

# Flood planning: Why we get it wrong time after time

TOM SPEARS

FIRST POSTED: TUESDAY, MAY 09, 2017 12:40 PM EDT | UPDATED: TUESDAY, MAY 09, 2017 08:19 PM EDT

---

What do we do wrong about floods?

A professor at Western University who specializes in natural disasters was at a loss where to start.

There's inadequate flood plain mapping. A government that sends in the army that after the flooding happens. Rebuilding homes after a flood destroys them, daring the water to rise again.

Slobodan Simonovic, director of engineering studies with Western's Institute for Catastrophic Loss Reduction, says we fail to learn from our mistakes, and from the devastating power of nature.

"We get reminded (of the danger) when the flood occurs but we forget when the flood is behind us," he said.

In an interview, he laid out some of the ways we let floods clobber us time and again:

## **Outdated flood plain maps:**

We treat maps as final documents, but nature evolves and the so-called 100-year-flood may in fact happen more often, Simonovic says.

"Hydrologic conditions are changing. Precipitation is changing. Flow is changing. These lines (on flood maps) are not fixed ... If you establish them today, they're established usually using the historical data on precipitation and flow." But with changes of rainfall and land use, the flood risk changes over time.

In the case of London, where he lives, the once-in-100-years flood can now be expected every 30 or 35 years.

The logical response is to rewrite the flood maps, he says, yet this rarely happens.

Another issue: It's hard to know what happens once every 100 years when we don't have 100 years of data. Ottawa has official weather records since 1939, and historic records of flooding are unreliable because our modern pavement, sewers and dams have changed the way water flows. (Pavement makes water run off faster, for example.)

There's also psychology.

It's human nature to say: We've had our big flood, so we won't have another for 100 years. In fact we could have another in 10 or 20 years. Only over the centuries will it all even out, assuming the models are all accurate in the first place.

## **We respond too slowly.**

Why wait until homes are already surrounded by water to send in the army? he wonders.

"We cannot stop floods from occurring obviously."

But he says "the co-ordination between various levels of government is relatively weak" in flood work and other disasters.

The problem is that local governments are the first wave of defence in Canada's system, first in planning, then in piling sandbags when the water rises. "When the disaster exceeds the capacity of the locals to deal with that, then we move to the



al level,” and later to federal assistance.

“That is evident now” in Eastern Ontario and Quebec. “You see the involvement of the army,” but it began on Saturday night, days after the first homes were flooded and everyone knew the water was still rising.

There are delays while local governments wait for the funding or other involvement from senior governments, “and then everything gets moving but the water is moving also, and in some cases it’s much faster than the decisions. I think that creates some impact on people — on economic damage as well as a psycho-social feeling that people are not being helped, or not being helped in time.”

“This is a cycle that is being repeated at almost every location and with every flood.”

### **Rebuilding in the wrong places:**

“We go through floods that create \$3 billion to \$4 billion of damage, like Calgary (in 2013), and then what happens is people are building in the same locations. And local governments are proud to give the support to do that.

“To me that’s ludicrous ... Obviously you do not pay attention, or do not take some lessons” from the past experience.

Climate changes are making floods a greater threat, he believes.

“We have to remember that these are natural phenomena. They are going to occur. The changing conditions are going to change (floods) and make them more endemic, more variable.”

They will happen not only in spring but in summer, when a sudden rainstorm overwhelms the ability of a city’s sewers to drain away the water in time. Toronto had a flood like this in July, 2013.

“No one is really thinking how to adjust to that. We are failing to respond to that.

“There is a huge inertia in changing the way we deal with that.”

After major European floods in 2000, countries are trying to leave extra undeveloped space around rivers, he said.

But not in Canada.

“We are rebuilding in the same place. We are potentially causing a problem for the next time, when the water comes again.”

Simonovic studied severe floods for about five years during and after the 1997 Red River flooding in Manitoba and the northern United States.

“In decision-making we are rarely bringing the climate change into the picture,” he said.

The insurance industry gives funding to his research institute at Western because it wants better understanding of costly disasters — earthquakes, tornadoes and floods among them.

### **Fine, but what about the homes already built in flood-prone zones?**

Buy them up, says Simonovic. Bulldoze them. “Release that land to the river.” It’s cheaper in the long run than trying to protect them and then paying for major repairs.

“Homes that are in the flood plain will continue being flooded.

“Conditions are changing, due to various factors: More people, different land use, change of climatic conditions. The

**SUN+** s a consequence also change, either happening more often or becoming more devastating.”

[tspears@postmedia.com](mailto:tspears@postmedia.com)