Change a River, Change a Community? Factoring in the 'People Equation', What Can be Done to Minimize Serious Flood Damage?

Tom Johnston
Department of Geography
University of Lethbridge

Presentation to SACPA
September 12, 2013



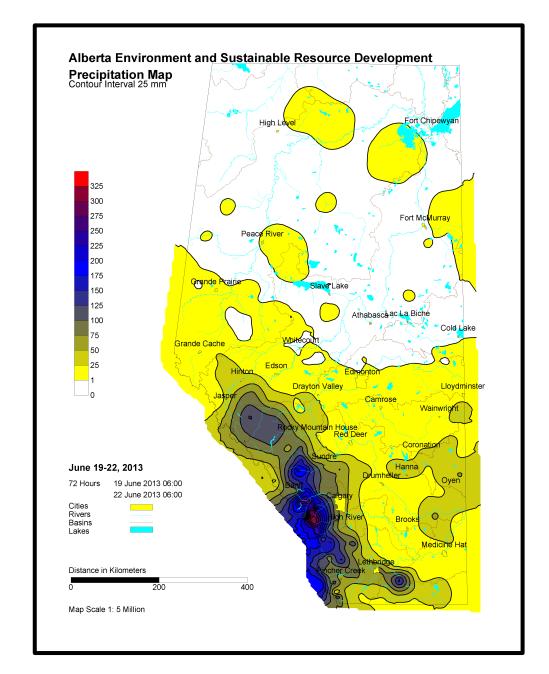
Source: www.cbc.ca

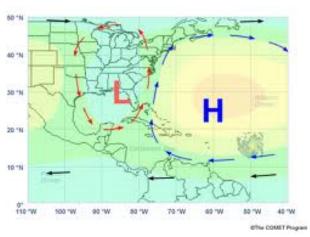


Source: Calgary Sun

☐ A brief overview of the 2013 Alberta floods

- 1) The process by which we develop plans to mitigate the flood risk must engage the public.
- 2) We can't rely on engineering solutions alone. We also need to critically assess current policy governing development in flood plains.
- 3) Development authorities must have access to up-to-date information about the flood risk.





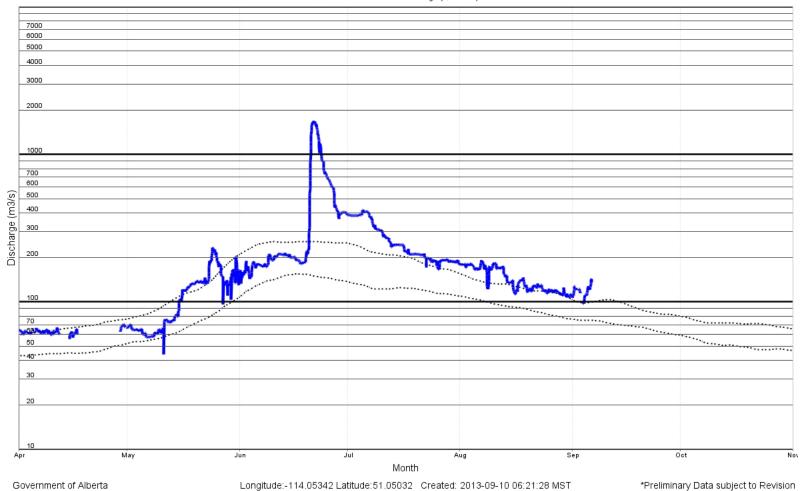
Between June 19 and 22, the areas to west and southwest of Calgary experienced heavy rainfall.

The 2013 Alberta Floods in Retrospect

- At peak flow, the Bow was flowing and 5 times normal, while the Highwood and Elbow rivers peaked at 10 times normal flow.
- Approximately 100,000 people affected directly in 30 communities, 40,000 people displaced from their homes.
 Perhaps as many as 500,000 people indirectly affected.
- Damage estimates range from \$3 to more than \$5 billion, much worse than the 2005 flood.
- As of September 4, 2013, 8,200 applications for disaster recovery submitted, 1,827 have been processed, totaling more than \$8.6 millions.

Bow River at Calgary (05BH004) River Data* - Apr. 01, 2013 - Nov. 01, 2013

△ Current Year ▲ Normal Range (Quartiles)



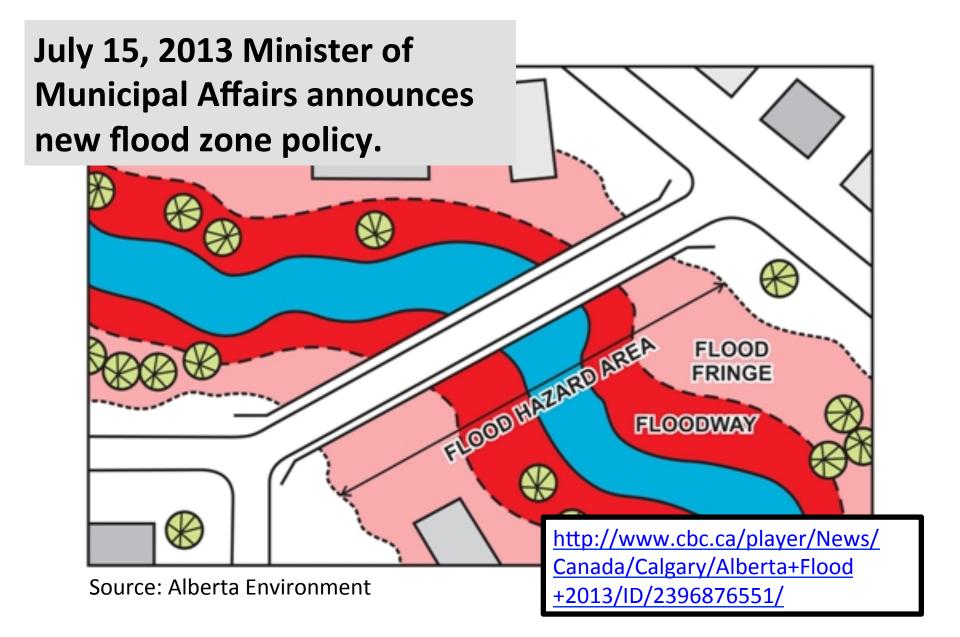
SACPA Presentation (Sept. 12, 2013)

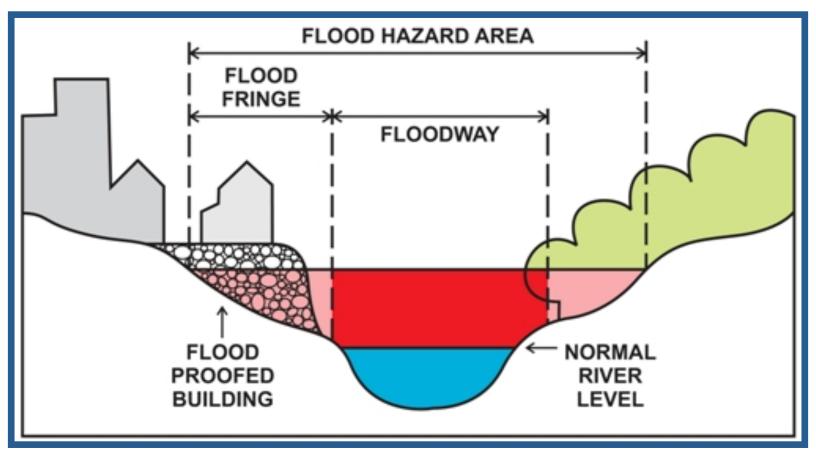


Source: The National Post



SACPA Presentation (Sept. 12, 2013)





Source: Alberta Environment

http://www.envinfo.gov.ab.ca/ FloodHazard/

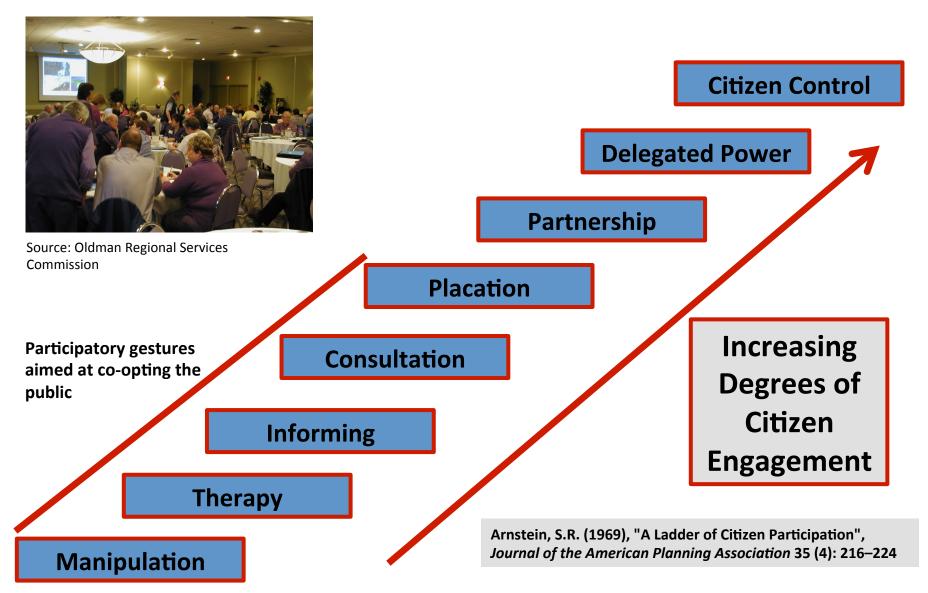


Source: Calgary Sun

☐ A brief overview of the 2013 Alberta floods

- 1) The process by which we develop plans to mitigate the flood risk must engage the public.
- 2) We can't rely on engineering solutions alone. We also need to critically assess current policy governing development in flood plains.
- 3) Development authorities must have access to up-to-date information about the flood risk.

Arnstein's Ladder of Public Participation



Some Important Things to Keep in Mind About Public Engagement Processes



Source: Oldman Regional Services Commission

- 1. One size does not fit all situations. There is no single methodology or approach the suits all circumstances.
- 2. Experts must be willing to relinquish power and act as facilitators rather than the authority.
- Participants need to be as diverse as possible. Ways must be found to give marginalized groups a voice.
- 4. Those controlling the process must be prepared to demonstrate why certain decisions were taken, how opposing views were taken into account, ect.

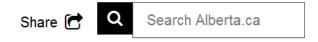


Source: Calgary Sun

☐ A brief overview of the 2013 Alberta floods

- 1) The process by which we develop plans to mitigate the flood risk must engage the public.
- 2) We can't rely on engineering solutions alone. We also need to critically assess current policy governing development in flood plains.
- 3) Development authorities must have access to up-to-date information about the flood risk.



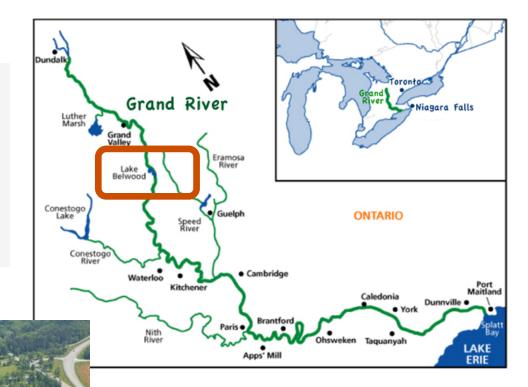


Redford government to rebuild communities with advice from Albertans

O Jul 21, 2013

In response to the worst flooding in Alberta's history, the Government of Alberta today appointed an advisory panel on community flood mitigation, to provide direct input on the <u>latest flood prevention technology</u> from around the world.

"I made a commitment that we would rebuild our communities devastated by recent flooding. We're going to do it in a common-sense way that makes The Grand River
Conservation Authority is
the longest standing
watershed management
authority in Canada.



The Shand Dam on the Grand River in Southern Ontario, built in 1942, is Canada's first major flood control dam.

The aim of the GRCA is to:

develop and implement programs, directly or with our partners, to improve water quality, reduce flood damages, maintain a reliable water supply, facilitate watershed planning, protect natural areas and biodiversity, and provide environmental education.

Source: GRCA

(5) The subdivision authority <u>may require</u> an applicant for subdivision to submit, in addition to a complete application for subdivision, all or any of the following:
 (a) a map of the land that is the subject of the application showing topographic contours at not greater than 1.5

metre intervals and related to the geodetic datum, where

practicable;

(b) if the land that is the subject of an application is located in a potential flood plain and flood plain mapping is available, a map showing the 1:100 flood;

(AR 43/2002 s4;254/2007;160/2012;89/2013

Ontario's Official Plan Approval Process

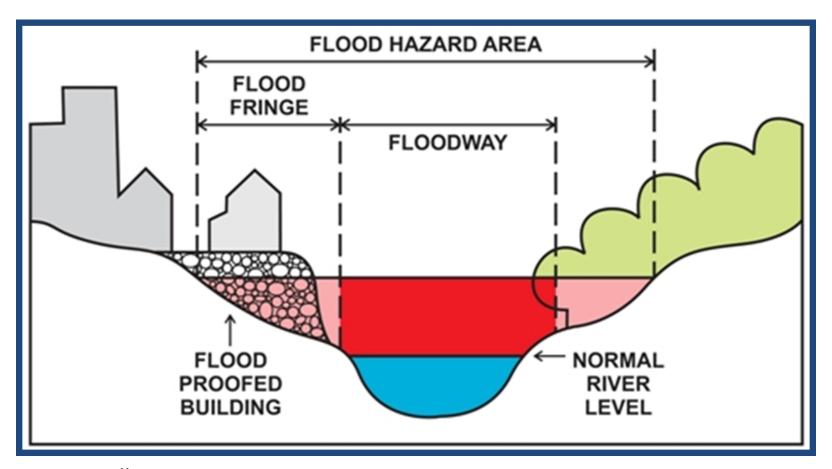




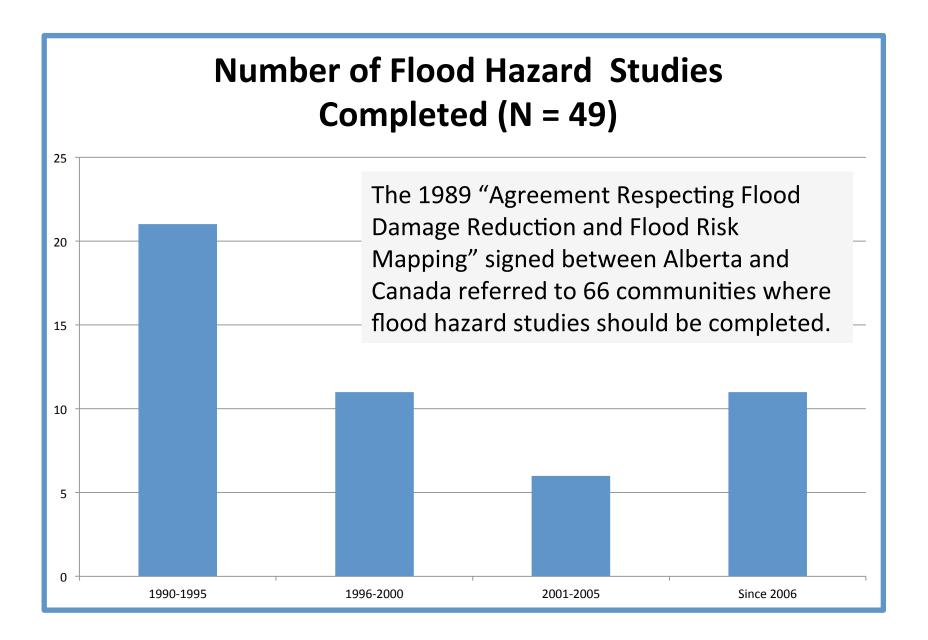
Source: Calgary Sun

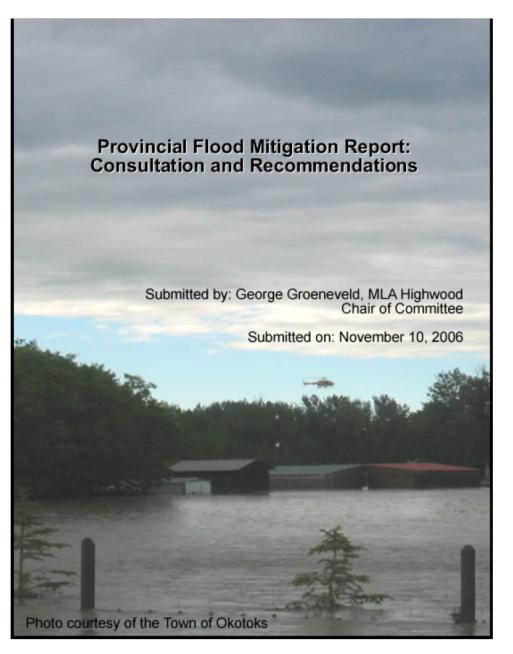
☐ A brief overview of the 2013 Alberta floods

- 1) The process by which we develop plans to mitigate the flood risk must engage the public.
- 2) We can't rely on engineering solutions alone. We also need to critically assess current policy governing development in flood plains.
- 3) Development authorities must have access to up-to-date information about the flood risk.



Source: Alberta Environment



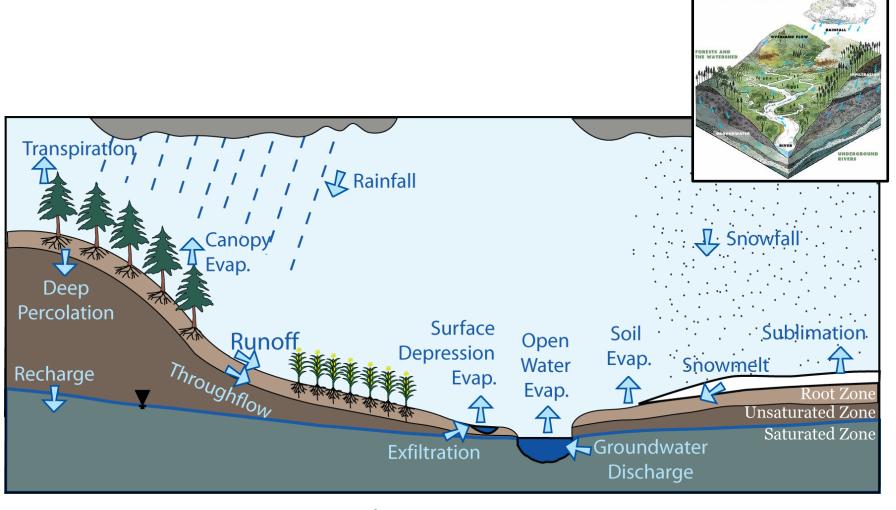


Recommendation #1:

"We recommend that Alberta Environment coordinate the completion of flood risk maps for identified flood risk areas in the province."

Recommendation #2:

"We recommend that Alberta Environment develop a map maintenance program to ensure that the flood risk maps are updated as appropriate."



Source: Michigan State University, Department of Geological Sciences

What Is a Watershed?



Conclusion

- The 2013 Alberta flood demonstrated, once again, how vulnerable we are to extreme natural events.
- As we move forward, we should expect the following:
 - a) A public engagement process that is grounded in best practices and informed by current theory.
 - b) Structural responses complemented by thoughtful changes to existing policies and practices.
 - c) Delineation of flood hazard zone must be done on the basis of analysis that is current as possible. Only this way will we avoid the "GI-GO" trap.





