Collaborative Disaster Risk Reduction & Climate Adaptation Project Overview

June 17, 2025

Presentation to: Regional District of Fraser-Fort George board of directors

FBC: Kim Menounos & Scott Brown

BGC: Kris Holm

CDRR CA Project Overview

Fraser Basin Council

a. **Hazard Assessment**: mapping flood, steep creek and landslide hazards.
b. **Exposure Assessment**: Identifying people and infrastructure within hazard areas.
c. **Recommendations:** next steps of risk management decision making, including:
    - policy
    - regulation
    - emergency management
d. **Collaboration:** information sharing across partners and the region

Project Advisory Committee

Project Partners

Regional District of Fraser Fort George (Lead)

Lheidli T'enneh First Nation

McLeod Lake Indian Band

Village of Valemount

Village of McBride

District of Mackenzie

City of Prince George, RDFFG

Project Advisors

Ministry of Forests

Emergency Management & Climate Readiness BC

Ministry of Transportation

University of Northern British Columbia

Project Coordinator

Fraser Basin Council
(Kim Menounos, Scott Brown)

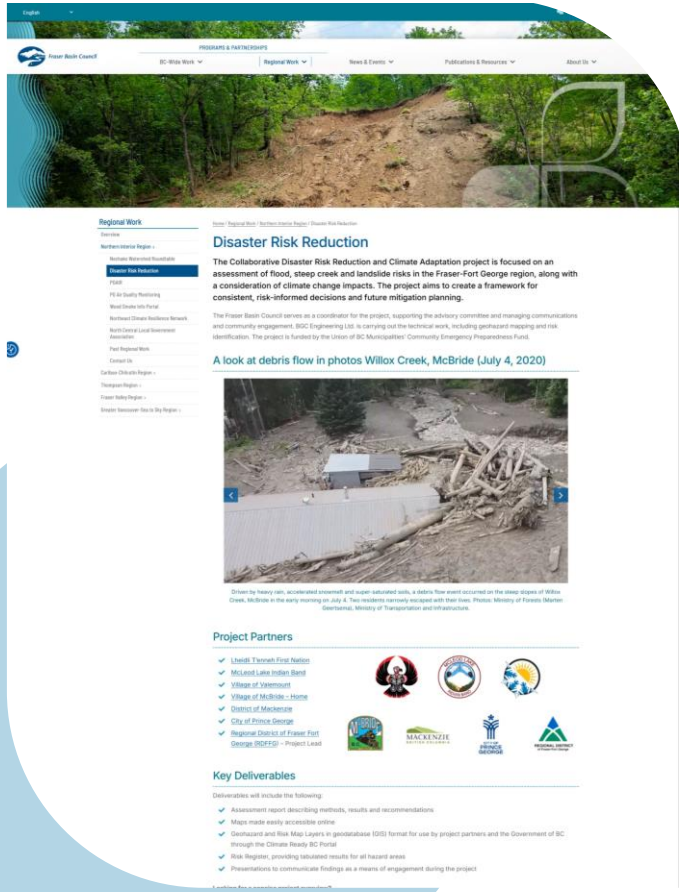
Professional Services

BGC Engineering
(Kris Holm &
BGC technical team)

Engagement & Deliverables

Fraser Basin Council

- Technical assessment report
- Interactive data for partners delivered through Cambio
- Information pamphlets for project
- Fact sheets specific to each partner community
- First Nation community engagement
- Project webpage hosted by FBC
- Report to UBCM



www.fraserbasin.bc.ca

Naver Creek near Hixon. Photo: BGC (July 22, 2024)

RDFFG Collaborative Disaster Risk Reduction & Climate Adaptation Project:

Project Overview

Presented by:

Kris Holm, Richard Carter,
Elisa Scordo, Matthieu Sturzenegger

Date:

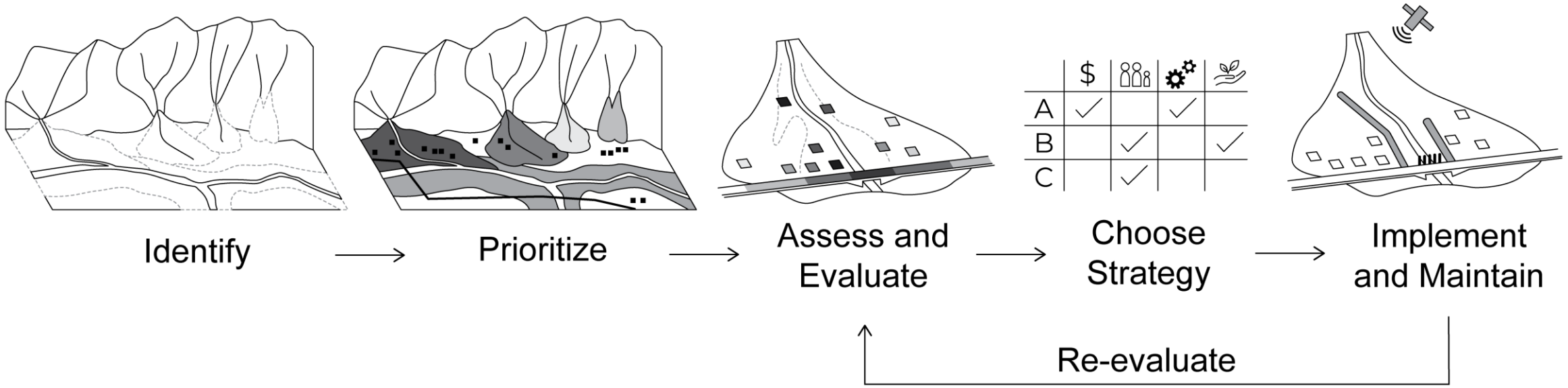
July 17, 2025

In British Columbia, parties with diverse responsibilities* share a common goal of risk reduction.

- **Provincial responsibilities** for emergency management organization.
- **Local responsibilities** for risk management.
- **Private sector responsibilities** for critical infrastructure risk management.
- **Requirements to consider Indigenous knowledge** in cooperation with Indigenous governing bodies.

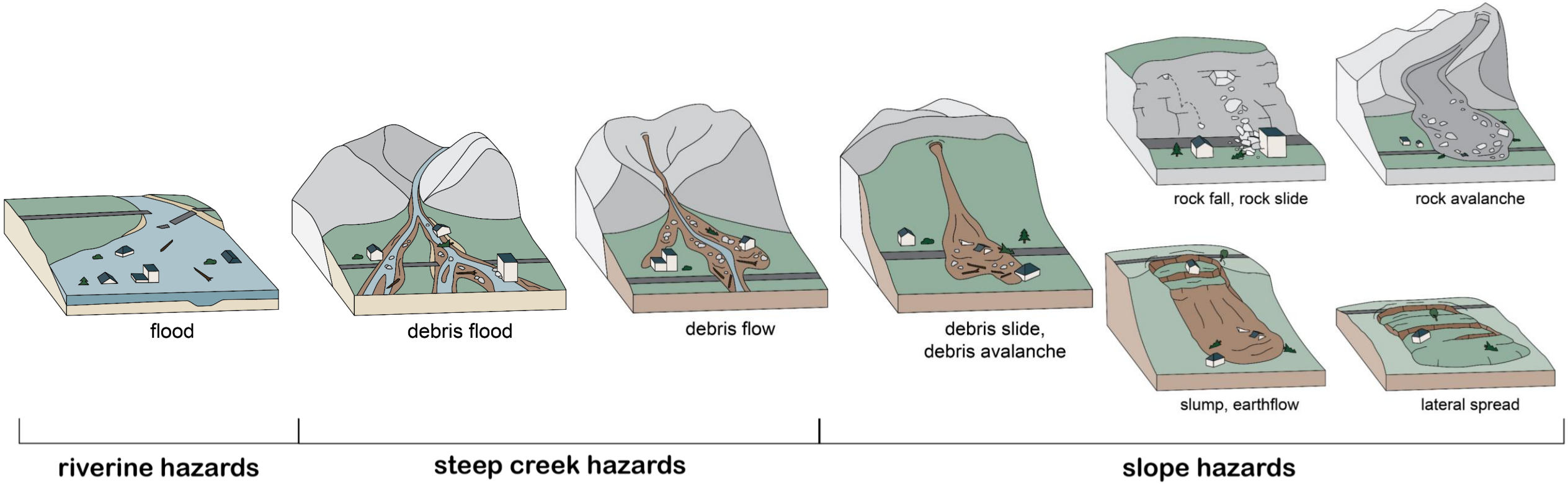
*As outlined in the Emergency and Disaster Management Act, other legislation, and local bylaws.

The Collaborative Disaster Risk Reduction & Climate Adaptation project supports a regional, step-wise approach to build hazard resiliency in a changing climate.



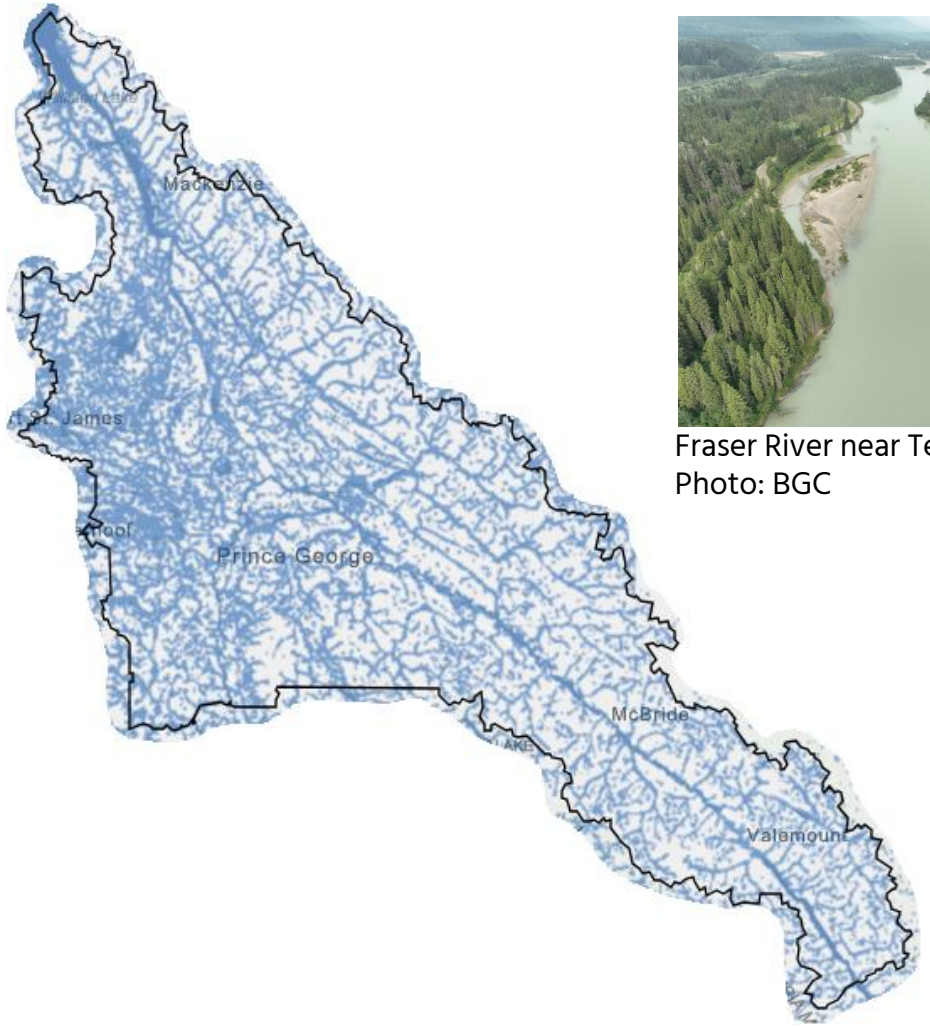
Artwork by Sophia Zubrycky

Geohazards (“natural hazards”) are earth processes with the potential to cause harm. They involve a combination of water, rock, and earth materials.



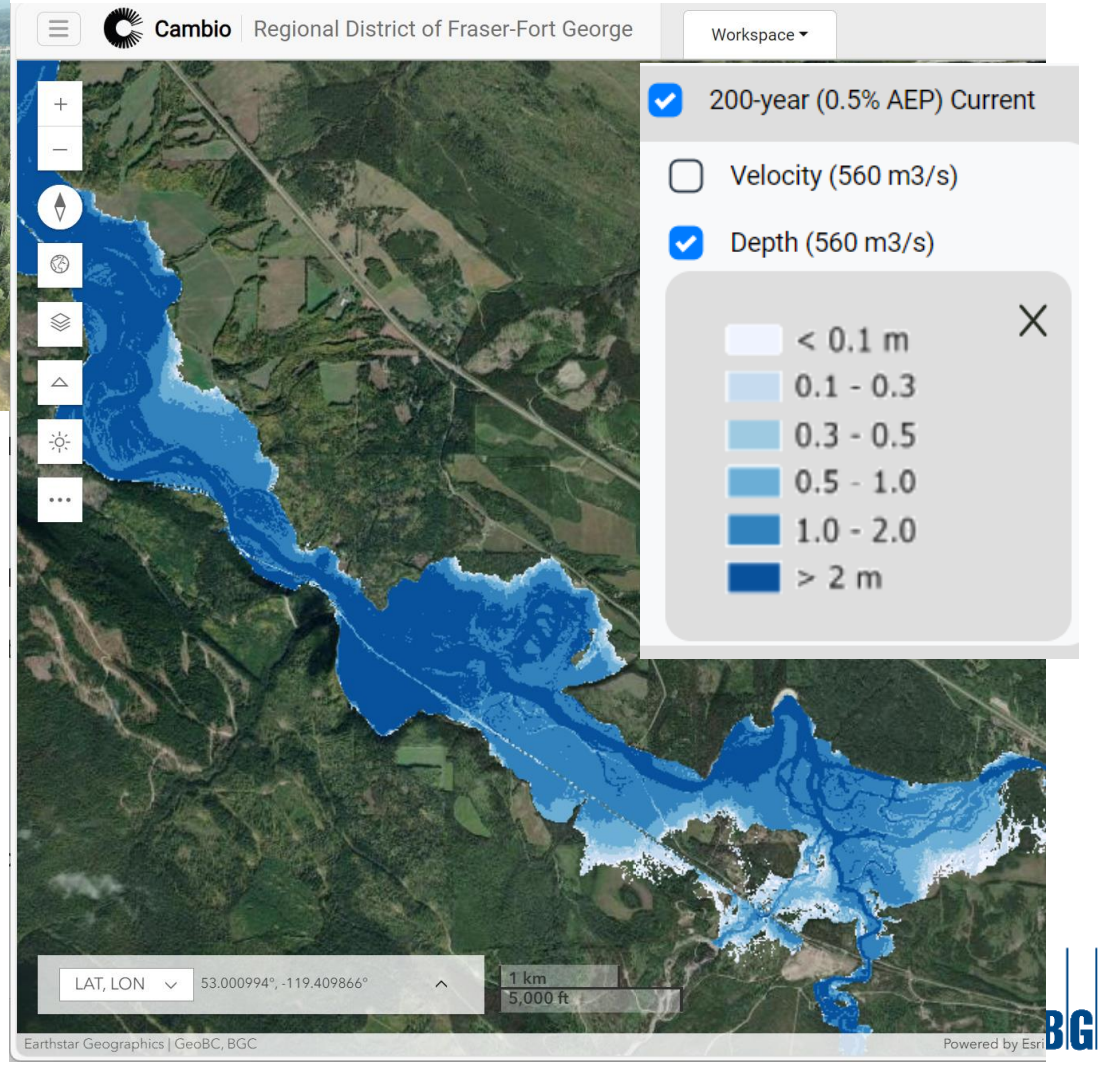
Artwork by Sophia Zubrycky

We identified 2,770 km^2 of floodplains and prepared more detailed flood hazard maps for 5 areas under current conditions and climate change.



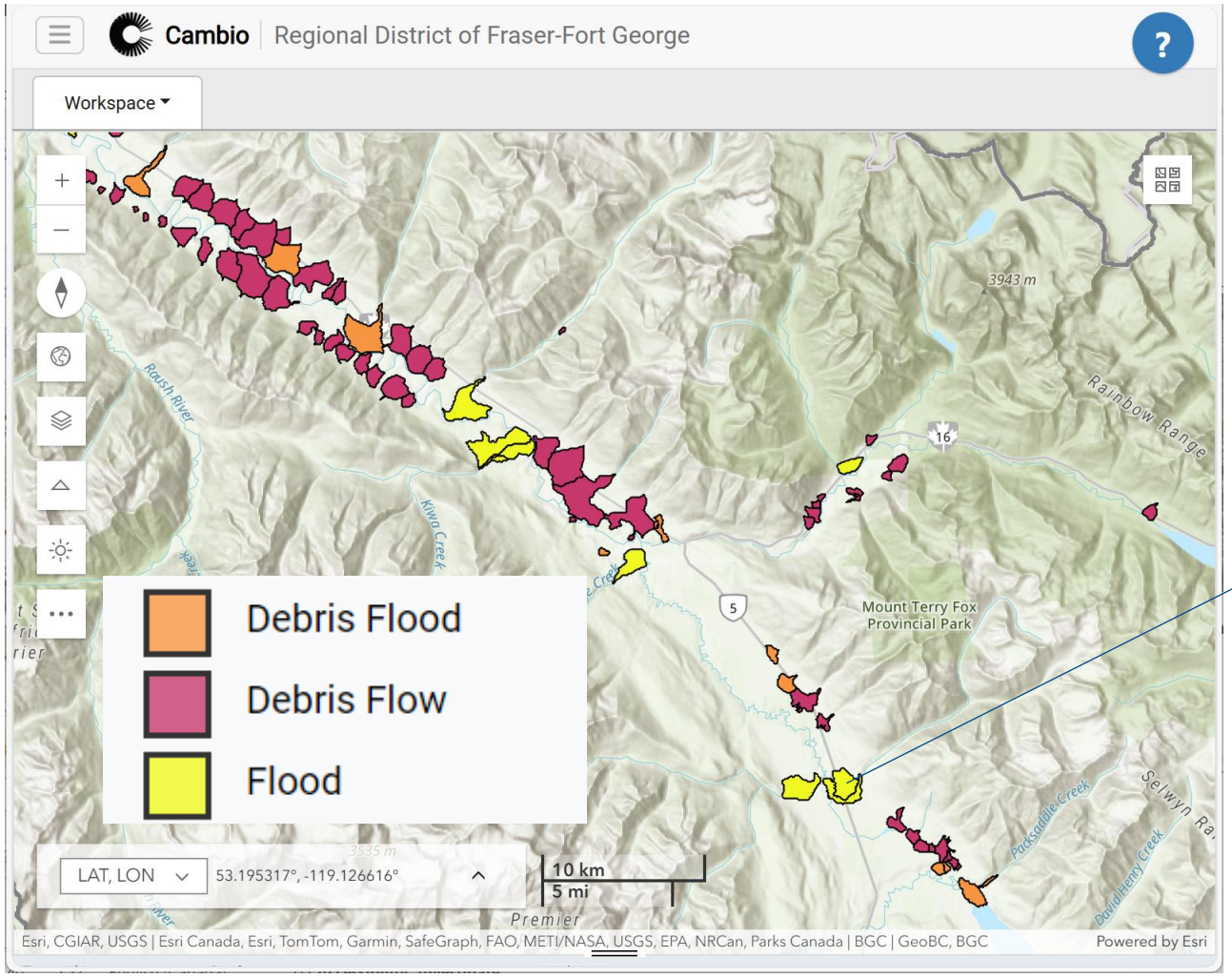
Screening Level (Tier 1) Floodplain Identification
(200-year Return Period, 0.5% Annual Exceedance Probability)

Fraser River near Tete Jaune Cache.
Photo: BGC



Base Level (Tier 2) flood hazard: Fraser River at Tete Jaune)

We characterized 271 alluvial fans at the outlet of steep creeks subject to floods, debris floods, debris flows, or mixed process types.

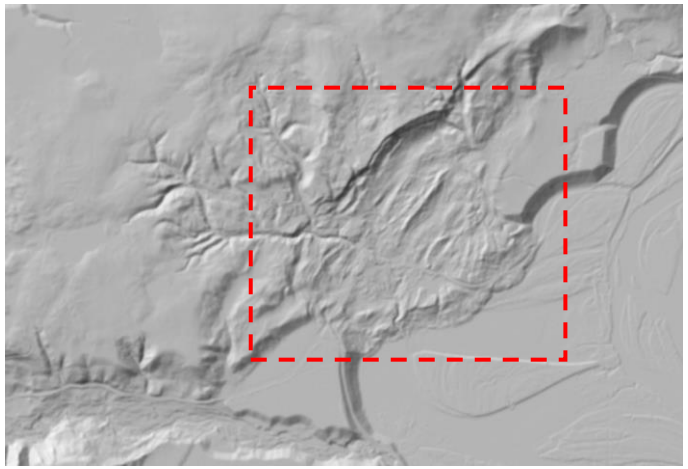


Swift Creek (Valemount)

RDFFG contains many types of slow and rapid landslides in earth and rock.

Debris avalanches, Takla FSR near Lheidli T'enneh IR3. Photo: BGC (2024)

Rock and debris fall, Stone Creek Photo: BGC (2024)



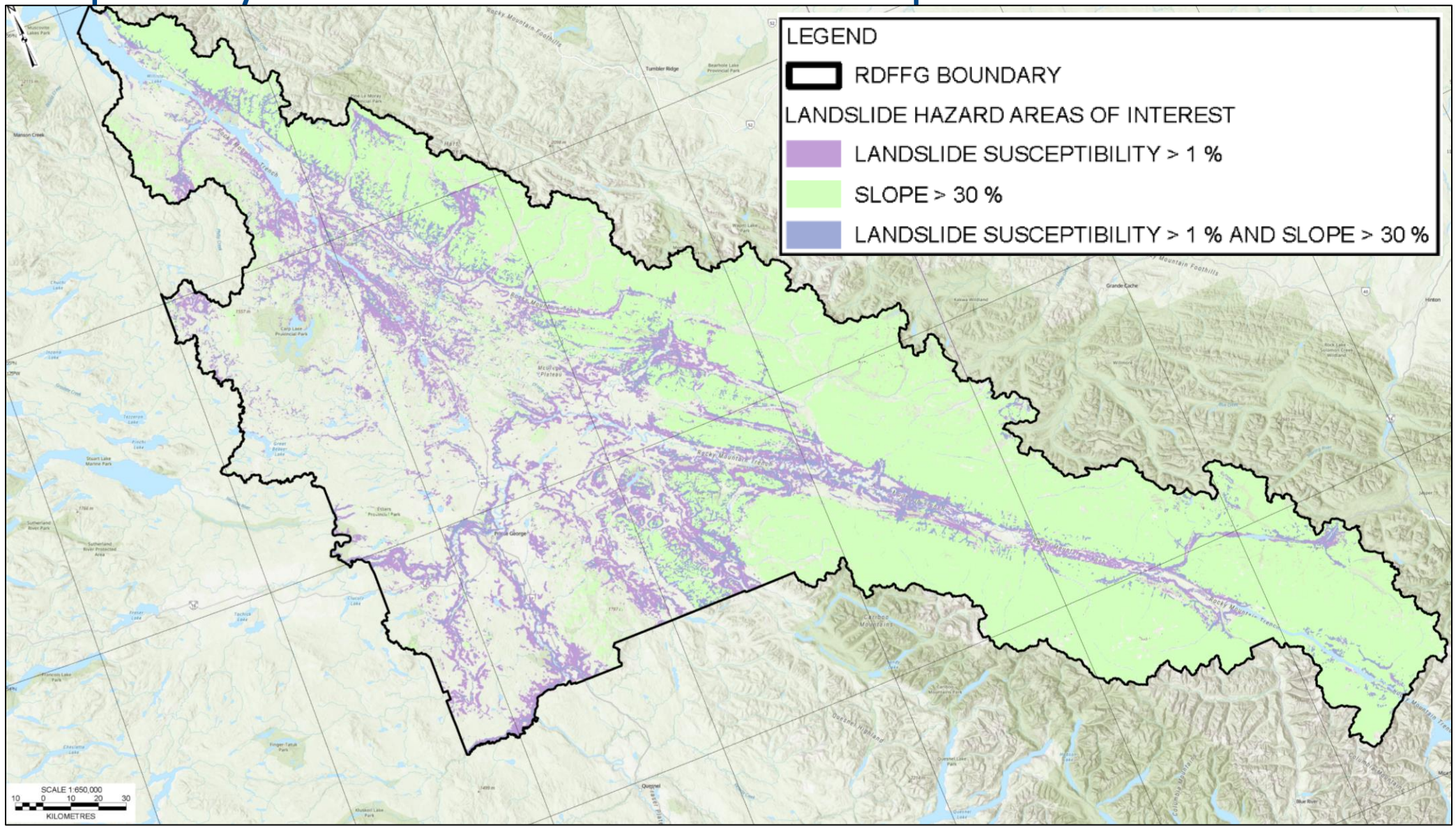
Deep-seated earth slide, Electoral District A

Swift Creek Rockslide Photo: RDFFG (2021)

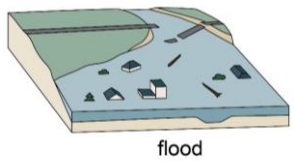
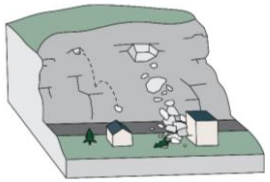
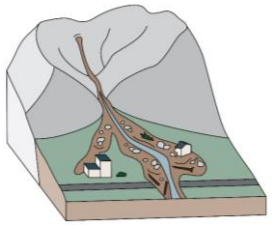
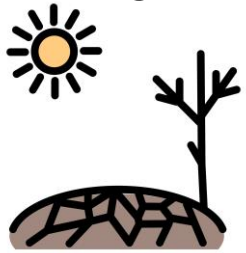
Debris slide, Upper Willox Creek. Photo: BGC (2020)

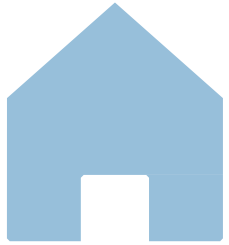
Deep seated slope deformation, upper Rainbow Creek. Photo: BGC (2020)

We used an inventory of 1,261 landslides, topography and an earth landslide ‘susceptibility’ model to define areas with potential landslide hazard.



Risk–informed decisions in hazard areas start with a key question: where are the hazards in relation to what we value?

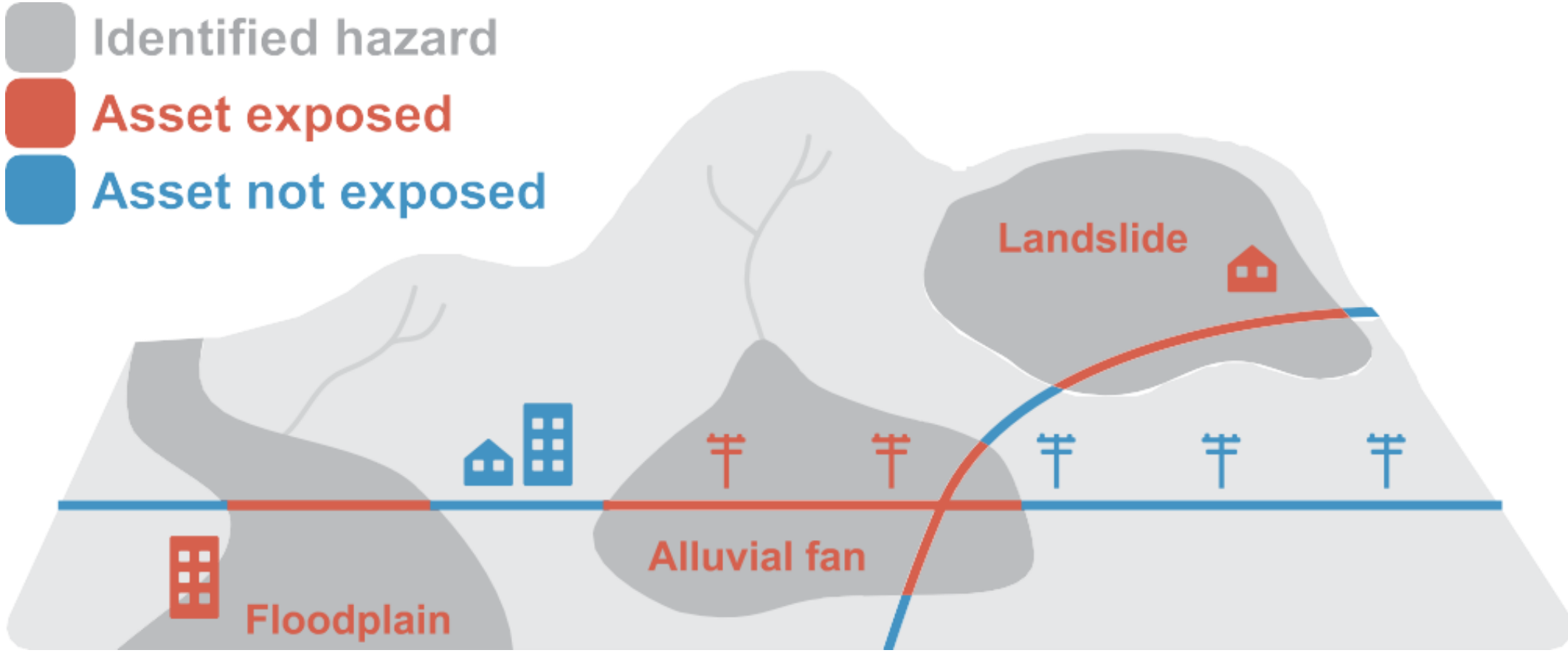
Hazards	Floods	Landslides	Alluvial Fans	Heat[1]	Drought[1]
					

People and Assets	People	Built-Forms	Transportation Assets	Utility Networks	Environmental and Cultural Values
					

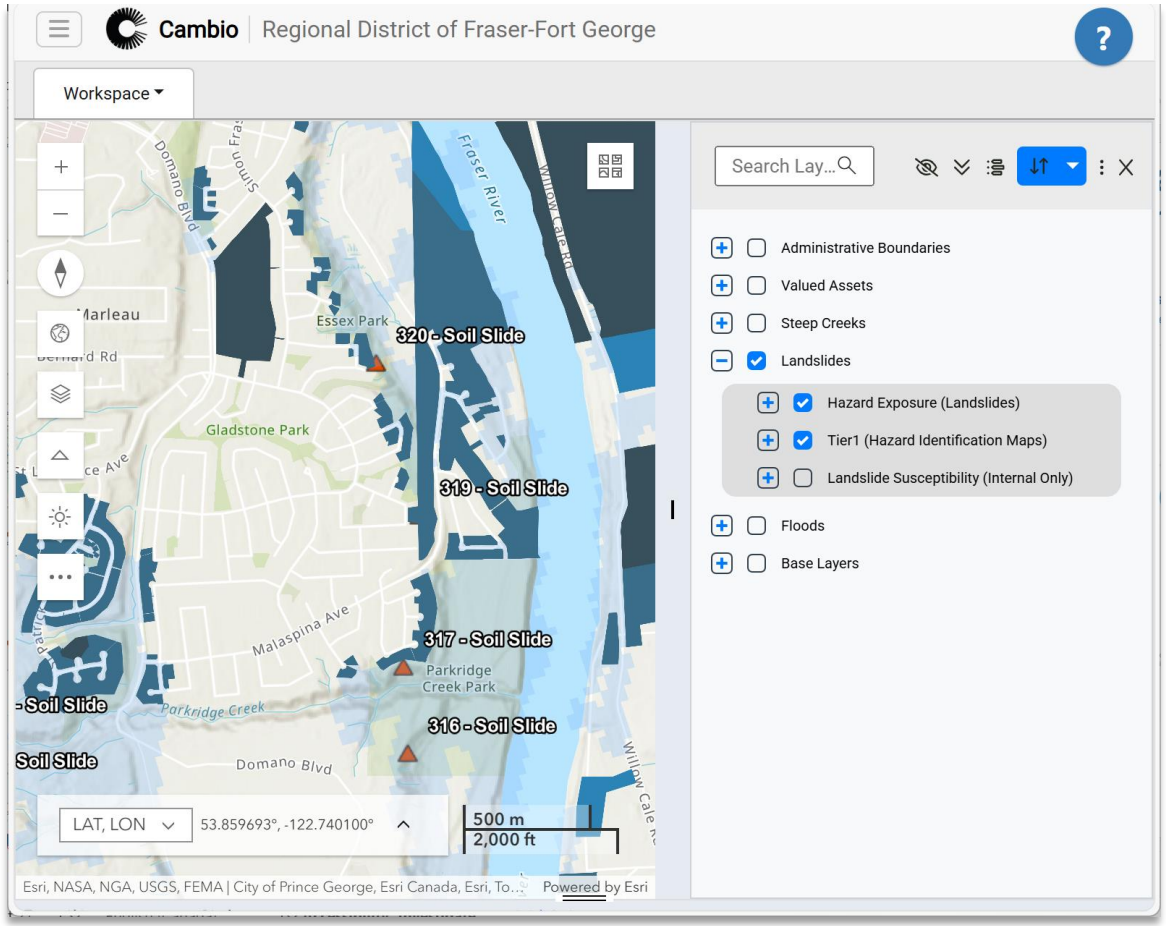
[1]Heat and Drought scope initiates anticipated for Fall 2025

Assets in hazard areas are 'exposed'. Exposure alone does not imply a level of risk.

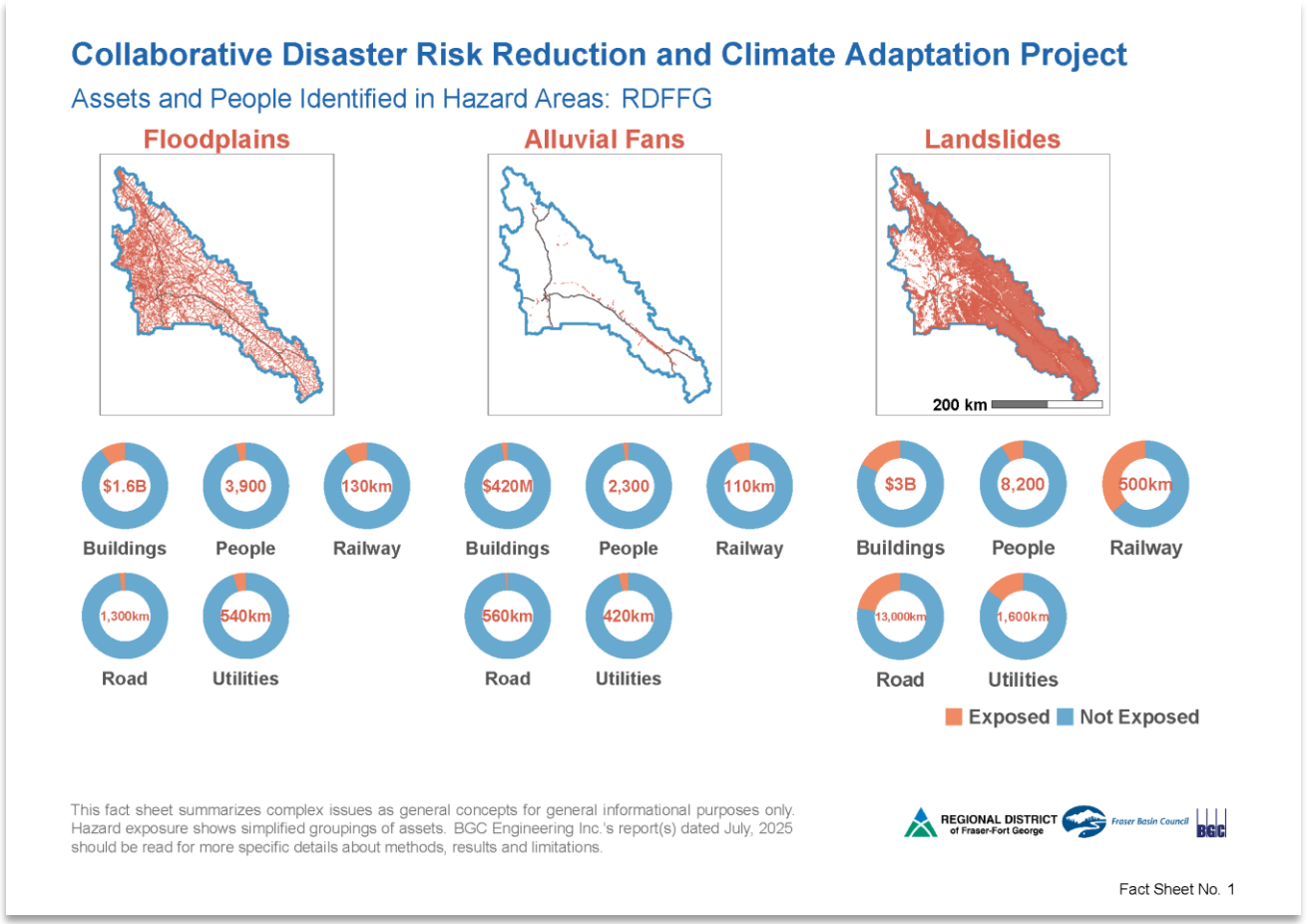
Exposure mapping helps identify where actions may be needed to understand risks.



The results – communicated in a report, maps, and data - inform future steps of collaborative disaster risk-reduction and climate adaptation.

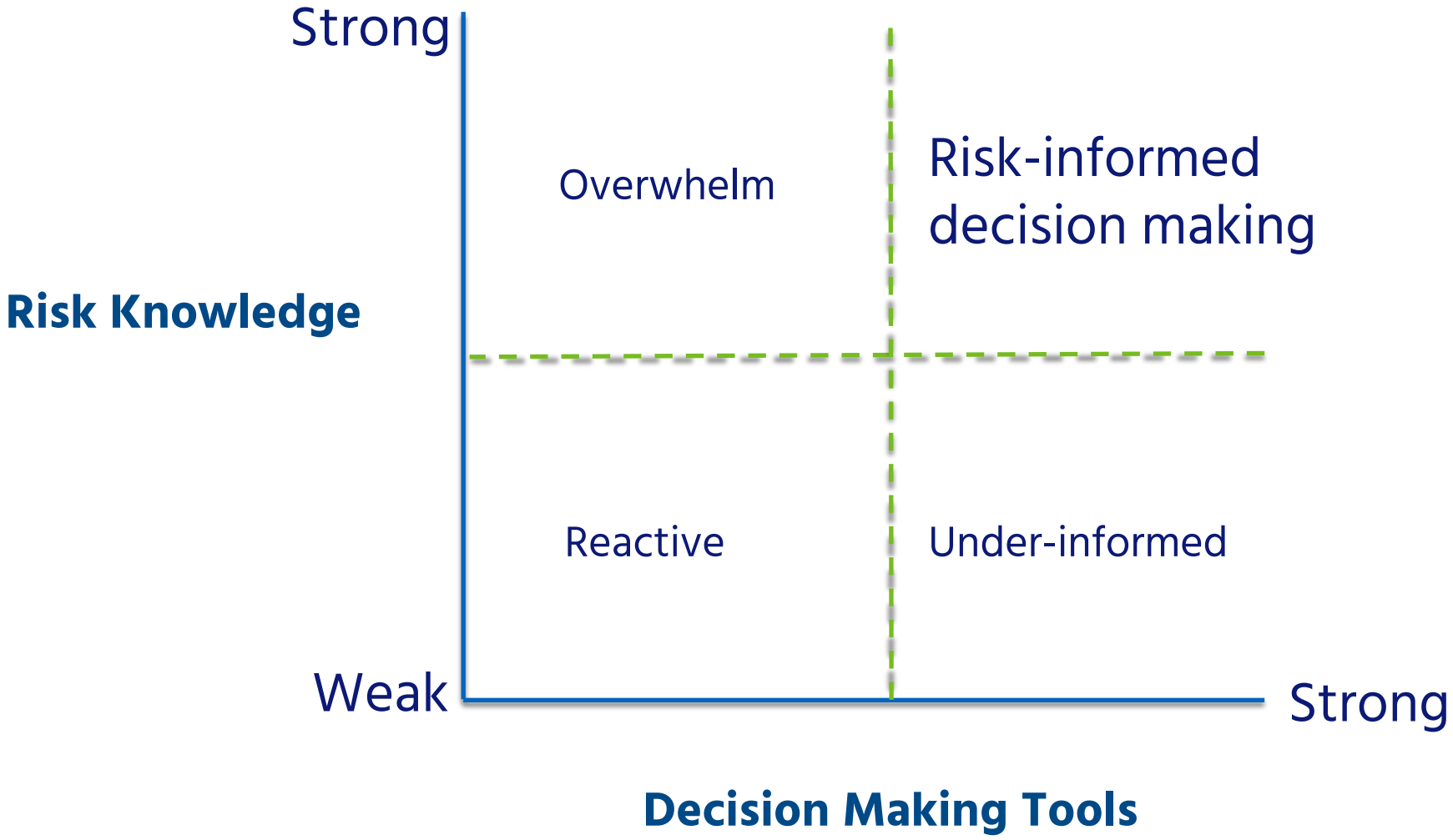


Cambio Earth Systems

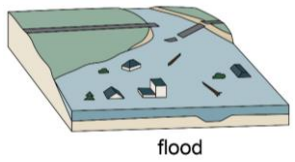
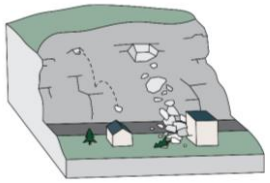
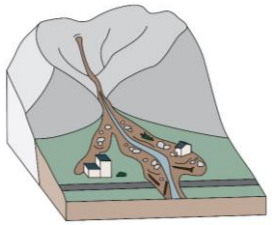
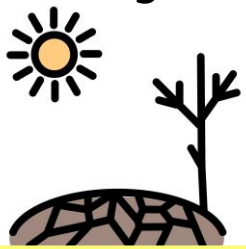


Plain Language Results Fact Sheets

Decisions are strongest when knowledge and policy tools are in balance. A second project phase focuses on policy review informed by Phase 1 results.



Water scarcity is also a key concern. Phase 2 adds regional heat and drought to the range of hazards assessed.

Hazards	Floods	Landslides	Alluvial Fans	Heat	Drought
					

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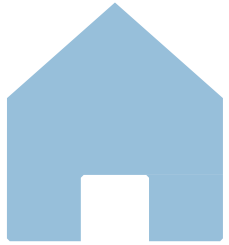
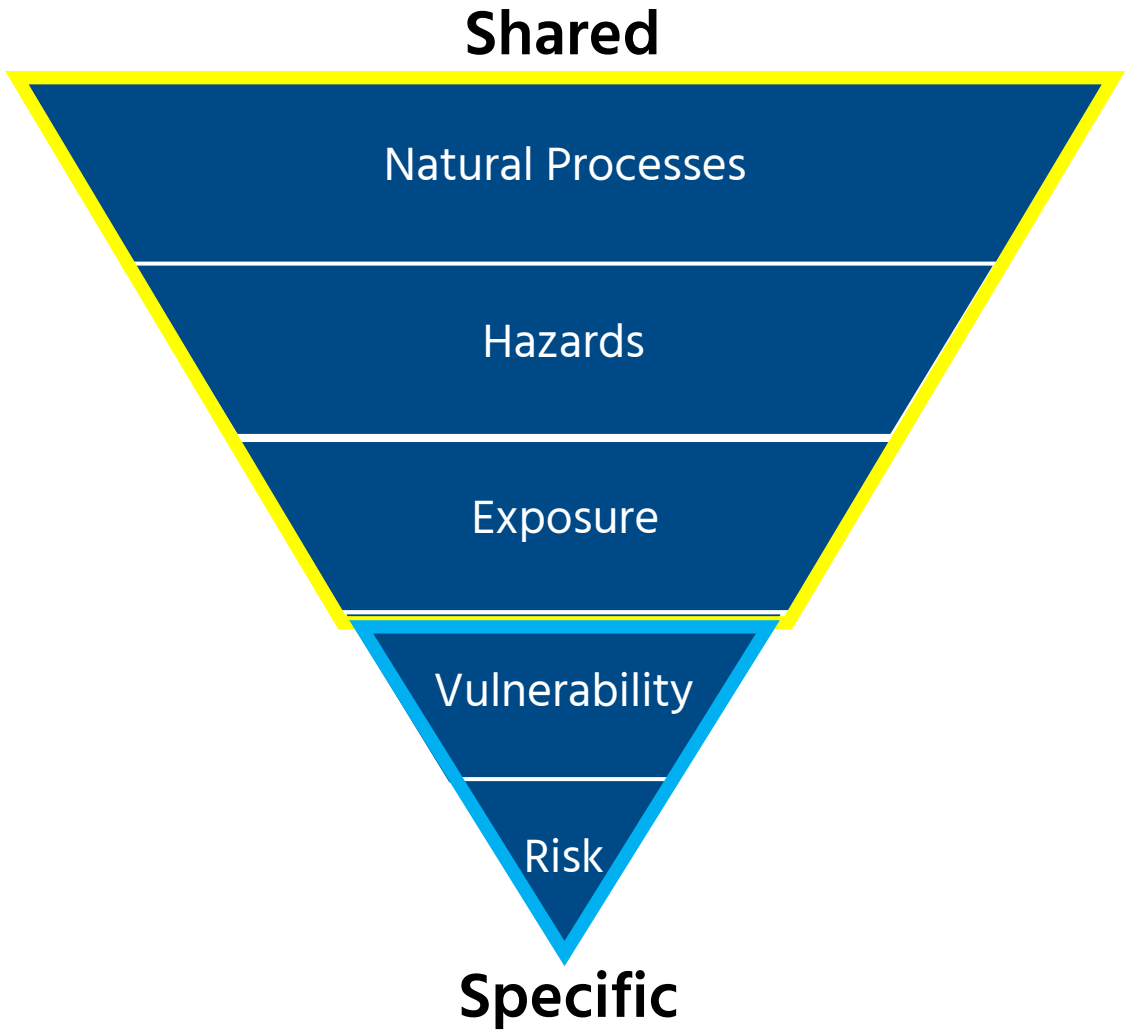
					

To strengthen disaster risk reduction, combine regional collaboration on shared steps with local effort on specific needs.



Thank you!

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- *Fraser Basin Council:* Kim Menounos, Patience Rakochy, Scott Brown, and Terry Robert.
- *Regional District of Fraser-Fort George*: Kenna Jonkman and Blaine Harasimiuk

BGC is grateful for the support and input provided by project partners, and guidance provided by advisors:

- *Project partners*: Regional District of Fraser-Fort George, Lheidli T'enneh First Nation, McLeod Lake Indian Band, Village of Valemount, Village of McBride, District of Mackenzie, and City of Prince George.
- *Advisors*: Gord Hunter Ministry of Transportation and Infrastructure (MoTI), Brendan Miller, Ministry of Forests (MoF), Ministry of Water, Land, and Resource Stewardship (WLRS), Ministry of Emergency Management and Climate Resilience (EMCR), and Joseph Shea, University of Northern British Columbia (UNBC).

Fraser River at McBride, BC, July 2021

Closing

This presentation required a number of complex issues to be reduced to general concepts in a series of concise bullet points, photographs, and/or diagrams. The content of this presentation is not intended for design decisions or construction. This presentation is for general informational purposes only. BGC Engineering Inc.'s report(s) may contain more specific details concerning the issues identified in this presentation. Please consult BGC for further clarification if you have any questions or concerns.

Prepared by:

Kris Holm, M.Sc., P.Geo. and Richard Carter, M.Sc.

Reviewed by:

Client:

Fraser Basin Council

Date:

July 17, 2025

Contact us

Kris Holm (BGC)

Principal Geoscientist | BGC Engineering Inc.

kholm@bgcengineering.ca | 778-558-4892

Kim Menounos (Fraser Basin Council)

Manager, Northern Interior Region | Fraser Basin Council (she/her)

KMenounos@fraserbasin.ca | 250-617-4821

Thank you

Our Thanks to You

BGC

Fraser Basin Council