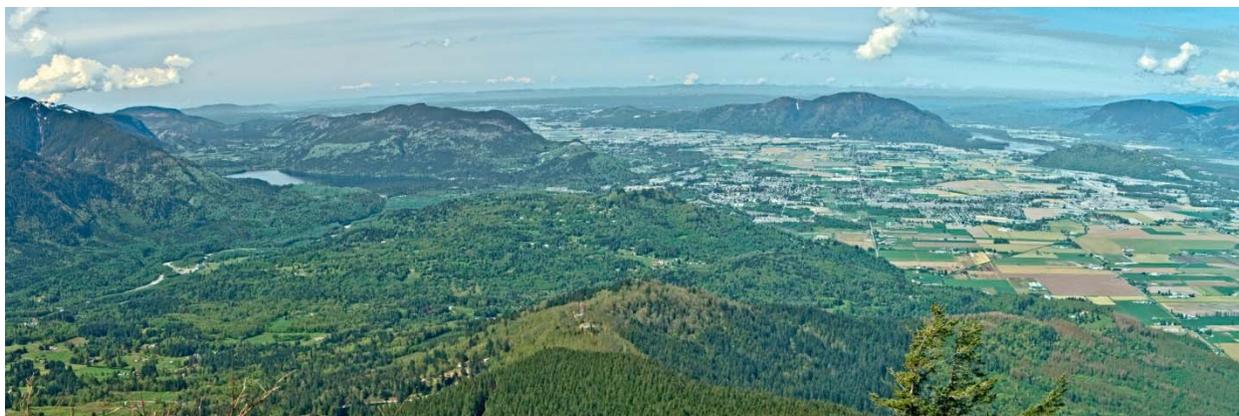


# Feast AND Famine! - Solutions and Tools in Response to a Changing Climate in BC

*A workshop on what to expect and what we can do to build water resilient communities*

December 1, 2015 --- at the Radisson Hotel, 8181 Cambie Rd. Richmond, BC



Co-hosted by:

**Partnership for  
Water Sustainability in  
British Columbia**



**Irrigation Industry  
Association of  
British Columbia**



<p><b>Cost</b> (before GST):</p>	<p>Early Bird (until Nov 15) = \$110 for members &amp; \$210 for non-members Late Registration = \$160 for members &amp; \$260 for non-members</p> <p><b>Note 1:</b> <i>Member rates are for PWSBC and IIABC members</i></p> <p><b>Note 2:</b> <i>PWSBC members must request "Coupon Code" in order to register online and at member's rate</i></p> <p><b>Note 3:</b> <i>Non-member registration includes a 1-year membership (for the "Professional" category) in PWSBC only</i></p>
<p><b>Online Registration:</b></p>	<p>Visit the IIABC website (and follow the links) <a href="https://www.irrigationbc.com">https://www.irrigationbc.com</a> Enquiries: <a href="mailto:iiabc@irrigationbc.com">iiabc@irrigationbc.com</a></p>
<p><b>Program Details:</b></p>	<p>Visit the waterbucket.ca website <a href="http://waterbucket.ca/cfa/category/on_the_ground_changes-in-british-columbia/2015-feast-and-famine-workshop/">http://waterbucket.ca/cfa/category/on_the_ground_changes-in-british-columbia/2015-feast-and-famine-workshop/</a> Enquiries and/or to request the members 'Coupon Code': <a href="mailto:outreach@waterbucket.ca">outreach@waterbucket.ca</a></p>

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## ABSTRACT

The ‘new normal’ in British Columbia is drought and flooding. The summer dry season has extended on both ends and we can no longer count on a predictable snowpack and reliable rain to maintain a healthy water balance in our watersheds. Annual volumes of water entering and exiting our regions are not necessarily changing; instead what is changing is how and when water arrives – it is **feast AND famine!** Adaptation is local in application. Hence, this workshop on responding to a changing climate is about **solutions and tools** that are being developed in BC through collaboration to support practitioners and decision makers to **take action at a local level**.

Time	Modules & Themes		Team
7:45	Registration		
8:30	<b>MODULE A</b>	<b>Resilient Communities &amp; Water – What Happens on the Land Matters</b>	
		▪ <i>Call to Action: We Can Restore the ‘Water Balance’ in Urbanizing Areas</i>	Kim Stephens
		▪ <i>The Storm After the Calm: Hydro-Climatic Change &amp; Its Consequences</i>	Bob Sandford
10:00	Networking Break		
10:30	<b>MODULE B</b>	<b>How are Local Governments Responding to a Changing Climate?</b>	
		▪ <i>Droughts and Floods: Communicating the ‘New Normal’ in the Cowichan</i>	Kate Miller & Keith Lawrence
		▪ <i>Understanding ‘Risks and Consequences’ in the District of North Vancouver: A Bottom-Up Approach to Developing a Climate Adaptation Strategy</i>	Richard Boase
12:00	Partnership AGM (includes lunch)		
1:30	<b>MODULE C</b>	<b>Will There be Sufficient Fresh Water for Agriculture in the Future?</b>	
		▪ <i>Sea Level Rise &amp; Impacts to our Infrastructure in the Lower Fraser River</i>	John ter Borg
		▪ <i>The Facts About Agriculture’s Water Use &amp; How It May Change</i>	Ted van der Gulik
3:00	Refreshment Break		
3:15	<b>MODULE D</b>	<b>Sustainable Service Delivery for Watershed Systems</b>	
		<i>Resilient Communities: Supporting the Vision for Integration of Natural Systems into “The BC Framework”</i>	Glen Brown
		<i>Getting to a Higher Efficiency for Irrigation Infrastructure</i>	Kirby Ell
4:15	Door-Prize		

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## Module A - Resilient Communities & Water - What Happens on the Land Matters

### Scope:

Watershed Health, Rainwater Management and Sustainable Service Delivery are priorities in BC. Local governments are tackling the question of how best to move forward on these priorities, particularly in light of a changing climate and community expectations to provide higher levels-of-service at reduced levels-of-cost. Module A provides both a provincial and global context for the workshop day, and incorporates a town-hall style 'sharing & learning' session with Canadian 'water icon' Bob Sandford, internationally respected author and water champion.

### Call to Action: We Can Restore the 'Water Balance' in Urbanizing Areas

*Kim Stephens, Executive Director, Partnership for Water Sustainability in BC*



Kim's four decades of experience as an engineer-planner cover the spectrum of water resource and infrastructure engineering issues. Provincially, he has had a leadership role in a series of initiatives related to water sustainability, rainwater management and green infrastructure. Since 2003, Kim has been responsible for delivering the **Water Sustainability Action Plan for British Columbia**. The Action Plan provides a partnership umbrella for implementing a water-centric approach to community planning and development.

#### ABSTRACT:

Drought, forest fires, floods and pine beetle in 2003 created a 'teachable year' for change in BC. This gave BC a head-start on many other regions. The outcome? A decade later, provincial 'game-changers' are now in place that enable solutions in the local government setting. We have the tools and understanding to implement 'Water Balance' actions, restore watershed health after the landscape is urbanized, and build resilient communities. 2015 is another 'teachable year'.

### The Storm After the Calm: Hydro-Climatic Change & Its Consequences

*Bob Sandford, EPCOR Chair for Water and Climate Security at the United Nations University Institute for Water, Environment and Health*



Bob Sandford is the co-author of the UN **Water in the World We Want** report on post-2015 global sustainable development goals relating to water. He is committed to translating scientific research outcomes into language decision-makers can use to craft timely and meaningful public policy and to bringing international examples to bear on local water issues. He co-authored **Flood Forecast: Climate Risk & Resilience in Canada** (2014). His latest book, soon to be published, is titled **Storm Warning: Water & Climate Security in a Changing Canada**.

#### ABSTRACT:

After a period of relative hydro-climatic stability, changes in the composition of the Earth's atmosphere have resulted in the acceleration of the global hydrologic cycle with huge implications for every region of the world and every sector of the global economy.

Step-like changes to our hydro-climatic circumstances are rapidly putting into relief the moral, ethical and legal implications of ignoring climate disruption. Climate related water issues have also begun to redefine what development and sustainability mean not just in Canada but globally.

This in turn now demands that we reassess personal and collective vulnerability, accountability and liability if we want to sustain our prosperity in the face of altered hydro-climatic conditions. The ultimate goal must be to make our communities places where people want to live, not leave, in a warming world.

### You will learn that:

*Do business differently. Accepting risk opens the door to creativity and results in innovation. Know the context for action; change the culture and instil a new ethic; create a legacy.*

## Module B – How are Local Governments Responding to a Changing Climate?

### Scope:

Practitioners in local government want to learn from those who are innovating. The Cowichan Valley Regional District and North Vancouver District are incubators for approaches that are being replicated elsewhere. Both are demonstrating how to apply science-based understanding and strategies to develop criteria and tools for use in areas where local government action can influence Water Balance outcomes.

### Droughts and Floods: Communicating the ‘New Normal’ in the Cowichan Region

*Kate Miller and Keith Lawrence, Environmental Initiatives Division, Cowichan Valley Regional District*



Kate Miller is the Division Manager. She has a long history of work in watershed based-planning, community animation, and development of collaborative models underpinned with a strong science-based methodology. Kate has pioneered use of baseline metrics, mapping and community consultation to build Cowichan’s response to understanding both its environment and the community’s impact on it. With a strong focus on climate adaptation, Kate has led development of the Cowichan region’s integrated flood planning and long-term water supply programs. She represents local government perspectives and needs on the Pacific Climate Impacts Consortiums Steering Committee.



Keith Lawrence is a Senior Environmental Analyst and leads a range of water sustainability projects through collaboration with First Nations, other government organizations, industry and the stewardship community. His project experience includes watershed planning, water management and governance, conservation planning, stream restoration, education and outreach. Keith’s work focusses on developing actions to improve watershed health through an understanding of the interactions between people, ecosystems and water bodies.

#### ABSTRACT:

The Cowichan Region is demonstrating how to apply science-based understanding and strategies to develop criteria and tools for use in areas where local government action can influence Water Balance outcomes. *NewNormalCowichan* is a regional adaptation initiative led by the Cowichan Valley Regional District in partnership with the communities that comprise the Cowichan Region. The initiative illustrates what putting ‘water balance thinking’ into action looks like.

### Understanding ‘Risks and Consequences’ in the District of North Vancouver: A Bottom-Up Approach to Developing a Climate Adaptation Strategy

*Richard Boase, Environmental Protection Officer, District of North Vancouver*



Richard Boase is a geoscientist, and is the District’s Environmental Protection Officer. He is Co-Chair of the Water Balance Model Partnership, and has been responsible for case study demonstration applications by the District that culminated in development of the **Water Balance Model Express for Landowners**. Under Richard’s leadership, North Vancouver is pioneering the integrated application of performance targets for runoff management, at the neighbourhood scale, to protect stream health. Richard has also demonstrated the power of imagery analysis as a rainwater management tool.

#### ABSTRACT:

Flooding in November 2014 heightened community concern over changes to the ‘water balance’. The District’s *Climate Adaptation Strategy* is being developed through an internal consultation process led by an in-house Climate Adaptation Group. Staff interviews identify risks and consequences for District operations. This taps into the working knowledge of those who are on the ground. The bottom-up approach allows staff to build and rank an “issues list” together. The outcome is an action-oriented and implementable set of policy recommendations and priorities.

### You will learn that:

*Local government regulates how land is developed, drained and serviced. It has the authority to restore the absorbcency of the urban landscape and Water Balance distribution, over time.*

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## Module C - Will There be Sufficient Fresh Water for Agriculture in the Future?

### Scope:

Food security, protection of agricultural lands and water use are issues facing many British Columbians. Agriculture is a high consumer of water. How will water supply be affected by rising sea levels and a changing climate in the Fraser Delta?

**DID YOU KNOW THAT:** *Because each person in BC has a 'food footprint' of 0.5 hectares (ha), the total land needed is more than ~2 million ha to feed the current population. BC needs 215,000 ha of irrigated land and 115,000 ha are available in the Fraser Valley alone for agriculture – and almost all of it can be irrigated. Another revealing comparison - ~20,000 ha of irrigated area in the Okanagan Valley versus ~13,000 ha just within the Metro Vancouver regional district.*

### Sea Level Rise and the Impacts to our Infrastructure in the Lower Fraser

*John ter Borg, University of British Columbia*



John has worked as a civil engineering consultant and project manager. A graduate of UBC's professional Master of Land and Water Systems program, John recognizes that a deeper understanding of water resources offers a path forward in our rapidly globalizing and developing world. As a director of Richmond's Garden City Conservation Society, he has been involved in the protection and enhancement of the region's ecological network by advocating for pro-agriculture and wildlife uses in an urban watershed.

#### ABSTRACT:

Climate change will raise sea levels and bring sea water further up the Fraser River. In addition changes to river hydrology may occur due to the removal of the George Massey Tunnel, possibly further increasing salinity levels. John will provide an overview of the potential issues and the impact on fresh water irrigation intakes and the agricultural water supply in the Delta.

### The Facts about Agriculture's Water Use and How It May Change in the Lower Fraser

*Ted van der Gulik, President, Partnership for Water Sustainability in BC*



During his 35-year career as the Senior Engineer with the Ministry of Agriculture, Ted built an international reputation for his innovation in irrigation and water resources planning. His contributions to agriculture and integrated watershed planning initiatives in BC resulted in two Premier's Awards of Excellence (Water Balance Model; Agricultural Water Demand Model) and a Premier's Legacy Award. In 2000, and in recognition of his leadership, he received the Crawford Reid Memorial Award from the Irrigation Association. Ted contributed to development of the Water Sustainability Act, passed in May 2014.

#### ABSTRACT:

Agriculture is a large fresh water user and the demand for water will only increase as summers get longer, hotter and drier. The Ministry of Agriculture has developed a Water Demand Model that can determine agriculture's water requirements today and in the future using global climate models stretching to the year 2100. The presentation will provide information on how water demand is expected to change. This takes into account potential cropping changes, irrigation system improvements and a changing climate.

### You will learn that:

*The module will impart an understanding of the complexities of the water supply for agricultural lands in the Delta region, what impacts sea level rise may have, and how climate change will affect water demand to grow our food.*

## Module D - Sustainable Service Delivery for Watershed Systems

### Scope:

Released in December 2014, *Asset Management for Sustainable Service Delivery: A BC Framework* is a game-changer. It signifies the dawn of a new era for British Columbia local government in terms of how communities service urbanizing and redeveloping areas, and define how infrastructure is planned, financed, implemented, and maintained. A 'new business as usual' is emerging and extends beyond traditional municipal infrastructure to encompass services that nature provides, including hydrologic integrity and watershed health.

### Resilient Communities: Supporting the Vision for Integration of Natural Systems into "The BC Framework" for Sustainable Service Delivery

*Glen Brown, General Manager (Victoria), Union of BC Municipalities*



Glen has been a 'sustainability' advocate for the past 15 years, working with the Province and now with UBCM. His focus has been on supporting local governments by building awareness, educating, and developing tools and resources. With Wally Wells, Glen facilitated the establishment of Asset Management BC and led the development of the *Asset Management for Sustainable Service Delivery: A BC Framework*. Glen is a founding member of the Partnership for Water Sustainability.

#### ABSTRACT:

Under the Gas Tax Agreement, signed in 2014, meeting Asset Management commitments is a requirement in BC for provincial capital grant programs. The commitments are aligned to the 'BC Framework'. The latter is outcome-oriented and is the catalyst for local governments to integrate natural systems and climate change thinking into Asset Management. The BC Framework recognizes that nature (and ecosystem services that nature provides) are a fundamental and integral part of a community's infrastructure system. The ultimate vision for fully integrating watershed systems into **Sustainable Service Delivery** is that communities would protect preserve, restore and manage those natural assets in the same way that they manage their engineered assets.

### Getting to A Higher Efficiency for Irrigation Infrastructure

*Kirby Ell, Founder, Kore Irrigation Systems*



Kirby Ell co-founded Kore in 1995, and takes an active interest in water conservation specifically relating to irrigation. He is currently on the IIABC Board of Directors. Kirby is also on the technical team that is overseeing the development of the IIABC High Efficiency Irrigation Standard. He has irrigation certifications in landscape auditing and is currently enrolled in the Irrigation Association's CID program.

#### ABSTRACT:

Landscape irrigation can use up to 50% of the summertime domestic water demand. Improving irrigation system efficiency can significantly reduce water demand, stretch water supplies and help protect watersheds. This can be accomplished by requiring better products, an improved understanding of system hydraulics, informed irrigation installers and management tools that will take into account crop, soils and climate. The IIABC's **High Efficiency Standard (HEIS)**, an online assessment tool, is used to determine if all appropriate steps have been taken to warrant a system to be called HEIS.

### You will learn that:

*Sustainable Service Delivery for Watershed Systems, and 'getting it right at the front-end,' would apply to land uses that local governments regulate and/or can influence within settled areas of watersheds.*