



Photograph by: Troy Fleece, Regina Leader-Post

Climate change models predict we'll see summer storms of far greater severity than in the past.

There are good reasons for this forecast. First, as the atmosphere warms, it will be able to hold more water vapour. So when conditions are right, more rain will fall.

Second, a warmer arctic zone results in a weaker jet stream. As these west-to-east winds weaken, they will tend to meander, much as a slow prairie river weaves across the landscape. Weather patterns will tend to stall in places as a result. Again, when conditions are right, a storm that might have lasted hours can turn into one lasting for days.

This is what happened last summer in Alberta - and Calgary suffered massive flood damage as a result. A storm system stalled over the eastern Rockies for three days, dumping huge amounts of rain and overwhelming any flood defences that existed downstream.

We don't have mountains in Saskatchewan, but our very flat landscape presents a different set of problems. Most of southern Saskatchewan doesn't drain into a river. So, instead of precipitation being carried away, water lies there, perhaps moving from one field to the next, and only slowly disappears through evaporation and infiltration. New hydrology models that predict water flow in the "fill and spill" prairie landscape have been developed at the University of Saskatchewan.

This province, too, is susceptible to more violent summer storms. Over the past decade, the Saskatoon district has seen three storms that rank as one-in-500-year events. Thus, what the past taught us about the frequency and severity of storm events no longer applies.

Picture yourself as a councillor in a rural municipality (RM). It's April, and you're looking at your road budget to decide what needs to be done this summer. You've got money to replace five culverts, but which of the dozens in your RM need to be done first?

All of your culverts were installed decades ago, and sized to accommodate a one-in-25-year storm event. You know they won't be large enough to protect the road from being washed out if, as predicted, storms larger than any you've ever seen hit over the coming years.

Some roads are essential for local industries, both to truck their product to market and to get materials in. Staff at the local potash mine needs road access to get to work. Other roads are important so ambulances and fire apparatus can save lives and property.

Still others are needed so tourists can get to local attractions. Farmers depend on the roads to get their crop to the local terminal.

You want to get the best bang for your buck, but you need information to help you make your decision. Where will water flow in the event of very large storms? What changes have farmers made to drainage over the years? Which roads are the most important to the local economy? What population centres are at risk?

Both urban and rural councils have infrastructure to consider: culverts, bridges, dikes and weirs. Most, if not all, of these public works were put in place to handle flood conditions that are well below today's requirements. A lot of money must be spent to bring this infrastructure up to current standards.

The federal government is in discussion with the provinces to create a flood prevention and mitigation program. It is essential that the program requires each province to adopt tools that will help predict local impacts of flood events and thus ensure program money is spent as effectively as possible. These models exist, and one, called LIRA (Land Infrastructure Resiliency Assessment), are especially suited to deal with the conditions we face in Saskatchewan.

Planning for inevitable flood events must take place as soon as possible. Public safety is, after all, the primary purpose of government.

Fred Clipsham is a director of the Saskatchewan Association of Watersheds and a former vice-president of the Saskatchewan Urban Municipalities Association.

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