

2nd Canadian National Wastewater Management Conference and Policy Forum

Strategic Management of Canadian Wastewaters

Hosted by the Canadian Water
and Wastewater Association
February 25 to 27, 2007
Edmonton, AB

Building on the themes of an integrated "tap to source" approach for wastewater management, this event addresses the policy and regulatory framework across Canada. The primary areas to be explored are:

- *Federal / Provincial Regulations and Policies*
- *Storm water and sewer use controls*
- *Emerging issues, Science and Research*
- *Environmental Risk Management*
- *Financial and Asset Management*

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Stormwater Management

Tackling non-point source pollution in Alberta

By Sean McNeely

Statistics Canada has reported that Alberta is growing three times faster than the national average. As of July 1, 2006, the province's population increased to 3.38 million, from 3.28 million at the same date last year. Calgary is quickly reaching one million people. Fort McMurray's explosive growth has made headlines across the country – figures such as \$100 billion in oilsands development over the next decade have been projected. The town's population has doubled in nine years.

"It's fair to say Alberta is under construction," said former Cochrane, Alberta, mayor Judy Stewart.

While the province enjoys prosperous growth, there are concerns that amid all of this expansion, responsible watershed management is being ignored. Development across the province, particularly in northern Alberta, is quickly taking place in spaces where watershed regulations have yet to be established, or even drafted.

"The pace of growth is outpacing every kind of legislative amendment process we have here," stated Stewart. "It takes ten years to get a regulation change, and in those ten years you have nothing left to worry about because your land has been destroyed."

In this absence of pending regulation, it's been suggested that water stewardship falls on the developers and contractors, but there is a fear this simply isn't happening. If the chief goal is to turn a tidy profit, water management, particularly stormwater management, just isn't on the radar. But it should be. With all of the new roads and parking areas, oils, sediment, and other pollutants are washed from these paved surfaces directly into storm drains and waterways.

Non-point source pollution such as stormwater now accounts for 80% of water pollution in North America.

Some developers do make efforts, but, in Stewart's eyes, they fall well short of what is needed. "The best management practices (BMPs) in stormwater are pathetic," declared Stewart. "Developers commonly put in place silt fences, hay bails, water redirection and rocks...all of these nice little things would work if there was only one development happening. But nobody has planned for the cumulative impact of whole landscapes being completely leveled at once."

Generally, it's been accepted that if you can get infrastructure into the ground before regulations are official, you usually won't have to go back and dig up the pipes or break out the bulldozers to meet new regulations. This unwritten rule may also be fueling the speed of construction.

As well, adding stormwater management BMPs such as wetlands, swales and ponds is expensive and complex. For many projects, adding such measures years later would be out of the question, simply because there is no space.

The Alberta government recognizes the issue is serious. Releasing *Water for Life* in 2003, this 30-page document outlines ambitious strategies for water management, with an emphasis on clean drinking water supplies.

"With *Water for Life*, the government has created a very comprehensive framework to protect water resources and watersheds," said Bill Berzins, chair of the Bow River Basin Council (BRBC). "Within that framework, organizations like the BRBC are working with large groups of stakeholders to



Calgary's population is rapidly approaching one million people. Is water stewardship in Alberta being left up to developers and contractors?

develop new watershed management plans.”

However, drafting watershed legislation is tricky, noted Berzins. “When it comes to watershed management, if we’re going to make a decision that’s in the best interests of us all over 10, 20 or 50 years, that’s a difficult thing to do.”

He quotes a politician who once said that creating such legislation was a 10-5-2-1 scenario. “We’re dealing with 10-year problems, with five-year rolling plans, with people who are in a term of office for two years, and we’re trying to solve it with a one-year action plan,” he explained.

“There are volunteer-based organizations, growing in numbers and sophistication, coming forward to government with recommendations as to how to strengthen the regulatory and policy framework, and how to eliminate the gaps in policy and regulation. We’re also going to come forward with recommendations on how we can put in economic incentives for conservation-minded activity.”

In the meantime, Judy Stewart believes getting developers to gain a better understanding of stormwater issues will also go a long way, even in the absence of regulations. She, along with the Cochrane Environmental Action Committee (CEAC) hosted the Cochrane Low Impact Development (LID) Conference in October; developers from across the province were invited. “We’re trying to encourage the development industry to get on board with stormwater management awareness whether or not the government has legislated it,” she said.

Through conferences like LID, Stewart hopes to introduce new concepts and technology so developers can start putting measures in place and hopefully recognize that it’s actually more cost-effective to include stormwater management in construction plans.

Calgary stormwater specialist Justin Arnott, shares the belief that, for the time being, developers must shoulder more responsibility and be conscious of the consequences of stormwater pollution. “In the absence of regulations, consultants and contractors are going to have to start making smarter decisions,” said Arnott.

To guide them, Arnott suggests developers consider installing proprietary BMPs - a recommendation that might suit both the developers and the government. Arnott, an engineer with

Imbrium Systems, believes proprietary BMPs offer an ideal interim solution as the government plays catch-up.

One example of a proprietary BMP is Imbrium’s Stormceptor – an oil and sediment separator that removes free oils and sediment from stormwater. It works by slowing incoming stormwater to create a calm treatment environment – allowing free oils to rise and sediment to settle. These pollutants can then be removed through road-side access during routine maintenance.

“Proprietary BMPs make sense. They are a hands-free way of addressing stormwater quality concerns,” said Arnott. “Intensive planning needed for other natural BMPs like wetlands isn’t necessary.”

Stormceptors are designed using PCSWMM, developed by internationally renowned hydrology expert Dr. Bill James. It’s a continuous modeling software that combines up-to-date local rainfall data from hundreds of stations across North America, with a selection of particle sizes, to design a unit tailored for a specific site, or a specific type of sediment. An oil-sediment separator can complement existing natural BMPs such as ponds or swales.

“A pre-treatment device can treat runoff before it enters a pond,” said Arnott. The number of pond dredges can be reduced significantly because much of the oil and sediment has already been removed during routine maintenance. Large wet ponds require dredging - an expensive operation using an excavator or crane mounted on a floating barge. By contrast, oil-sediment separators are cleaned quickly and inexpensively by vacuum truck, often without confined-space entry.

“When a pond is dredged, it can wreak havoc on fish, plants and animals,” continued Arnott. In addition, the process may stir-up a large amount of colloidal sediment and pollutants, sending material further downstream to major rivers.

Be it working to draft legislation, hosting conferences or considering proprietary BMPs, Alberta needs to act fast if its watersheds are to be spared from being irreparably abused with the torrid pace of development.

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