How the Water Sustainability Act is Already Influencing Water Management in British Columbia

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Keynote Co-Presentation By
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SHIFTING CURRENTS: Rethinking Our Relationships with Water
2016 Annual Conference of British Columbia Society of Landscape Architects
“Feast AND Famine! – Flood AND Drought! – What Happened to the Balance?

“We had no idea until recently how much influence the hydrological cycle has on our day to day lives”

Bob Sandford
Author & Water Champion

Keynote Presenter for
“Feast AND Famine Workshop”
December 2015
Road Map

- Context (Kim)
- Environmental Flows (Kim)
- Groundwater Licensing (Ted)
A UNIFYING THEME:

What Happens on the Land Matters!

THROUGH RESTORATIVE DEVELOPMENT:

Influence form & function of Built Environment.
Replicate a desired watershed (water balance) condition.
AND
Reverse the decline in the ecological baseline.

This will take time, commitment and perseverance.
Passed in April 2014, and effective as of 2015, the Water Sustainability Act is……..

....the signature piece in a policy, program and regulatory framework that establishes expectations for adapting to a changing climate by:

- Striving to build greener communities
- Choosing to live water smart
The Act will have widespread impacts on how water and land practitioners conduct their work…. 

“The Water Sustainability Act results in a new opportunity and framework to collaborate.”

Ted White
Manager, Water Strategies & Conservation
BC Ministry of Environment
WSA regulates in three key areas:

- Water Use
  - Authorizations
  - Permitted uses
  - Reservations

- Management of Rights
  - Administration of rights
  - Protection of rights
  - Real time water use

- Protection of the Resource
  - Wells
  - Stream changes
  - Environmental flows
  - Planning, objectives
  - Area based rules
What are the key changes?

- Licensing non-domestic groundwater use
- New water fees and rentals
- Stronger protection for aquatic ecosystems
- Expanded groundwater protection measures
- Enhanced dam safety
WSA regulations at a glance

https://engage.gov.bc.ca/watersustainabilityact/

Water Sustainability
- Water licensing, diversion & use of water
- Transition of existing groundwater use
- Changes in & about a stream
- Use of water for well drilling
- Use of deep groundwater

Fees, Rentals & Charges Tariff
- Fees & rentals schedule
- Exemptions from fees & rentals
- Administration of fees & rentals

Groundwater Protection
- Registration of well drillers & well pump installers
- Well construction & identification
- Well pumps & related works
- Well operation & maintenance
- Well deactivation & decommissioning
- Well Reports

Dam Safety
- Dam failure consequence classification
- Responsibilities of dam owners
- Operation & maintenance
- Dam monitoring & safety review
- Emergency plans
Managing one water resource

- Surface water and groundwater managed under the same regulatory regime
- Hydraulic connection between surface water & groundwater considered
  - When licensing water use
  - When regulating water use during shortages
- Examining conditions for amending licences to change surface water source to groundwater source
The Water Sustainability Act has 7 goals, and 3 are the focus of this co-presentation:

1. Protect stream health and aquatic environments
2. Consider water in land use decisions
3. Regulate and protect groundwater

4. Regulate water use during times of scarcity
5. Improve security, water use efficiency and conservation
6. Measure and report large-scale water use
7. Provide for a range of governance approaches
Road Map

- **Context** (Kim)
- **Environmental Flows** (Kim)
- **Groundwater Licensing** (Ted)
“Collaboratively developed plans can integrate water and land use planning and can be combined with other local, regional or provincial planning processes to address water-related issues...”

Mimic the Water Balance to restore Environmental Flows

A Key Message from the Province:

Jennifer Vigano
Water Policy
Ministry of Environment

Beyond the Guidebook 2015
Page 30
A watershed is an integrated system.

The three pathways by which rainfall reaches streams are ‘infrastructure assets’.

The three pathways provide ‘water balance services’.

“Water Balance Express for Landowners” - online tool is a key part of the solution for restoring Environmental Flows in urban streams as watersheds redevelop.

The 3 pathways are:
• over the land surface
• shallow horizontal (interflow)
• deep vertical to groundwater
Interfaced with Google Maps / Earth, the Water Balance Express quantifies how well properties meet pre-set watershed targets.

Visit waterbalance.ca or waterbucket.ca

- **Click and drag gray, blue and green components**
- **Calculator engine generates a weighted score**
VIDEO TUTORIAL for the Water Balance Express was created in collaboration with UBC and the Cowichan Valley Regional District

Visit waterbalance.ca or waterbucket.ca

Julie Wilson, Academic Coordinator
Master of Land & Water Systems Program
UBC

Jeff Moore, Environmental Analyst
Environmental Services
Cowichan Valley Regional District
The support of the Metro Vancouver Board triggered federal funding for the Water Balance Express

“Metro Vancouver contributed $50,000 because widespread use of this decision tool will help Metro Vancouver and members fulfil our regulatory commitments.”

Mayor Greg Moore
Metro Vancouver Chair
January 2012 news release
Road Map

- Context (Kim)
- Environmental Flows (Kim)
- Groundwater Licensing (Ted)
Licensing of Groundwater Use

- Licence required for **non-domestic** groundwater use
  - irrigation, industrial, commercial, etc

- Domestic groundwater use is exempt from licensing
  - Domestic includes household use, fire prevention, pets & livestock for household use, garden & lawn irrigation

- Application fees and annual rentals are required
Agriculture Water Licence Calculator

- Was originally asked for by the BCAC Water Committee
- Province committed to having a tool built
- Calculator uses outputs developed for the Agriculture Water Demand Model
- Funding provided by:
  - Province of BC
  - Investment Agriculture Foundation
  - Okanagan Basin Water Board
  - Partnership for Water Sustainability in BC
Irrigation Demand Model Applications

Reports can be found at:
www.waterbucket.ca
Irrigation Water Demand Model

Climate data:

- A climate model has been developed on a 500 m x 500 m grid
- Provide current climate data based on historical and current information
- Climate change scenarios have been developed
Climate Data
Water Licence Calculator Climate Data

Climate data:

- The entire province was run for 10 years of data from 2000 to 2010.
- The data was averaged for each grid cell (500 m x 500m).
- Each grid cell contains an annual irrigation demand (mm/year) and a peak ET value in mm/day.
Irrigation Demand for: Forage, Sandy Loam, Sprinkler is 31,138 m³ annually
Berry, Sandy Loam. Drip is 15,837 m³ annually
Next steps

- Focus on operations to implement WSA & regulations
- Communications and outreach
- Policy and regulation development (initial priorities)
  - Livestock watering
  - Measuring and reporting
- Further policy and regulation development
  - Water Objectives
  - Water Sustainability Plans
  - Governance
  - Dedicated Agricultural Water
- Engage with First Nations and stakeholders (late 2016 and beyond)