iisd International Institute for Sustainable Development
Institut international du développement durable
http://www.iisd.org

Multi-Purpose Flood Protection: A rural-urban win-win

An IISD Commentary

Henry David Venema

June 2009

We ignore the lessons of the 2009 Red River flood at our peril. It reveals another reason why urban taxpayers should take an interest in what happens on the rural landscape.

Well-managed agriculture can help keep your basement dry, your tax bill lower and give us an edge in adapting to climate change.

Agricultural water management has always been a difficult issue in Manitoba where floods and droughts are common. The 1869 Dominion Land Survey created the mile section land use quilt that defines Southern Manitoba's landscape. Straight-line drains aligned with the mile section system replaced natural features, such as sloughs, wetlands and creeks. Modern drainage succeeded in speeding runoff from fields, but also increased downstream flooding. And it wasn't long before serious problems arose.

Manitoba's first Royal Commission in 1899 studied taxation protests over contentious drainage projects that allegedly provided too few benefits. As the size and complexity of drainage projects increased so did the number of complaints. The 1918 Elliot Report recommended a watershed-based approach that foreshadowed today's ecosystem management concepts adopted by Manitoba Water Stewardship through the Conservation Districts Program.

Although the flooding liability associated with drainage projects has been well understood for a century, little has changed on the ground.

The catastrophic 1950 and 1997 floods provoked the construction and then expansion of the Red River Floodway. Without question it has been an excellent public investment, but it has limitations as demonstrated during the unusual conditions experienced this spring.

This is troubling given the potential risks of climate change. Whether or not the 2009 flood was a climate change event, its characteristics—heavy fall and late winter precipitation, difficult ice conditions, and intermittently slow and rapid melting—are entirely consistent with climate change projections.

We need to prepare for more years like 2009. With the operational limitations of the Floodway now better understood, we need agricultural water management options that provide rural as well as urban benefits. This is where the next increment of flood protection must come.

Fortunately, excellent examples of improved management already exist within Manitoba and the Red River Valley, including the Alternative Land Use Services (ALUS) pilot project in the Rural Municipality of Blanshard. Participating farmers receive compensation for maintaining ecological features on their farms, such as wetlands and riparian areas that can

help reduce flooding.

The small dam network in the South Tobacco Creek Watershed along the Pembina Escarpment is another good example. A study by the Prairie Farm Rehabilitation Administration calculated that small dams reduce peak flood flows by as much as 90 per cent.

The innovative Waffle concept developed by the Energy and Environment Research Center in Grand Forks uses the section road grid as a network of dykes to store and slow water flow, much like the ridges on a waffle store maple syrup.

Drought and excess nutrient loadings on Lake Winnipeg are also key water management issues in Manitoba. Fortunately actions that reduce flooding can reduce nutrient loads, and help us cope with drought—another climate-adaptation priority for the Prairies, which are expected to become hotter with more frequent drought episodes.

Wetlands remain productive during very dry spells and can benefit farmers. During the 2002 drought, hay was shipped to the Prairies by train in the "Hay West" campaign, though some farmers were able to get forage for livestock in the areas around remaining wetlands.

Research projects by Ducks Unlimited and the Freshwater Institute also show that biological activity in wetlands and small dams improve water quality by reducing nutrient loads downstream.

The real challenge lies in changing the traditional practice of clearing and draining land of excess water.

Farmers must be convinced that storing spring runoff is in their interest. Overturning traditional practice is difficult but not impossible as the great success with minimum tillage demonstrates. The difference with floodwater storage is that minimum tillage produces an immediate benefit to the farmer's bottom line by reducing input costs.

Retaining spring runoff will help retain moisture in dry years and pay a dividend later in the growing season. However, maintaining wetlands also hits profitability by taking land out of production.

Therefore, compensation is important. With support and financial incentives farmers are showing that they can and will produce public flood protection benefits.

Governments must respond with a sophisticated agricultural policy, capable of producing the mix of multi-purpose flood protection measures in our agricultural watersheds.

While the province plays a key role in agricultural policy, jurisdiction is shared Agriculture and Agri-Food Canada, which has a large influence on agricultural policy through its funding priorities. AAFC's new policy framework, *Growing Forward*, includes all the essential principles for coherent agricultural policy in the Red River Valley and the Lake Winnipeg Basin.

It recognizes that agriculture practice should address the societal priority of strong environmental stewardship, adapt to climate change, and deliver ecological good and services implemented on a watershed-basis. These principles are laudable and enlightened—as always, the test is the funding to implement.

Hopefully the 2009 Red River flood provides a clear understanding that it's not just the farm vote that cares. Good policy benefits everyone and makes finding the necessary political will much easier.

Henry David (Hank) Venema is the Director of the International Institute for Sustainable Development's Sustainable Natural Resources Management program and Water Innovation Centre.

An abridged version of this article appeared in the Winnipeg Free Press on June 7, 2009.