceans Canada / Pêches et Océans Canada

DISTRICT OF METCHOSIN
INCORPORATED 1984

THE REAL ESTATE FOUNDATION OF BRITISH COLUMBIA

MAPLE RIDGE
Incorporated 12 September, 1874

CITY OF VANCOUVER

UDI
URBAN DEVELOPMENT INSTITUTE
pacific region

City of Chilliwack



The Design Objective is to Infiltrate the First 30mm of Rainfall

age at Sardis Park



11. 2. 2002



21. 7. 2002

Flood Overflows in Some Areas are Chronic Because

An aerial photograph showing a large area of flooding in a rural setting. The water is murky and covers a significant portion of the landscape, including fields and some residential areas. In the background, there are rolling hills and more buildings. The overall scene depicts a chronic flooding problem in a rural area.

- Too Much Runoff Volume
- Culvert Constrictions Cause Backwatering
- Pump Station is a Bottleneck

21. 10. 2003

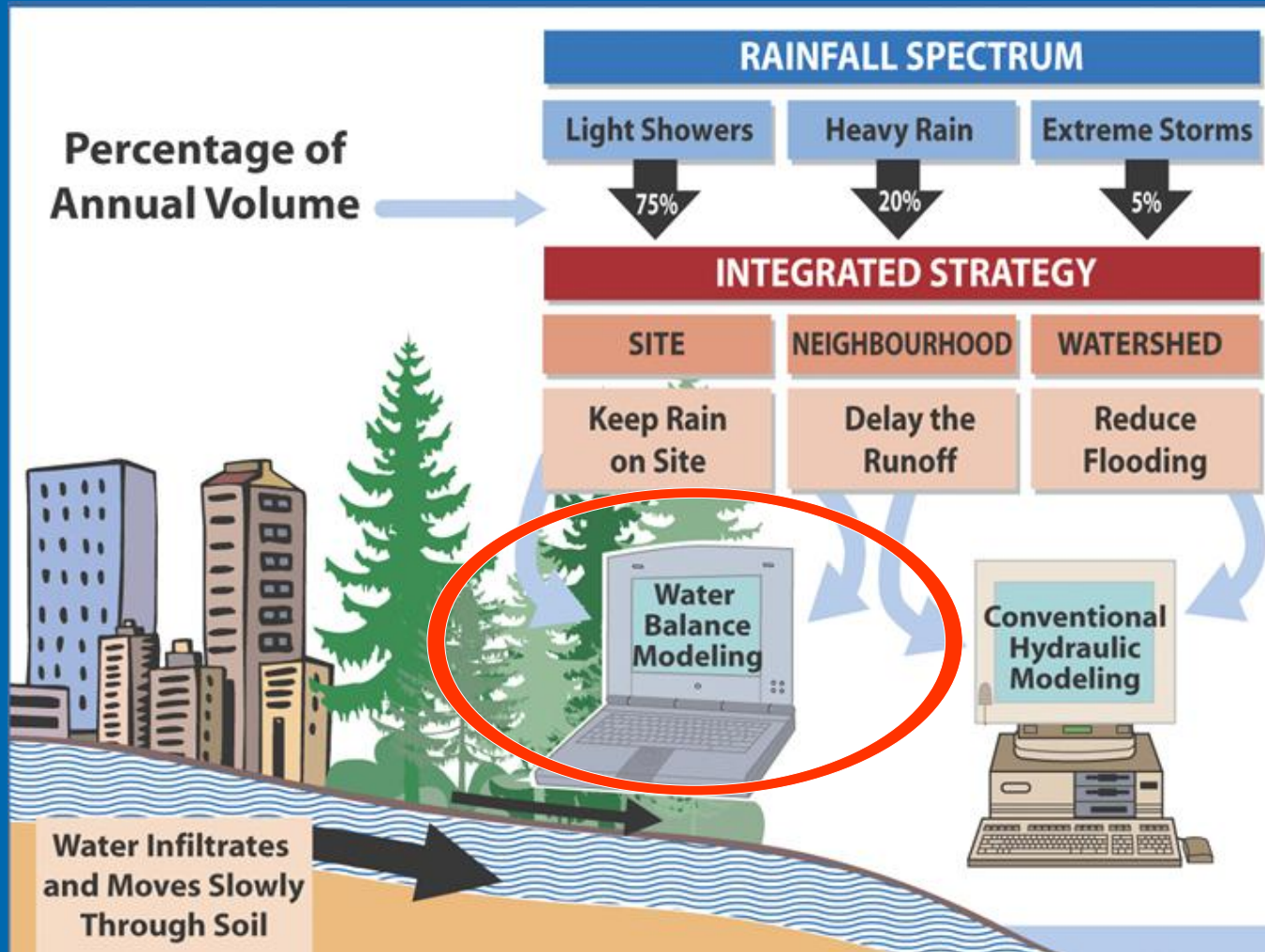


“Sustainable Subdivision Design is Part of the Flooding Solution”

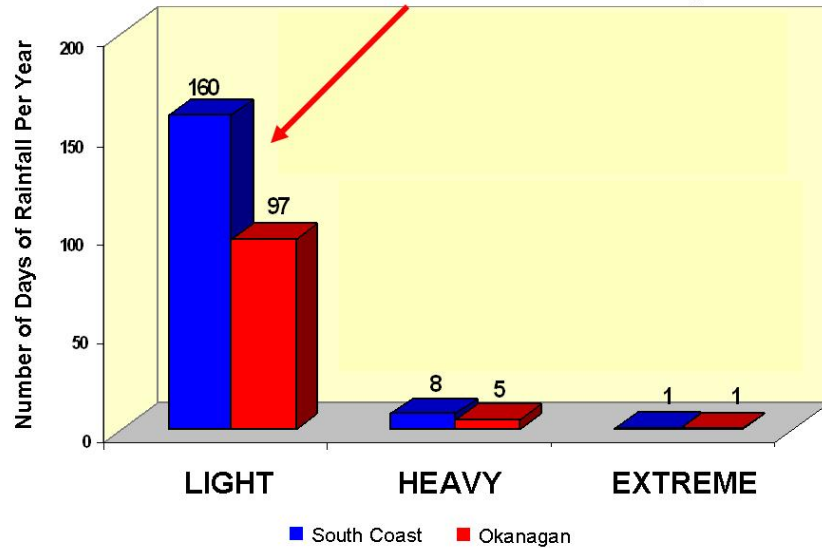
The Home Depot in Courtenay has a deep well injection system designed for the first 20mm of rainfall



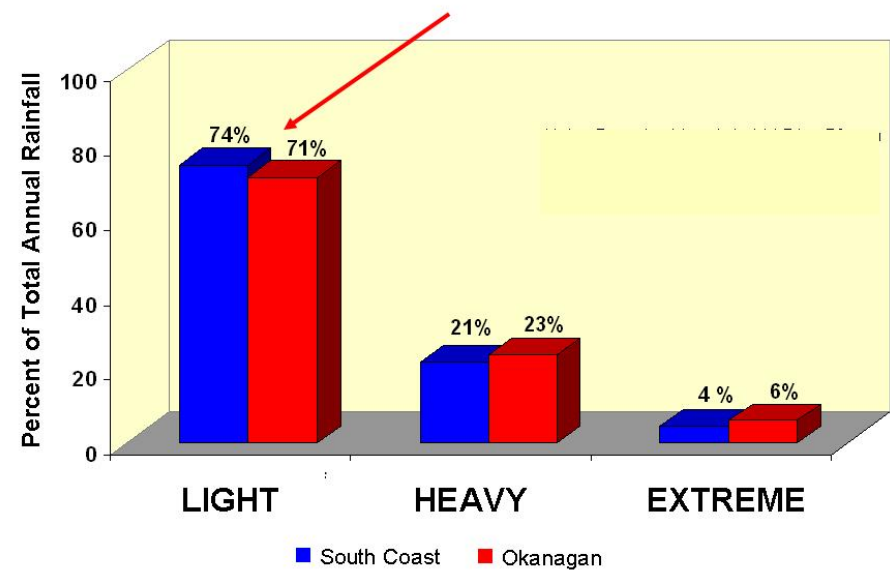
The Water Balance Methodology at a Glance



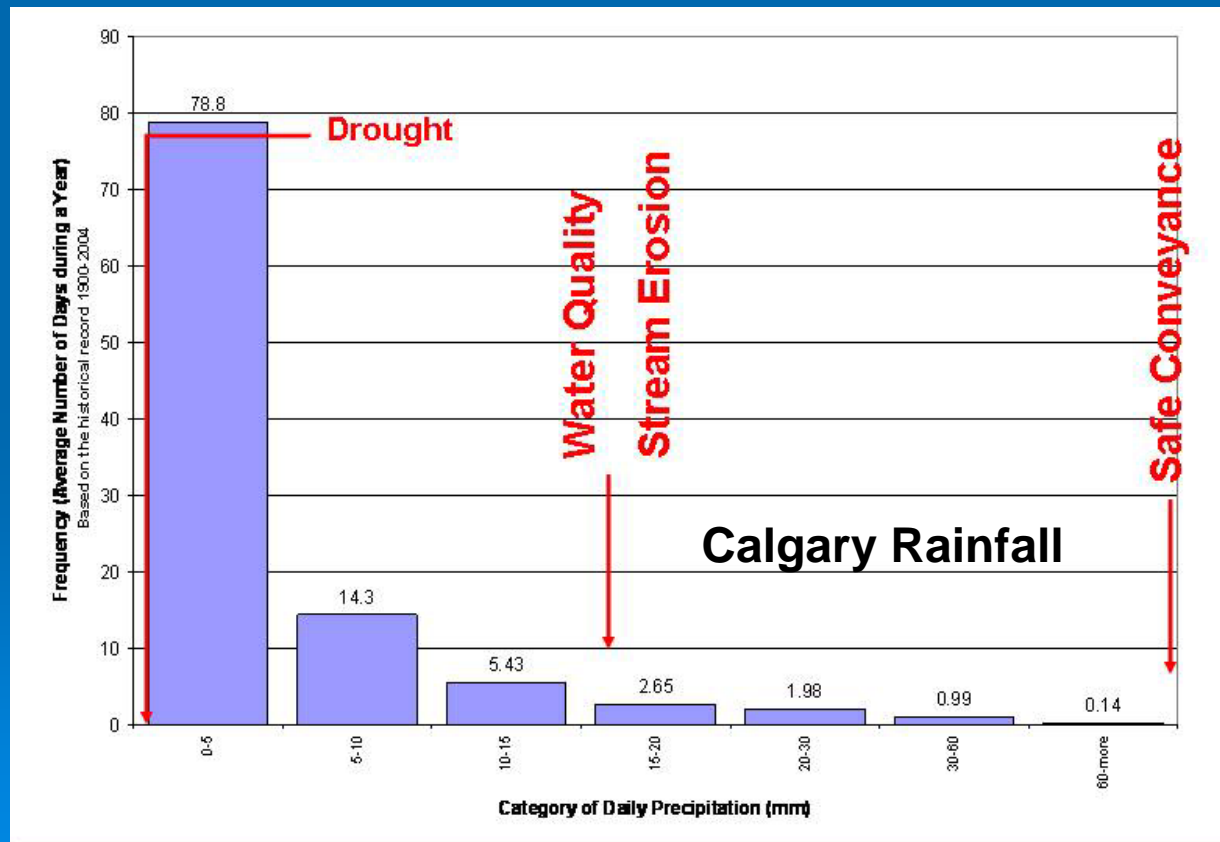
The 'Light Shower' Category Accounts for Most of the Rainfall Days



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



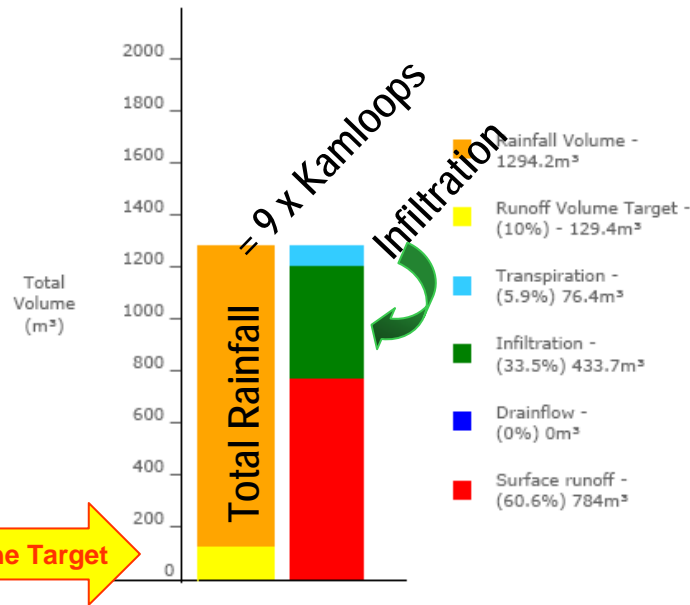


WATER Balance MODEL FOR BRITISH COLUMBIA

It enables users to test the achievability of Performance Targets

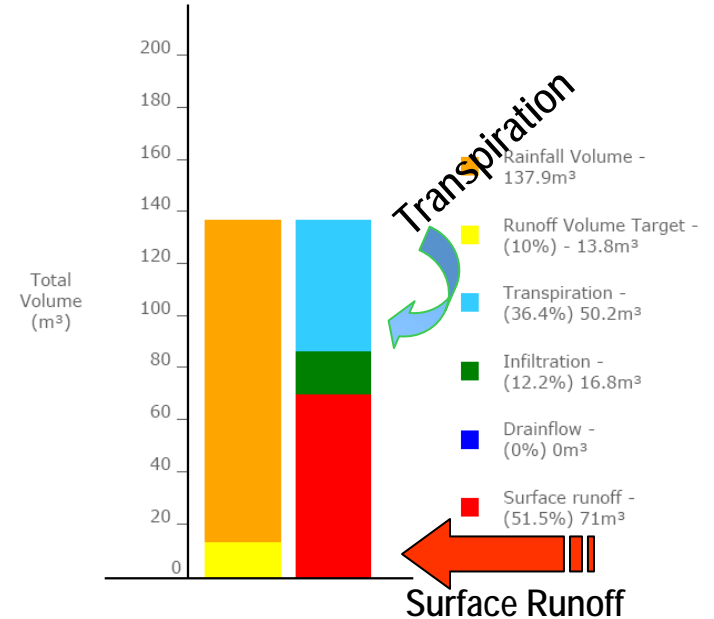
Single Family Residential Example – Regional Comparison

Water Balance Volumes For Catchment
Graph for the period Jan 1 1997 to Dec 31 1997



North Vancouver

Water Balance Volumes For Catchment
Graph for the period Jan 1 1976 to Dec 31 1976



Kamloops



**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



WATER
Balance
MODEL
FOR BRITISH COLUMBIA

Coming Next Spring.....

Integration with QUALHYMO
will provide engineers with “one-stop shopping” for:

Stream Erosion

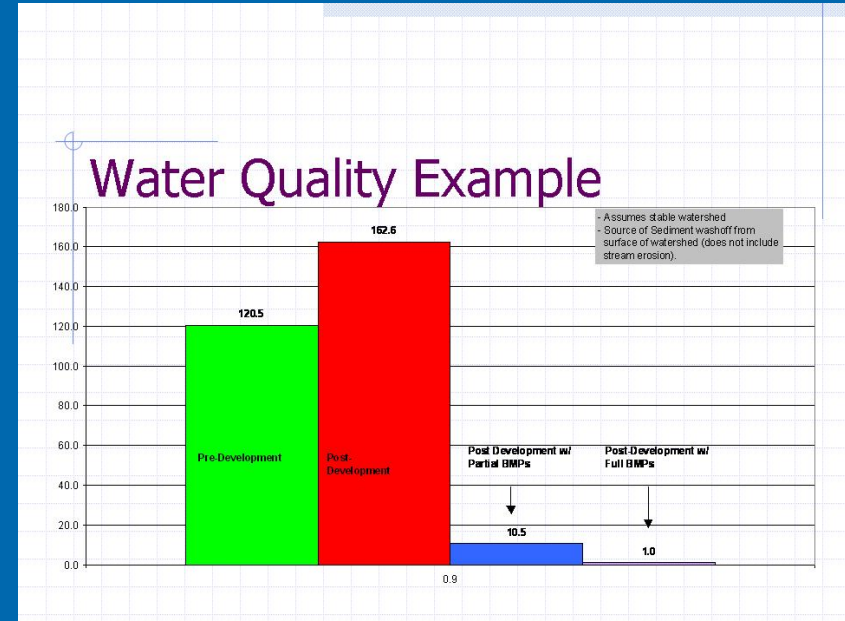
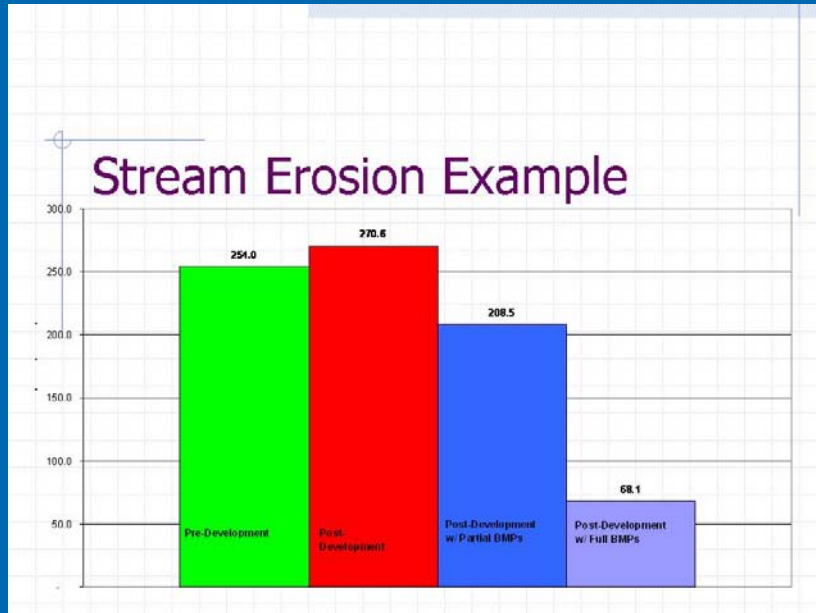
Water Quality

Rainwater Storage Routing

Drainage Area Flow Routing

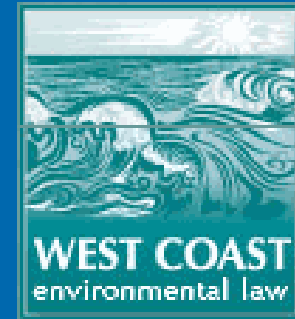
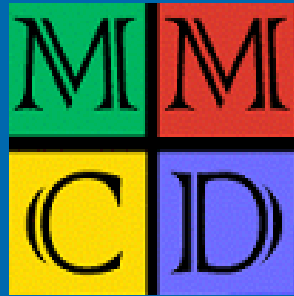
Snowmelt Runoff

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**




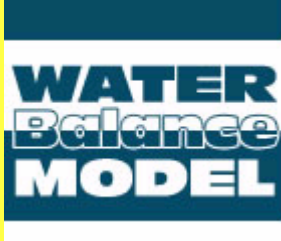
In May 2005, we convened a Consultation Workshop that resulted in 'Celebrating Green Infrastructure'



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 !

Outreach & Continuing Education Program (OCEP)

	Celebrating Green Infrastructure: Showcasing Innovation Series	Communication Guide for Elected Officials	Guide to Green Infrastructure Standards	
Speaker Series		Communication Guide for Senior Managers	Green Infrastructure Standards	Streamlined Environmental Approvals Protocol



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*'.

2006 Showcasing Innovation Series

District of North Vancouver

North Vancouver used a lane, an arterial highway and the Maplewood community to illustrate the benefits of innovation.



Porous Pavement Lane in Lower Capilano



Dollarton Arterial Highway pioneered use of infiltration



Richard Boase

2006 Showcasing Innovation Series

City of Surrey

The Surrey focus was on what can be accomplished on-the-ground, now and over the next 50 years, to restore watershed function.



East Clayton Sustainable Community



TransLink Hybrid Bus



Councilor Judy Higginbotham explains Council's vision for Campbell Heights Business Park



Jim Dumont presents vision for going "Beyond the Guidebook"

2006 Showcasing Innovation Series

UBC and City of Vancouver

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."



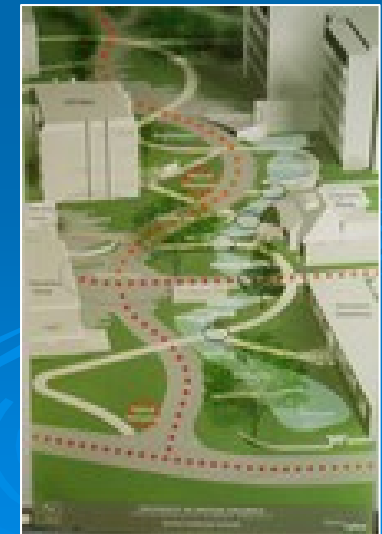
Crown Street



Country Lane



David Grigg:
"Beyond the Moment"



Sustainability Street



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?**
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In conclusion,
to achieve water sustainability....

*Inform, inspire and enable
people to work together through
partnerships to act now*