



## ***Creating a Blue Dialogue Webinar Summary*** **Making Urban Water Sustainability a Reality** **February 17<sup>th</sup>, 2017**

### **Attendance**

Approximately 100, including First Nations; federal, provincial, and local government staff; students and researchers; private sector professionals; environmental NGOs

### **Introduction**

Canada's water and wastewater infrastructure requires urgent attention: The *2016 Canadian Infrastructure Report Card* revealed that 29 per cent of Canada's drinking water infrastructure and 35 per cent of its wastewater infrastructure is in fair to very poor condition. Canada is facing an "infrastructure moment," that presents an unparalleled opportunity to set the course for the next generation of sustainable urban water infrastructure. The Government of Canada has committed to investing over \$180 billion in infrastructure over the coming decade.

In this webinar, Tony Maas discussed the importance of urban water sustainability. He presented a suite of recommendations to align water infrastructure investments and regulatory regimes around a vision of sustainability, resilience, and innovation. Emanuel Machado shared lessons learned during the Town of Gibsons' process of pioneering an "Eco-Assets" management strategy. This strategy was developed on a municipal level to promote ecological sustainability and smart infrastructure management and maintenance.

### **Guest Speakers**

**Tony Maas** divides his time between the Forum for Leadership on Water (FLOW) and Freshwater Future. In both roles, he provides strategic direction and policy expertise, and builds partnerships among diverse interests to benefit people, the environment, and the economy. Tony spent six years at WWF-Canada, where he developed and managed its national freshwater program. He chairs the External Advisory Board of the University of Waterloo's Water Institute.

**Emanuel Machado** has worked with communities across Canada, promoting greater use of renewable energy, net-zero buildings, water strategies, social plans, and sustainability frameworks. He is the CAO of the Town of Gibsons, B.C., where he has developed the Eco-Assets program. Eco-Assets recognizes the role of nature as a fundamental component of municipal infrastructure systems, leading to a greater understanding of the value of ecosystems services and improved financial and operational management plans.

### **About the Series**

Hosted by the POLIS Water Sustainability Project at the Centre for Global Studies, University of Victoria, *Creating a Blue Dialogue* brings together expert water practitioners and thinkers, as well as emerging water leaders, to engage with innovative ideas on water policy and governance in Canada. By creating an online community of interest, the webinar series serves to strengthen the national capacity to engage with and solve problems, and raises awareness about emerging Canadian water issues, best practices, and policies.

## Part 1

# Smart Strategic Investment for Urban Water Sustainability: Seizing Canada's Infrastructure Moment

Presented by Tony Mass, Director of FLOW

### *Background on The Smart Strategic Investment for Urban Water Sustainability Report*

The *Smart Strategic Investment for Urban Water Sustainability* report is grounded in work previously done by FLOW and other freshwater groups, including the POLIS Water Sustainability Project. A series of reports published by POLIS from 2003 to 2013 set a strong foundation for approaches to urban water sustainability in Canada. This research critically examined urban water use, water efficiency, the sustainable use of urban water, and the challenges and opportunities of demand management. FLOW's new report *Smart Strategic Investment for Urban Water Sustainability* builds on this work. The report highlights Canada's infrastructure movement, which began in 2015 when substantial long-term investments were made to water infrastructure during the election campaign. Embedded in the discussion of water infrastructure were key themes of sustainability, resilience, and green infrastructure. Since then, five infrastructure priorities have been identified at the federal level:

1. Social infrastructure,
2. Public transportation,
3. Green infrastructure,
4. Trade and transportation, and
5. Rural and northern communities.

An update of the 2016 federal budget officially allocated \$180 billion to infrastructure investments over the next 10 years. The innovative themes embedded in this "infrastructure moment" give Canada the potential to do things differently and become a global leader in freshwater management. Many groups across the country are considering the opportunities created. This includes work by Green Communities Canada, Canadian Water and Wastewater Association, Canadian Water Network, Southern Ontario Water Consortium, and WaterTAP.

### *Report Highlights: Smart Strategic Investment for Urban Water Sustainability*

Canada's water infrastructure is aging and in need of attention. Roughly one-third of drinking water infrastructure and wastewater infrastructure is in fair or poor condition. As of 2007, the water and wastewater infrastructure deficit was roughly \$88.5 billion. The *Smart Strategic Investment for Urban Water Sustainability* report, and its accompanying policy briefs, presents timely recommendations. The report aspires to help Canada align its water infrastructure investments and regulatory regimes around a vision of sustainability, resilience, and innovation. The report intentionally excludes First Nations freshwater issues because the team lacked the capacity needed to appropriately cover the complex range of issues concerning First Nations drinking water and water infrastructure. FLOW has been working with First Nations leaders and assisting them where possible to achieve their freshwater goals.

Public opinion places water services as the second most important recipient of government infrastructure funding. Canada's "infrastructure moment" offers an opportunity to bring the country out of the water infrastructure deficit, but also to try something new. Canada has the potential to become a global innovative leader by making the clean water technology and services sector a central pillar of the federal government, while at the same time modernizing and repairing Canada's water infrastructure.

## *Three Strategies for Advancing Urban Water Sustainability*

### **1. Get the most out of existing assets**

Maximizing the performance efficiency of existing water infrastructure is the most sustainable and cost effective way to increase the quality of water and wastewater services. Maximizing the performance of existing infrastructure could include asset management or performance-based asset management, comprehensive water efficiency audits, water conservation, and upgrading or optimizing of wastewater facilities. One example of optimization comes from Haldimand County in Ontario's Grand River watershed, where an optimization review deferred \$10 million worth of infrastructure.

### **2. Invest in green infrastructure**

The federal government's definition of green infrastructure remains limited and does not expand beyond greywater infrastructure and drinking water facilities. Conversely, FLOW's definition is much broader and focuses on living green infrastructure. This includes natural assets, such as healthy urban river systems and forests, and human design concepts, such as constructed wetlands, bioswales, and retention ponds. One example of progressive green infrastructure policy comes from the City of Vancouver, which has set a goal to capture and retain 90 per cent of average annual rainfall.

### **3. Accelerate the uptake of innovative technologies and practices**

Sustainable urban water leaders think beyond standard regulations by recovering nutrients, salvaging water, achieving carbon neutrality, and turning wastewater into energy and even revenue. In 2015, the City of Edmonton opened a wastewater treatment plant that will recover nutrients from urban wastewater to produce fertilizer. The treatment plant is estimated to recoup its capital costs within its first five years of operations by reducing both costs and maintenance, and through sales of the fertilizer.

## *Recommendations*

- **Establish a project assessment criteria (i.e. a "blue screen") that prioritizes projects that stand out as sustainable, resilient, and innovative.** Phase 2 of the federal government's infrastructure spending program offers the opportunity to screen projects before approval and require them to meet conditions that maximize infrastructure optimization (e.g. water management, GHG reduction, energy recapture, living infrastructure, climate adaptation). This will help ensure all new infrastructure is sustainable and resilient, and that projects maximize their resources.
- **Ensure that dedicated funding streams prioritize and promote projects that show leadership in the areas of sustainability, resilience and innovation.** Traditionally, innovative projects have not been prioritized in infrastructure planning. There is an opportunity for the federal government to modernize wastewater regulations to encourage infrastructure projects are sustainable, resilient, and innovative.
- **Create tools that reward those who go above and beyond what is currently required.** Consider options like mandating that all wastewater plants include optimization plans, or requiring municipalities to set criteria goals for communities to meet (e.g. climate change goals, contamination levels maximums).

## Part 2

### **Gibsons, B.C. Eco-Assets Program: Practical Solutions to an Impossible Situation**

**Presented by Emanuel Machado, CAO of the Town of Gibsons**

#### *Background on Gibsons, B.C.*

Over the past four years, the Town of Gibsons has incorporated natural capital considerations into its planning system. This has resulted in innovative infrastructure management that utilizes natural ecological systems to provide essential services to its residents. With a population of 4400, Gibsons provides two-thirds of its residents with drinking water directly from the Gibsons Aquifer. The storm water system in Gibsons is largely natural or semi-natural, provided through forested areas, soils, and creeks.

#### *Asset Management, Financial Planning & Ecology*

Across the country, infrastructure is expiring at rapid rates and replacements are costly. Climate change has compounded these problems causing greater climatic variability that, in turn, stresses water infrastructure. As infrastructure reaches the end of its life, we are faced with the choice of continuing to rely on engineered assets or working to find a role for nature in providing municipal services. Gibsons has sought to do the latter—to utilize the valuable assets provided by ecological systems to increase infrastructure sustainability and develop more resilient municipal water services, in a new eco-assets program.

In current systems nature is undervalued, underpriced, and overused. Until recently, there was no system in place to encourage planners to consider the need for long-term maintenance of infrastructure, or sufficient tools to account for ecosystem services in traditional accounting approaches. Gibsons has tackled these two issues head-on, working to understand and incorporate the value of ecosystem services into planning processes. Gibsons' eco-asset program uses a combination of asset management, financial planning, and natural ecology in its planning procedures. In partnership with the David Suzuki Foundation, Gibsons has worked to create rigorous procedures for assessing eco-assets and ensuring key natural assets are not inadvertently damaged. Their goal is to restore and preserve eco-assets to the highest degree of ecological integrity and to maximize the service provision of those assets.

However, relying on natural assets to provide municipal services raises a series of intriguing questions regarding risks, liabilities, and finances. For example, what would it cost to build a dam that would replace the role of the Gibsons Aquifer? And would that dam be as resilient?

#### *The Value of Natural Resources*

The financial worth of natural assets is clear. Gibsons' natural services are valued at \$48 million. However, the contributions of creeks, aquifers, and forests are not currently recognized as key components of municipal infrastructure by federal and provincial governments, due to narrowly defined financial standards. This is because ecological assets do not have the upfront financial costs of engineered assets. In addition to their financial value, natural assets provide numerous benefits: they are carbon neutral and can even be carbon positive; they are cost effective to maintain and if managed appropriately can last in perpetuity; and they are multipurpose, helping to support various municipal needs. Gibsons has acted as a leader in promoting the value of natural assets with federal and provincial partners. The town has worked successfully with the federal and provincial governments to ensure that natural assets are given equal consideration to engineered solutions to infrastructure problems. However, Gibsons still faces substantial barriers in securing sustainable funding. Currently, taxes and grants do not providing sufficient funds for natural assets projects. The multi-jurisdictional nature of water management causes further difficulties. Gibsons cannot control what happens outside its watershed, but must plan for their impacts to the municipality.

## ***Specific Environmental Actions in Gibsons***

Gibsons' overarching goals are to have infrastructure assets that are as close to natural systems as possible, and that are energy efficient, reliable, and cost effective to operate over the long term. Gibsons has pursued this through a number of initiatives:

- Redefining the term "infrastructure" to include natural capital, and encompass a full spectrum of infrastructure from fully natural assets to fully engineered assets.
- Creating new policies that acknowledge natural assets and describe them as features in the natural environment that provide services comparable to engineered assets.
- Since redefining the term "infrastructure" all official community plans and strategic plans have been reviewed through a natural capital lens.
- Gibsons is the first city to consider its aquifer as a key component of its water system.
- Gibsons has moved away from departments managing natural assets to a system where small teams manage assets due to the cross-jurisdictional effort required in small towns.
- Working with financial auditors to manage the high risks associated with asset failure, such as loss of life, property damage, and economic slowdown.
- Updated its storm water system by-law to promote investment in natural assets by expanding forested areas, ponds, and ditches.
- Developed a public art program, "Art Farm," that has been used to communicate the value of nature and enhance the connection between nature, infrastructure, and people.
- Working on a guidance document, in collaboration with the David Suzuki Foundation and the Smart Prosperity Institute, to provide a solid business case for natural capital and to help other municipalities incorporate natural capital into their plans and policies.
- Openly shared its best practices, policies, and evaluation tools with other municipalities.
- Gibsons is a living laboratory for the Municipal Natural Capital pilot study.

Gibsons has taken the lead on developing a political landscape that acknowledges the value of the services provided by natural assets. Other communities across the country have begun to take notice of the progressive policy action Gibsons has taken at a municipal level and the core concepts behind their eco-asset plan.

## **Question and Answer Period**

***Which federal agencies that you've worked with are recognizing natural capital?***

***Emanuel:*** None, the federal government still needs to change the way it values nature and natural services, and nail down a strong concept of green infrastructure. They also need to work hard to make connections between climate change, policy, infrastructure, and nature. Four recommendations that the Town of Gibsons has made to the federal government are:

- Fully recognize the role nature plays in our communities;
- Climate change plans need to account for the carbon storage and sequestration associated with ecosystem services;
- Continue to support Statistics Canada in its efforts to map natural assets across Canada. Gibsons is mapping at fine scale and there is potential for collaboration as both data sets can add value to one another; and
- Issue a directive to all federal agencies to develop and institutionalize policy that requires the consideration of ecosystem services in planning, investment, and regulatory contexts.

***What suggestions would you have for a highly urbanized community, like the City of Vancouver, that has largely lost most streams, natural shoreline processes, and canopy cover?***

**Tony:** I'm not an on-the-ground local practitioner, but it's important to ensure that natural solutions are prioritized, natural losses are compensated for, and restoration projects are developed. At a local level, move toward recognizing these projects as important. Natural assets, infrastructure, and services are all key steps for urban centers to take. There are plenty of examples. In Kitchener, Ontario, an urban stream was channelized and several years ago the City realized that the restricted stream was not as beneficial as the natural stream. Since then, Kitchener has worked to restore the creek and been acknowledged for the project.

**Emanuel:** We are still losing a tremendous amount of natural environmental capital on a global scale—faster than nature can restore. Many municipalities in Canada require developments to remove everything and replace them with an engineered system rather than requiring a natural resource assessment. While it is important to recognize that changing urban areas into green spaces is not always possible, we must find spaces where it is possible. Some examples of interesting green infrastructure programs include New Orleans and West Vancouver. New Orleans recently expanded its natural infrastructure program to take advantage of natural services, and West Vancouver is creating a business case for renaturalizing and daylighting natural creeks.

***Would either speaker have comments on the possible stress between retaining green space versus increased urban density?***

**Emanuel:** It's important that we change the conversation from folks who think only in terms of conservation or densification. It is possible to have both conservation and densification. Communities seem to have lost their appetite for high density. Density needs to be re-appreciated because it is better to use the resources we already have. Once we lose natural capital, we can't get it back, at least not to the same degree.

### ***Final Comments***

**Tony:** There are plenty of examples for people trying to leverage this unique opportunity and to make this type of thinking the norm. Over the next 10 years, there will be plenty of learning opportunities and the need to adapt and tweak plans, but there are a lot of positive things happening out there.

**Emanuel:** We hope to demonstrate that responsibly managed communities and services can successfully rely on natural capital, and that it pays to invest in nature. Natural assets are a reliable form of risk protection, and from a climate change perspective, natural assets are cost effective. The Town of Gibsons is not doing anything drastically different. No new staff members were taken on to enact the eco-assets approach. We are simply reframing our approach to how we think about our assets.

## Resources

### *Part 1: Smart Strategic Investment for Urban Water Sustainability*

#### General Resources

*FLOW: Forum for Leadership on Water Website*

<https://www.flowcanada.org/>

FLOW is an independent, non-partisan group of policy experts from across Canada that has been working for over a decade to secure the health of Canada's fresh water.

*Infrastructure Canada Website*

<http://www.infrastructure.gc.ca/index-eng.html>

Learn more about Canada's \$186 billion long-term infrastructure plan and its commitments to green developments, social infrastructure, public transportation, trade and transportation, and rural and northern communities.

*Smart Strategic Investment for Urban Water Sustainability (2017)*

[https://media.wix.com/ugd/c3d5ce\\_bab16811a71b4403a9e594922c852e32.pdf](https://media.wix.com/ugd/c3d5ce_bab16811a71b4403a9e594922c852e32.pdf)

This FLOW report outlines three strategies to advance urban water sustainability and provides a package of policy recommendations to guide infrastructure investments in ways that will increase the pace and scale of their implementation.

#### Select Research That Informed *Smart Strategic Investment for Urban Water Sustainability*

*Flushing the Future? Examining Urban Water Use in Canada (2013)*

[http://poliswaterproject.org/sites/default/files/report1\\_full.pdf](http://poliswaterproject.org/sites/default/files/report1_full.pdf)

This report provides insight into water use and supply in Canadian cities and the potential for demand-side management.

*The Future in Every Drop: The benefits, barriers, and practice of urban water demand management in Canada (2004)*

[http://poliswaterproject.org/sites/default/files/report3\\_full\\_0.pdf](http://poliswaterproject.org/sites/default/files/report3_full_0.pdf)

This report focuses on identifying the benefits, as well as the barriers, to water demand-side management in Canada. The report explains why a comprehensive and long-term approach to demand-side management is necessary and provides action plans for all levels of government and other stakeholders for implementation.

*Thinking Beyond Pipes and Pumps: Top 10 Ways Communities Can Save Water and Money (2006)*

[http://poliswaterproject.org/sites/default/files/ThinkingBeyond\\_eng\\_highres.pdf](http://poliswaterproject.org/sites/default/files/ThinkingBeyond_eng_highres.pdf)

This handbook provides a practical resource on how individuals, utilities, and, most importantly, communities can save water and money.

*What the Experts Think: Understanding Urban Water Demand Management in Canada (2003)*

[http://poliswaterproject.org/sites/default/files/report2\\_full.pdf](http://poliswaterproject.org/sites/default/files/report2_full.pdf)

This report draws on interviews with Canadian experts in the field of water resource management and initiates a national network of water demand management practitioners.

## Recent Relevant Work from FLOW

*Cross-Canada Check Up: A Canadian Perspective on Our Water Future* (2012)

[http://act-adapt.org/wp-content/uploads/2011/10/CrossCanada\\_LowQualityOnline.pdf](http://act-adapt.org/wp-content/uploads/2011/10/CrossCanada_LowQualityOnline.pdf)

This report is a synthesis of the themes, perspectives, and information shared by Bob Sandford, the panellists, and audience members in each of the cities on FLOW's 2012 cross-Canada tour.

*Habitat 2.0* (2016)

[http://wcel.org/sites/default/files/publications/Habitat%202.0\\_FINALFORWEB\\_singlepages.pdf](http://wcel.org/sites/default/files/publications/Habitat%202.0_FINALFORWEB_singlepages.pdf)

This brief establishes the need for national legal fish habitat protection standards, addresses the current state of the law, and sets out recommendations for a modern *Fisheries Act*.

*Seeking water Justice: Strengthening Legal Protection for Canada's Drinking Water* (2010)

[https://media.wix.com/ugd/c3d5ce\\_96aaed0613a04c76a9cc921516dce03b.pdf](https://media.wix.com/ugd/c3d5ce_96aaed0613a04c76a9cc921516dce03b.pdf)

The report reveals that certain communities in Canada – specifically rural and First Nations – are vulnerable to drinking water contamination. The report calls for world-class, enforceable drinking water standards that are consistent across Canada, resources for First Nations drinking water services and transparent reporting on the state of drinking water systems across the country.

### ***Part 2: Gibsons, B.C. Eco-Assets Program: Practical Solutions to an Impossible Situation***

*Gibsons Eco-Asset Program*

<http://www.gibsons.ca/eco-assets>

Get insight into how the Town of Gibsons quantified the value of its natural assets and how it integrated natural assets into operational budgets, maintenance, and general management system. The website also links to other sustainability projects unique to Gibsons (e.g. Aquifer, Woodlands).

*Towards an Eco-asset Strategy in the Town of Gibson* (2015, Town of Gibsons)

<http://www.gibsons.ca/include/get.php?nodeid=1000>

This report outlines the progressive steps the Town of Gibsons has taken towards an eco-asset management strategy.

*Nature's Role In Achieving Sustainable Municipal Service Delivery*

<http://www.gibsons.ca/include/get.php?nodeid=1270>

This 2015 document explores the importance of natural assets management and the Town of Gibsons' effort to implement their eco-asset management program.



## Interested in More Webinars?

To view past *Creating a Blue Dialogue* webinars visit [www.youtube.com/POLISWaterProject](http://www.youtube.com/POLISWaterProject). Previous topics include “Aboriginal Co-Governance of Water and Watersheds,” and “Environmental Flows and Healthy Watersheds: Towards Protection in Canada and B.C.”

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2016/2017 *Creating a Blue Dialogue* webinar series provided by:

