ASSESSMENT OF CLIMATE RISKS TO NUNAVIMMIUT HEALTH AND WELL-BEING



ᓄᓇᕗᑦ ᐃᓕᓴᕐᓂᓕᕆᓂᖅ ᑲᑎᒪᔨᖅ
RÉGIE RÉGIONALE DE LA SANTÉ ET DES SERVICES SOCIAUX DU NUNAVIK
NUNAVIK REGIONAL BOARD OF HEALTH AND SOCIAL SERVICES

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Production & Distribution — **Nunavik Regional Board of Health and Social Services**
P.O. Box 900, Kuujjuaq, QC J0M 1C0

Acknowledgments

We extend our warmest thanks to Nunavimmiut and regional partners who participated in our consultations and meetings, generously sharing their time, territorial knowledge, and traditional insights.

We are also grateful to the professionals at the Institut national de santé publique du Québec (INSPQ) supporting the VRAC-PARC project, with special thanks to **Elsa Landaverde**, **Olivier Leclerc**, and **Serge Olivier Sankara** from *the Unité Territoire, évaluation des impacts et adaptation au climat (Direction de la santé environnementale et de la toxicologie).*

Finally, we thank medical interns **Anouk Grenier-Gagnon** and **Audrey Lachapelle** for their valuable contributions to this work.

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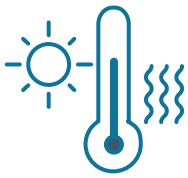
Bibliothèque et Archives nationales du Québec, 2026
Library and Archives Canada, 2026
ISBN : 978-2-925576-05-1 (PDF version)













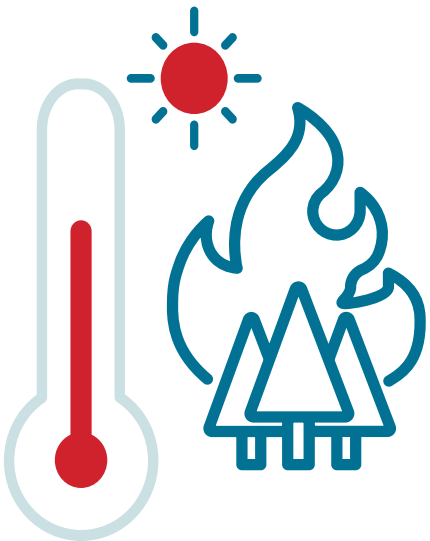
ᐅᖃᐸᑕᐅᓗᐊᖅᖅᔪᐊᔪᑦ



ᓄᓇᐅᑉ ᐃᑭᐊᓂ ᐊᐅᑉᕿᓕᐊᓂᖅ ᐊᒻᒪᓗ ᐱᖁᒪᓪᓚᕐᓕᐊᓂᖅ ᓄᐃᑎᖁᔭᑦ ᔪᓕᐅᑉ ᐊᑦᑕᓇᖁᔭᕐᓕᐊᓂᖅᓱᓂᒃ ᐃᔪᒻᓗᑎᐅᐅᔭᑦ ᐊᒥᔪᓂ ᓄᓇᕕᐅᑉ ᓄᓇᓕᖅᑭᓂᓐ. ᔪᓕᖅᐊᐸᑉ ᐅᖅᖅᑯᔪᔭᕐᓕᐊᓂᖅᓱᒃ ᐊᒻᒪᓗ ᐊᑯᓂᐅᓂᖅᖅᑲᖅ ᐅᑭᐅᖓᔪᓂᕆᔭᕐᓕᐊᓂᖅᓱᒃ ᓇᓗᓴᒥᒃ ᔪᐅᑯᖅᓕᕐᓕᐊᓂᖅᓱᖓᓂᒃ, ᑌᒻᒧ, ᐊᔪᐅᔭᕐᓕᐊᓂᖅᑭᑦ, ᓄᓇᐅᑉ ᐃᑭᐊᓂ ᐊᐅᑉᕿᓕᐊᓂᖅᓴᖅᑭᕐᑕᑭᓐᓂᒃ ᓄᓇᕕᒻᒥ. ᓄᓇᐅᑉ ᐃᑭᐊᓂ ᐊᐅᑉᕿᓕᐊᓂᖅᖅ ᐊᑦᑐᐃᔪᒪᓕᕆᖅᑐᖅᑐᓂᒃ ᐊᒥᔪᓂᒃ ᐃᓄᓄᑦ ᐃᔭᓇᖅᑭᓂᒃ. ᐊᑕᐅᑦᔪᑯᑦ, ᓇᓕᐅᑕᐅᔪᒪᓕᖅᑐᑦ ᐱᖁᔪᒪᓴᖅᑕᕇᓇᖅᓂᐊᓕᕆᓕᖅᑐᓂ ᑌᒪᓇᓇᖅᓂ, ᐊᔪᐅᔭᓂᖅᖅᐅᔭᑎᓗ ᐊᒻᒪᓗ ᐊᑦᑕᓇᖅᓂᕿᐅᖅᑕᕇᓇᕕᕐᓕᐊᓂᖅᑎᒃ ᐅᑭᐅᖓᔪᑯᑦ, ᐅᑭᐅᖓᖅ ᓴᓂᓂᕿᐅᖅᑕᕇᓇᖅᓂᔪᔪᓗ.

(Ouranos, 2026a ; Allard et al., 2020)





ᐅᖅᖅᑯᔪᔭᕐᓕᐊᓂᖅᖅ ᓄᓇᒥᓗ ᐃᔪᐊᔭᑦ ᐊᑦᑕᓇᖁᔭᕐᓕᐊᓂᓴᖅᑭᑦ, ᐱᓗᐊᖅᑐᒥ ᓄᓇᕕᐅᑉ ᔪᖅᑭᓂᓴᖅᓱᓂ. ᔪᓕᖅᐊᐸᑉ ᐅᖅᖅᑯᔪᔭᕐᓕᐊᓂᖅᓱᖓ ᐃᔪᒪᓕᕆᔨᖅᑕᕇᓇᖅᓂᐊᓕᕆᓕᖅᑐᓂ ᑕᒪᐅᔪᒪᓕᕆᔨᖅᑕᕇᓇᖅᓂᔪᔪᓗ ᐃᓕᓴᕐᓂᐊᕐᓂᖅ ᑕᒪᐅᔪᒪᓕᕆᔨᖅᑕᕇᓇᖅᓂᐊᓕᕆᓕᖅᑐᓂ ᐃᓕᓴᕐᓂᐊᕐᓂᖅ ᐊᑦᑕᓇᖁᔭᕐᓕᐊᓂᖅᓱᖓᓂᒃ ᐃ

ᐅᖏᑦᓯᑐᐃᓐᓄᑦ, ᐊᐅᓂᐊᓕᕆᔨᐅᔪᑦ ᐊᒻᒪᓗ ᐊᑦᑐᐃᓂᖏᑐᓄ ᓄᓇᕗᒻᒥᐅᓂᒃ ᓂᓪᓕᐅᑦ ᐊᓂᔨᐸᑦᓭᐊᓂᖏᓂᑦ. ᐊᐅᓂᐊᓂᕆᓂᕐᒧᑦ ᖃᐅᓈᐃᖏᓂᑦ ᓄᓇᖅᑯᑦᑕᓪᓚᑦ :

80,5 % ᐃᓄᐃᑦ ᓂᖏᕐᕋᖃᑦᓯᐊᕐᓇᖏᑎᑦ

32,8 % ᐃᓄᐃᑦ ᐃᓕᓴᐅ ᐃᓄᑎᑐᑐᒋᑦᑐᑦ

19,1 % ᐃᓄᐃᑦ ᐃᓕᓴᓪᑦ ᐊᖏᖏᓂᔨᐅᕆᐊᓕᓂᓂᖅ ᐊᒻᒪᓗ

68,5 % ᐃᓄᐃᑦ ᐊᑦᑐᑕᐅᒪᔪᑦ ᐃᑎᐊᓗᓄᑦ ᐊᓂᖅᓴᖏᓄᑐᓗᓂᑦ

(Furgal et al., 2021 ; Fletcher et al., 2020 ; Bélanger et al., 2020)





ᓂᓪᓕᐅᑦ ᐊᓂᔨᐸᑦᓭᐊᓂᖏᓂᒃ ᐊᑦᑐᐃᐅᖏᖅ ᑎᑎᒋᑦ. ᐃᓗᓂᓕᕆᓂᖏᑦ ᑲᑎᖏᑕᐅᓂᒪᔪᑦ ᖃᐅᐅᓪᒪᐅᑎᓂᒃ ᐊᑐᐃᖏᑦᓴᓂᓗ ᓄᐃᑦᓂᐅᖅ ᖃᐅᓂᒪᐸᑦᓭᐊᓂᖏᓂᒃ ᐅᓪᒪᑎᐅᓯᑦ ᐊᓕᖏᑦ ᖃᐅᖏᓕᑦᓴᓂᓗ ᖃᐅᓂᒪᖏᑦᓴᓂᒃ, ᐊᒻᒪᓗ ᐊᓂᔨᐸᑦᓭᐊᓂᖏᓂᑦ ᐃᓚᐅᑦᓂᒪᓕᕆᓂᖏᓂᒃ ᐊᑐᕐᓂᓗ ᐊᑦᑐᐃᓂᖏᓂᑦ ᐃᓕᑦᓴᐅᓂᒪᓕᕆᓂᖏᓂᒃ ᐊᑐᐃᓂᖏᓂᑦ ᐊᑐᕐᓂᓗ ᐊᑦᑐᐃᓂᖏᓂᑦ ᐃᓕᑦᓴᐅᓂᒪᓕᕆᓂᖏᓂᒃ.

(Demers-Bouffard, 2021)

ᐅᖃᖅᑎᑎᒋᔭᖅᑐᑦ ᓄᓇᕗᑦᓂᒃ ᓇᓗᓇᖅᓯᐅᑦᑐᓂᑦ ᓯᖅᑐᐅᒪᓂᒃᓂᒃ ᓂᐱᑦᐅᑎᓂᒃ ᓯᕗᓪᓕᐅᑦ ᐊᓯᓂᔨᐸᑦᓭᐅᓂᖏᓂᑦ ᓂᖏᓂᕆᖃᑦᓯᐊᖏᓂᕆᔭᓗ ᐃᓕᓯᒃᑯᓗ ᐊᓯᓂᔨᐸᑦᓭᐅᓂᖏᓂᑦ ᐃᓚᐅᑦᓂᒪᓕᕆᓂᖏᓂᒃ ᐊᑐᐃᓂᖏᓂᑦ ᐃᓕᑦᓴᐅᓂᒪᓕᕆᓂᖏᓂᒃ ᐊᑐᐃᓂᖏᓂᑦ ᐊᑐᕐᓂᓗ ᐊᑦ

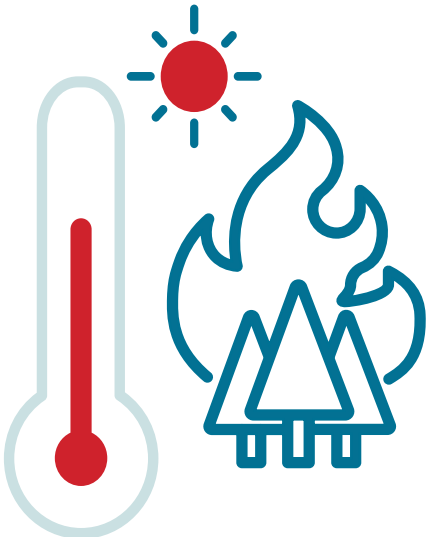
HIGHLIGHTS



Permafrost thaw and intensifying blizzards are the primary climate hazards confronting most Nunavik communities. Driven by global warming and a lengthening frost-free season, permafrost is degrading rapidly and faces potential disappearance in several localities. This thaw already threatens residential dwellings and public service infrastructure. Concurrently, climate projections indicate that winter, while shortening overall, will experience more frequent, prolonged, and severe blizzards.

(Ouranos, 2026a; Allard et al., 2020)





Extreme heat waves and wildfires are escalating rapidly, particularly in southern Nunavik. The acceleration of global warming paired with recurrent droughts further exacerbates these threats. Smoke plumes, originating primarily from wildfires across Québec and Canada, routinely degrade air quality across the entire region, compromising the population's respiratory health.

(Bustinza et collab., 2011 ; Ouranos, 2026c)

Nunavimmiut vulnerability to climate upheaval is deeply accentuated by geographic isolation, limited healthcare access, and profound cultural ties to the land. The region's underlying health profile highlights critical socioeconomic stressors :

80.5% of the population experiences food insecurity

32.8% lives in overcrowded housing

19.1% occupies dwellings requiring major repairs

68.5% reports excessive alcohol or substance use

(Furgal et al., 2021; Fletcher et al., 2020; Bélanger et al., 2020)

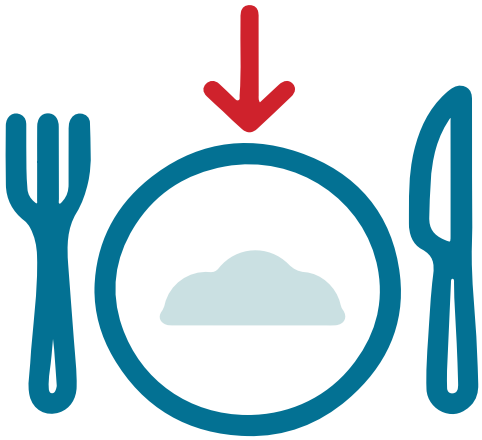




Climate upheaval directly compromises physical health. Data from scientific literature and public health agencies document a distinct rise in hospitalizations related to cardiovascular and respiratory pathologies, as well as water- and vector-borne diseases. Furthermore, accelerating ice cover instability multiplies the risk of trauma, severe injury, and drowning during land travel and harvesting outings.

(Demers-Bouffard, 2021)

Community consultations confirm that widespread food insecurity and psychological distress are felt territory wide. As rapid environmental shifts make harvesting traditional country foods increasingly unpredictable, residents experience heightened stress and anxiety when traveling on the land. This psychosocial burden is further intensified by the constant threat of essential service disruptions during extreme weather events, specifically affecting food supply chains, drinking water distribution, and emergency medical evacuations.

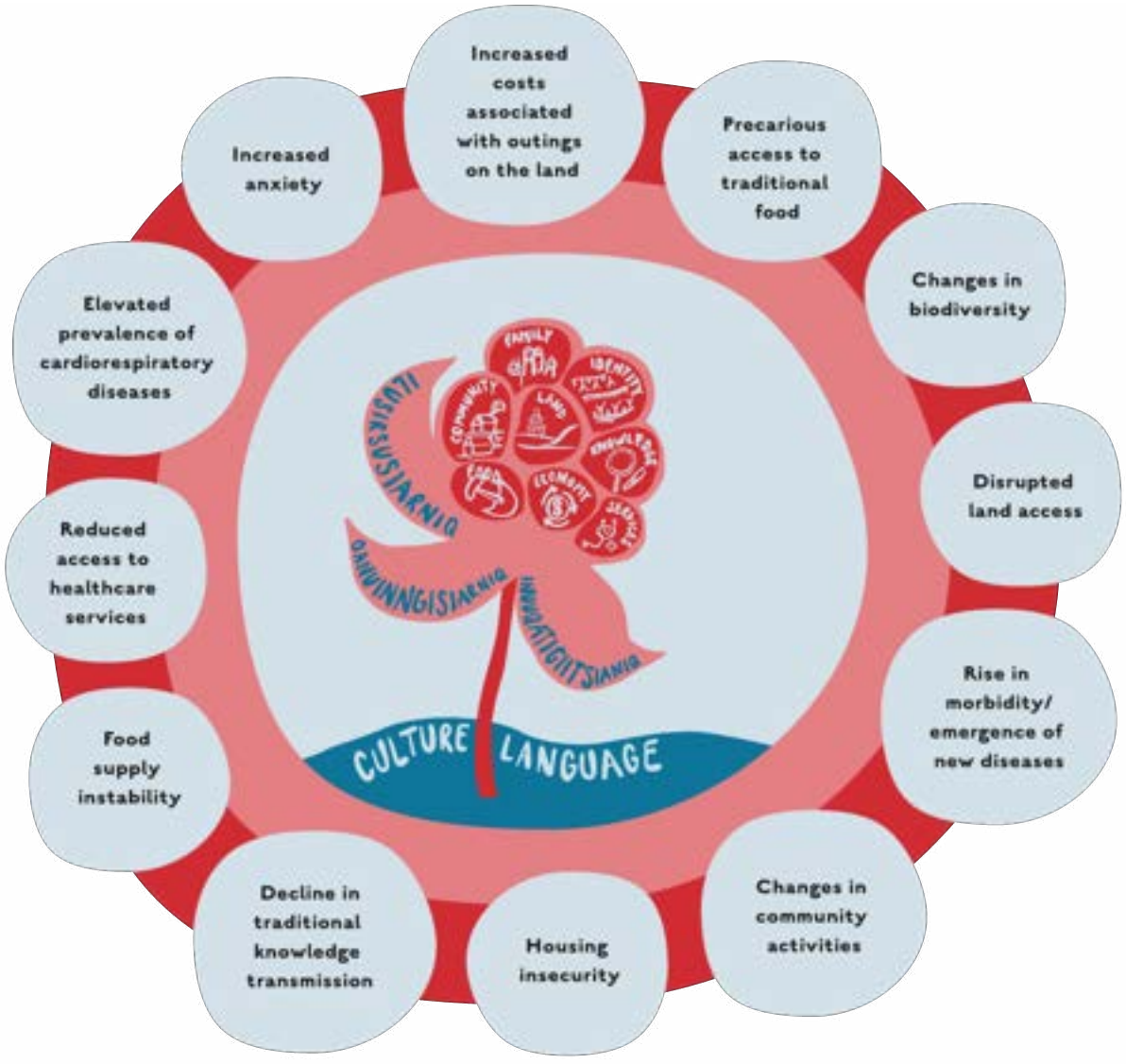


ᖃᓕᑎᕋᓱᒪᔪᖅ

ᓄᓇᕗᒻᒥ, ᓱᓕᐅᕐ ᐊᓱᕋᖅᑯᓕᕐᓂᐊᓂᖅ ᖃᐅᐅᒋᓕᕐᕋᓕᕐᕋᑐᐊᕐᓇᒪᓕᕐ ᓱᓕᕐᔪᐊᕐ ᑕᒪᓇᖅᑎᓂᑐᐊᖅᖁᐊᖅᑲᖅ, ᐊᕐᑕᓇᓱᖅᑯᓕᕐᓂᑎᕐᓱᓂ ᐃᑐᓱᕐᒧᑐ ᖃᓄᐃᖅᖁᑎᓂᕐᒧᑐ ᐃᓄᓕᒋᓄᕐ (Health Canada 2022). ᑕᒪᐅᑯᐊ ᐊᓱᕋᕐᕋᓕᕐᕋᓂᕐ ᐊᕐᑐᐃᓱᒪᓗᒪᒪᑕ ᖃᓄᐃᓕᖅᖁᓇᖅᑎᓂᖅᐳᖅᓂᖅ ᐊᖅᑎᒧᑦᑕ, ᐅᒪᔪᓄᕐ, ᐱᓇᓴᐅᓱᒪᔪᓄᕐ ᐊᒪᒪᓗ ᐃᓄᐃᕐ ᐱᐅᓱᖅᐳᖅᓄᕐ (Health Canada 2022). ᖃᓄᐅᒋᕐ ᐊᑐᑎᖅᕐ ᐱᕐᔪᐊᑎᓗᓂᖅ, ᓄᓇᕗᑦ ᐃᑐᓱᕐᒧᑐᓴᖅᑕ ᑲᑎᒪᔨᖅᐳᕐᑕ ᐊᐅᓚᓱᐅᕐᕋᓕᕐᕋᓂᖅᓱᓂ ᐊᐅᓚᕐᓱᓚᐅᔪᖅᑐᑦ ᐊᐅᓚᕐᓱᓚᐅᔪᖅᑐᑦ ᐱᐅᓚᕐᓱᓚᐅᔪᖅᑐᑦ ᐊ

ᐃᓕᓴᕐᒧᑦ ᐊᑦᑐᐃᓂᖅ

ᒪᓕᒐᔪ ᖃᐅᔨᓴᕐᓂᐊᒋ? 2017-ᒥ ᐃᓕᓴᕐᒧᑦ ᖃᐅᔨᓴᖏᓐᓂᖅ, ᓄᓇᕗᑦ ᐃᓄᖅᑎᑦ ᓄᐃᑦᓯᓚᐅᔪᖅ IQI model-ᒥ (ᐃᓕᓐᓂᓴᓴᐊᖏᓐᓂᖅ/ᖃᐅᔨᖅᑎᑎᓴᓴᐊᖏᓐᓂᖅ/ᐃᓱᖃᑎᒌᑦᓯᐊᖏᓐᓂᖅ) ᓇᒥᒥᓂᖅ ᐃᓄᐃᑦ ᖃᐅᔨᓪᓚᕐᖃᖅᑐᑎᓪᓗᖅᑐᓂᖅ ᐊᐅᓚᑦᓯᕈᒪᓐᓇᑎᖅ ᐃᓕᓴᓕᓗᐊᖏᓐᓂᖅ (Fletcher and al. 2021). ᐊᑦᑕᓇᖅᑐᓂᖅ ᖃᐅᔨᓴᖏᓐᓂᖅ ᑲᑎᕐᓯᒪᓐᓂᐊᖏᑦᑐᓄᑦ ᓯᑕᒥᐊᓂ ᑐᓴᖅᓯᓂᖅ ᐊᑦᑐᐃᓂᖅ ᐊᓯᖏᓐᓂᖅ ᑐᓴᕐᓯᒪᓂᖅ ᐃᓕᓴᕐᓂᐊᒋᑦ ᐊᓚᒐᓗ ᓇᓗᓴᕆᔨᑕᐅᔪᓇᑐᓂᖅ ᑐᑭᓯᒪᓂᖅ. 2025-ᒥ, ᐊᐢᑎᓂᖅ ᐳᑕᓚᓱᑦ ᑲᑎᒪᑎᓯᓕᐅᕐᓂ ᐃᓄᐢᓂᖅ 450-ᓂᖅ ᒪᑯᓂᖅ 11-ᓂᖅ ᓄᓇᓕᓂᖅ ᓄᓇᕗᑦ 14-ᓱᖅᑭᓂᓕ. ᐃᓄᓕᒥᑦ ᐊᐅᓚᕐᑯᓗᑎᓂ, ᐱᓇᓯᑎᑦ ᐊᑐᐃᓇᐅᕐᑎᓯᓕᔨᐅᑦ ᑐᓴᐅᑎᖅᑯᓂ ᐅᕙᑲᐢᓯᓯᓗᑎᖅ, ᐱᓇᓯᐊᕐᑲᑎᕐᒥᓂᖅ ᑲᑎᓯᐢᓯᓯᓗᑎᖅ ᐊᓚᒐᓗ ᑯᐊᐸᐅᑦ ᓂᐅᕕᖓᕐᓂᐊᖏᑦᑐᓄᑦ ᐃᓕᓴᕐᓂᐊᒋᑦ ᓄᐃᑦᓯᓯᓂ IQI model-ᒥᑦ.



ᐊᑦᑐᐃᓂᖅ 1 — ᐊᑦᑕᐃᓂᖅ ᓯᓚᐅᑦ ᐊᓯᑦᑐᓚᑦᓯᐊᓂᖅᓄᑦ ᓄᓇᕗᒻᒥᐅᑦ ᐃᓕᓴᕐᓂᐊᒋᑦ (ᖁᑎᖅ : **IQI model Fletcher and al. 2021**)

ᓂᓪᑕᐅᑦ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᑎᓄᑦ ᐊᑎᑐᐃᓂᖅᓴᖅᑐᖅ ᐃᓕᓴᕐᕕᑦ, ᖃᐅᔨᓄᖅᑎᑦ ᐊᒻᒪᓗ ᓄᓇᕗᒻᒥᐅᓪᓚᑉᓄᑦ. ᐊᓂᔪᓚᑦᑎᓪᓗᒍᑉᐸᑦ ᓄᓇᕗᒻᒥ ᐊᑎᑐᐃᓂᖅᓴᖅᑐᑦ ᐃᓄᐃᑦ ᐱᐅᓂᖏᑦᓂᑦ, ᐃᓕᓴᕐᓂᕐᖏᓂᖅᓴᖅᑐᑦ ᓂᕈᑭᓴᖅᑕᕐᓂᐊᓂᖏᓂᖅᓂᖏᓂᑦᓂᓗ. ᑕᕆᐅᑦ ᓂᐅᖅᑕᓗᐊᖏᓂᖅᓯᓄᑦ, ᓂᓪᑕᐅᑦ ᓇᓗᓇᓪᓚᓂᖅᓯᓄᑦ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᒪᒃᑕ ᐊᒻᒪᓗ ᐃᒪᐅᑦ ᖃᐅᔨᓄᖅᑎᑦ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᓂᖅ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᓂᖅ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᓂᖅᓴᖅᑐᑦ ᐊᔪᕐᓇᓂᕐᖏᓂᖅᓴᖅᑐᑦ ᖃᐅᔨᓴᒪᓇᓂᕐᓂᖅᓴᖅᑐᑦ. ᑕᒪᐅᕗᐊ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᑉᐸᑦ ᓂᓪᑕᐅᓚᑦᑎᓂᖅᓴᖅᑐᑦ ᐊᑕᐅᓯᓂᖅᓴᖅᑐᑦ ᐃᓕᖃᑎᖅᑐᑦ, ᐃᓅᖅᑎᑦᑐᑦ, ᑎᒥᖅᑕᓗᐊᑐᑦ ᒥᑭᑎᓴᓂᖅᑐᑦᓂᑐᑦ, ᓂᓪᑕᐅᑦ ᖃᐅᔨᓄᖅᑎᑦ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᓂᖅᓴᖅᑐᑦ ᐃᓄᐃᑦ ᖃᐅᔨᓴᖅᑐᑦ (Furgal and al. 2022). ᐃᓄᐃᑦ ᓂᓪᑕᐃᖃᖅᑎᑦ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᓂᖅᓴᖅᑐᑦ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᓂᖅᓴᖅᑐᑦ ᐅᓪᓗᒥᑦ ᐊᓂᔪᓚᑦᑎᓪᓗᒍᓂᖅᓴᖅᑐ

ᓄᓇᕗᒻᒥᐅᑦ ᑕᑯᓐᓇᑕᖅᑭᑦ, ᐊᑦᑐᐃᓂᒋᑦ ᐊᒻᒪᓗ ᓯᖅᑭᐅᓴᖏᓐᓂᒋᑦ

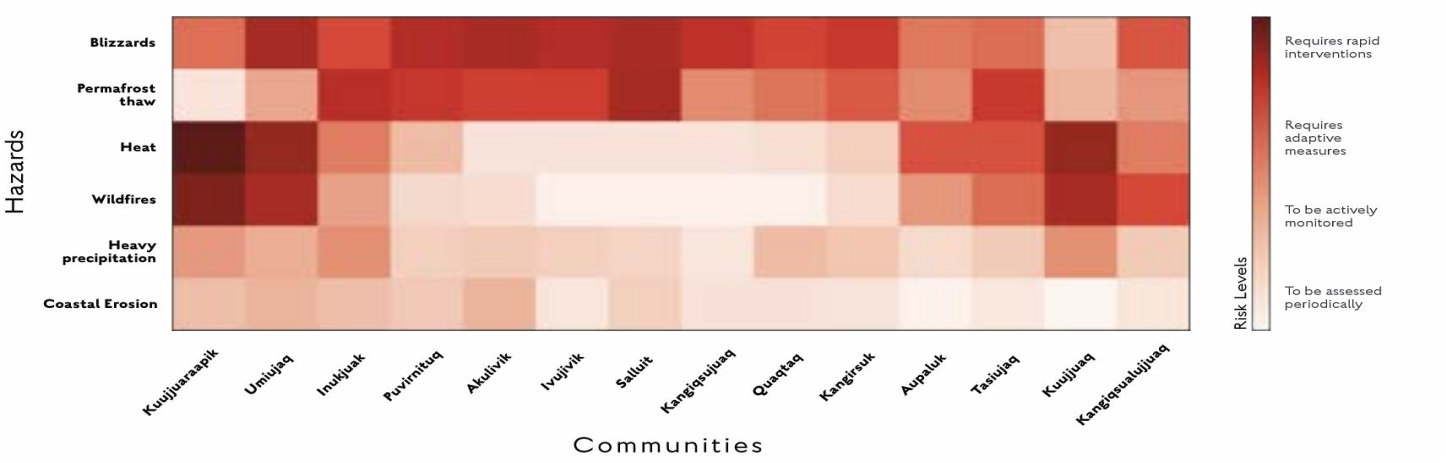
ᐃᓕᖅᑭᑦ ᐃᓄᐃᑦ ᓇᓗᓍᕐᑕᐅᓯᒪᔪᑦ ᐊᑦᑐᑕᐅᓯᒪᔪᓐᓇᓗᐊᖅᐸᑦ ᐅᕙᓪᓕᔪᓐᓂᒋᑦ ᓯᑕᐅᑦ ᐅᑦᓯᓗᐊᓇᕐᓂᖅᑭᓄᑦ : Ċᖅᑯᐊ ᐱᑦᔨᐅᖅᑭᑦ ᑐᖅᖅᒪᕐᓂᖅᑭᑦ, ᐁᑦᓴᖅᑭᑦ ᐊᒥᓯᖅᑭᓄᑦ, ᐁᑦᑕᐃᓂᒋᑦ ᐊᑦᑐᐃᓂᒋᑦ ᐊᒥᓯᖅ ᐃᓄᖅᓂᑦ ᐊᒻᒪᓗ ᓯᖅᑭᐅᑎᔪᖅᑐᓇᓐᓂᒋᑦ ᖃᐅᔨᐃᓂᖅᑭᖅᓄᓇ ᓯᓚᒋᔪᑦ ᐃᓄᖅᑦ (Leclerc, Landaverde, Demers-Bouffard and Sankara 2025). ᐊᒥᓯᓴᓐᑦ ᐱᑦᔨᑎᖃᓕᑦ ᓄᓇᕗᒻᒥᐅᓄᑦ ᐊᑦᑐᑕᐅᔪᐊᖅᓴᓯᒪᔨᓄᑦ ᓯᓚᒋᑦ ᐊᓯᑦᔪᑦᑕᔪᐊᓂᖅᓴᓄᑦ ᑯᐯᓕᒻᒥᑦ ᐃᓄᖅᑦ :

- ᐊᒥᓰᓂᖃᑦ ᐃᓄᐃᑦ ᖃᐅᐅᑕᒻᒥᑦ ᒪᖃᕐᑦᑐᑦ, ᐃᖃᓗᑎᐊᖃᑦᑐᑦ ᓄᓂᖅᓀᐊᖃᑦᑐᑦᓯᓐᓄ, ᑕᒃ ᐊᑦᑐᑕᐅᓯᒪᔪᔪᐊᓯᖅᓯᒪᓂᖅᓴ ᓯᓚᒋᑦ, ᐊᒻᒪᓗ ᑐᐊᓯᓀᐊᕈᓐᓇᕐᓂᖅᓴᓯᓚᐅᑎᐅᓯᑦᓯᓂ ᐊᑦᑐᑕᐅᒪᓂᖃᕆᐊᖅᓴᖅ ᐊᑦᖁᑯᓄᖃᖅᓂᓄᑦ ᐊᓐᓂᐊᖃᖅᓂᓄᑦᓯᓐᓄ (Beaulieu and al. 2020)
- 19.1% ᐃᓄᐃᑦ ᐃᓕᓴᖅᑭᑦ ᐋᖁᑭᑕᐅᔨᑦᑎᓂᖅ, ᑕᒃ ᐊᑦᑐᑕᐅᓂᖃᖅᓴᖅᑐᓇᓐᓂᒋᑦ ᓯᖅᑭᐅᑎᓀᐊᖃᖅᑭᓗᑎᓗ ᓯᓚᑦᓂᓕᓴᑦᑎᑦ (Fletcher and al. 2020)
- 12.8% ᐃᓄᐃᑦ ᐅᑭᐅᓂᑦ ᑕᑦᓚᒪᑦ ᐊᒋᓂ : ᐱᐊᖃᑦ ᑎᑎᕆᔨᑦ ᐊᑐᐃᓐᓇᐅᖅᑭᑦᑐᑦ ᐊᒻᒪᓗ ᑲᒪᖁᖅᑲᖅᖁᓂᑐᓇᓐᓂᒋᑦ ᐊᖁᓯᑭᓐᓇᑐᓂᖅ (Statistics Canada 2021)
- 32.8% ᐃᓄᐃᑦ ᐃᓄᓗᓕᐊᖁᑐᒃ ᐃᓕᓴᓂᑦ ᐱᕕᑦᑐᒍᓯᑎᑐᖅ (ᐃᒪᖁᑲᐅᑎᖅᖃᓄᖅ, ᐃᓕᓴᒃ ᐅᖁᖁᓂᓯᓂ, ᐊᓂᖁᓴᕆᖁᑦᑐᒍᓯᑎᑐᖅ, ᑕᒪᑲᑯᐊᒋᑲᖅ.) ᐃᓕᓴᒋᓚᓂᖅ, ᑕᒃ ᐃᓯᐃᑦᑐᑯᔪᓐᓇᕐᓂᖅᑭᑦᑐᖅ ᑎᑎᕆᑯᑦ ᐃᓯᒪᕆᑯᔭᒃ (Fletcher and al. 2020)
- 68.5% ᐃᓄᐃᑦ ᐅᖁᑲᐅᑎᖅᑭᑦ ᐃᒥᐊᓕᒪᓂᑦ ᐋᖅᑲᕐᖁᖅᓄᓕᓴᓐᓇ ᐊᑦᑐᑕᐅᓯᒪᓚᐊᒥᒃ, ᑕᒪᑲᑯᐊ ᓯᓴᓯᒪᔪᖅᓀᐊᑦ ᐅᖁᖁᑯᔪᑦ ᖁᓕᓴᐃᑲᐅᑎᖅᖁᔪᖅᖄᓚᑎᑦᓯᖅᓴᓂᓗ ᓯᑲᓴᓕᒪᒥ (Bélanger and al. 2020; Lebel and al. 2022)
- 13% ᐃᓄᐃᑦ ᐅᖁᑲᐅᑎᖅᑭᑦ ᐃᒪᒥᓂᐊᖁᓂᒥᒃ ᐃᓯᒪᓚᕐᖁᖁᓯᒪᓕᓗᑎᑐᖅ ᐊᖁᖁᔪᒪᒥ, ᐊᑦᑐᐃᓂᖁᑐᐃᖅᓀᓚᐊᑲᒃ ᐊᔨᖁᓀᐊᒥᒃ ᓯᖅᑭᐅᑎᕆᓯᖁᓂᔪᑦ ᐊᖁᓯᑭᖅᓀᐊᖅᓄᑦ ᐊᑐᑎᔨᓄᑦ (Bélanger and al. 2020)
- 80.5% ᐃᓄᐃᑦ ᐅᖁᑲᐅᑎᖅᑭᑦ ᓂᖁᑭᓕᖁᖁᖅᑲᖁᓯᒪᓕᓗᑎᑐᖅ, ᐊᑦᑐᑕᐅᑐᐃᓕᓀᓚᐊᖁᖅᑭᓗᑎᑐᖅ ᐃᓯᓕᓄᓕᖁᑐᓄᑦ ᐃᓯᓚᓕᔪᑦ ᐋᖅᓂᐊᓄᓕᑐᓂᖅᑭᑦ, ᓂᓚᓯᓯᐊᖁᖁᑕᖅᑭᓚᔪᑦ ᐋᖅᓂᐊᓄᐊᑦᑕᑕᓯᖅᓀᐊᓗᑎᓗ (ᐅᕐᖅᑭᑐᖅᑭᑦ ᑲᔨᓯᑎᓂᓯᓗᑎᑐᖅ ᐋᖅᓂᐊᓄᐊᓂᑐᖅᑎᓂᖅᑲᖅ) (Furfal and al. 2021)

ᐃᓄᐃᑦ ᓄᓇᕗᖅᑭᑦ ᓯᖅᑭᐅᑎᓪᓗᕐᓂᐊᔨᑦ ᓯᓚᒋᑦ ᐊᓯᑦᔪᑦᑕᐅᓯᒪᓂᖅᓴᓄᑦ ᑐᖅᖅᒪᕐᓂᖅᑭᖅᑕᐅᖁᖁᖅᑭᑦ ᐃᓕᐅᓂᖁᖁᖅᑭᖅᑐᑦ ᓄᓇᕗᒻᒥᐅᑦ, ᓯᐅᕐᓂᑎᖅᑭᑦ ᐃᓄᐃᑦ ᑎᑎᐅᔨᖅᑭᑦ ᐊᒻᒪᓗ ᐃᓕᒪᑎᑦᓯᓂᖁᖅ ᖁᑎᐅᓂᒃᑯᑦᑎᓂᖅᑭᖅᑐᑦ ᐃᓄᐃᓗ ᖁᑎᐅᓪᓚᕐᖁᑐᐃᓐᓇᖅᑭᖅᑐᑦ. ᓇᒻᒥᐅᑦ ᐊᐅᓚᔪᓇᐅᓂᖅ ᐱᒻᒪᕆᐊᒃᑲᓪᓚᕆᐊᖅ ᓯᓇᓯᓚᑦᓯᓂᖅᑭᖅᑐᑦ, ᐱᓗᐊᖅᖄᓚᐅᑦᓯᓂᖅᑭᑦ ᐅᓪᓗᕆᐊᖅᑐᑦ ᐊᑦᑐᑕᐅᓯᒪᔪᓐᓇᓗᐊᖅᐸᑦ ᐃᓄᐃᑦ ᑎᑎᕆᔨᑦ ᐊᑦᑐᑕᐅᓯᒪᔪᓐᓇᓗᐊᖅᐸᑦ ᐃᓄᐃᑦ ᓄᓇᕗᒻᒥᐅᑦ. ᑕᒃ, ᐃᓯᒪᓕᐅᕐᓇᕐᓂᖅᑭᑦ ᐊᒻᒪᓗ ᓯᖅᑭᐅᑎᖅᑭᓚᐅᖅᑭᑦ ᖃᐅᔨᓴᓂᖅᑭᖅᑐᑦ ᐃᓄᐃᑦ ᐊᐅᓚᔪᓇᐅᓂᖅᓴᓄᑦ ᓇᓗᓍᕐᑕᐅᓯᒪᔪᓐᓇᓗᐊᖅᐸᑦ ᐊᐅᓚᔪᓇᐅᓂᖅᓴᓄᑦ ᓇᓗᓍᕐᑕᐅᓯᒪᔪᓐᓇᓗᐊᖅᐸᑦ ᓄᓇᕗᒻᒥᐅᑦ.

ᐃᓱᓕᓕᔨᓂ ᐊᑐᑎᓴᐅᔪᓕᕐᓴᓗ

ᐃᓗᓱᖅ ᖃᓄᐃᖅᑐᓂᔭᓗ ᐊᓕᑐᐃᔪᖅᓇᒪᑕ ᓱᓕᐅᑦ ᐊᓱᓕᔅᓯᓕᐊᓂᖅᖢᒍ ᒪᓕᓕᓱᔪ, ᐊᓕᔨᑎᖅᖅᑭᑐᑐᓂ ᐅᓪᓗᕆᐊᖓᑐᓂ ᐃᓗᓱᓕᔪᑦ, ᐃᓄᐃᓪᓗ ᖃᓄᐃᖅᑐᓂᖅᑭᑐᓂ ᐃᓗᓱᖅᑭᓪᓗ ᑐᐳᓱᒪᐅᑎᒍᑦᓴᑦ. ᑐᐳᓱᕈᑎ, ᐅᓪᓗᕆᐊᖓᖃᖅᑎᑐᒍᔪᖅᓇᓂᓂᓄᑦ ᐃᓕᔪᖅᓇᓕᐅᕐᓴᖅ ᑲᑎᓱᓂᓄ ᐊᓕᑕᘏᔪᖅᓇᑐᓄᓕᒃ, ᐃᓕᐅᑎᓗᑎᓂ ᐊᓕᑐᑕᐅᒪᔪᖅᓇᓂᖅ, ᓱᖅᑭᐅᑎᕈᖅᓇᓂᖅ ᐊᒻᒪᓗ ᐅᓪᓗᕆᐊᖓᑐᓂ ᐊᓕᑐᐃᔪᖅᓇᓂᖅ ᐃᓗᓱᓕᔪᑦ (Leclerc, Landaverde, Demers-Bouffard and Sankara 2025). ᐊᓕᔨᖅᔪᐊᖅ ᐊᒋᓂ ᑕᑯᓕᕐᐳᑎᓕᓱᕐᓴᖅ ᐅᓪᓗᕆᐊᖓᑐᔾᔨᐊᓕ ᓇᓂᓂᖅᑭᓂᑲ ᓇᓇᕐᓂᓂ.



ᐊᓕᔨᖅᔪᐊᖅ 2 — ᓱᓕᐅᑦ ᐅᕙᑯᓂᖅᓯᒪᓕ ᐊᓕᑐᐃᓂᖅ ᓇᓇᕐᐳᑦ ᓇᓇᕐᓂᖅᓂᓂ

ᖃᐅᔨᓴᓕᔪ ᓱᓕᐅᑦ ᐅᕙᑯᓂᖅᓯᒪᓕ ᐅᓪᓗᕆᐊᖓᔪᓂᖅᖢᒍ ᑐᐳᓱᒪᐅᑎᓂᖅ, ᐃᓱᒪᓕᐅᔪᓐᓇᒪᑦ ᐅᓪᓗᕆᐊᖓᑐᓂ ᐃᓱᐊᓗᑕᐅᓂᖅᓴᐅᓂᖅᓯᓂᖅ ᐊᖏᓂᓂᓴᓕᐅᖅᑐᑦ ᓇᓇᕐᓂᓂ ᓇᓇᐅᑦ ᐃᑭᐊᓂ ᐊᐅᑦᑦᓕᐊᓂᖅᓂᓂ ᐊᒻᒪᓗ ᐱᓱᓕᓴᕐᔪᐊᑦ, ᐅᕙᑯᓂᖅᓂᓂ, ᓇᓵᓴᑐᐃᓂ ᐃᑯᐊᓕᑦᑦᓂᖅᓂᓂ ᐃᓱᐊᓗᓓᓇᖅᓂᓂᑦ ᓇᓇᕐᓂᓂᖅ ᑕᓴᕆᑎᓂᖅᖢᒍ ᓇᓇᕐᓂᓂᖅ ᐃᓱᐊᓗᑕᐅᓂᖅᓴᐅᓂᖅᓯᓂᖅ ᓇᓇᕐᓂᓂᖅ ᐃᓕᓴᕐᓂᖅᓯᒪᓂᖅᓂᓂ ᐃᓗᓱᖅᑯᑦ ᐃᓗᓱᖅᑐᓂᖅ ᓇᓇᕐᓂᓂᖅ ᐃᓱᐊᓗᑕᐅᓂᖅᓴᐅᓂᖅᓯᓂᖅ ᐃᓗᓱᖅᑐᓂᖅᓂᓂ.

ᖃᐅᔨᓴᐅᓪᓗᐊᖅᓯᓗᐊᑐᑦ ᐊᓪᓚᓇᖅᑐᓂᖅ ᒪᓕᐊᖅᓯᐅᒃᖃᖅ ᖃᐅᔨᓴᖅᓯᓂᖅ :

- ᓄᓇᐅᑦ ᐃᑭᐊᓂ ᐊᐅᑦᑐᓪᓗᐊᓂᖅᓴᑦ ᓯᐅᒃᓪᓚᑦᐅᐅᒃᖃᖅ ᐊᓪᓚᓪᓕᒪᔪᓂᖅ
- ᐅᖅᖁᑦᓯᐅᒃᓪᓚᐊᓂᖅᓴᑦ ᐊᓯᓪᔨᐅᑦᓴᖅ ᓯᑦᑐ ᖃᐅᓄᐊᓪᓚᓂᖅᓴᑕ ᐊᖅᖁᑎᖃᐅᓪᓚᑦᓯᓪᓚᔪᓐᓇᓪᓚᑭᓯᓯᓂ ᐊᐅᑎᒥ
- ᐱᖅᓯᓂᑦ ᓄᐃᑕᑎᓪᓚᑭᐅᒃ ᓯᓪᓕᐅᑦ ᖃᐅᓄᐊᓂᓗᓪᓚᑕᓴᓂᓂᖅ ᓯᖅᑲᐅᒃᓪᓚᓯᓂᓯᓂ ᐊᒥᓯᓂᑦ ᓄᓇᓪᓂᐅᓂ
- ᐅᖅᖁᑎᔨᒪᓱᑦ, ᓄᓇᒥ ᐃᑎᐊᓪᓕᑦ ᔪᔨᓴᑦᑎᓪᓕᑦ ᓯᑦᑲᐅᒥᒃ ᐱᐅᑦᓪᓕᓂᖅᓴᑦᑦᔪᑦ
- ᐊᖅᑐᐃᔨᑦ ᐃᓯᒪᐅᑦ ᐃᓕᓯᓴᓂᓂᑦ ᐊᒪᒪᓕ ᓂᖅᑭᑦᑎᖅᑲᑦᓯᓯᐊᓂᖅᓴᖅ ᐃᑦᐱᑭᓄᐅᑕᑦ ᓇᓂᓪᒪᔅᓕ.

ᖃᐅᔨᒪᖅᓂᑦ ᐊᓪᓚᓇᖅᑐᓂᖅ ᑕᐅᑐᓪᓚᑭᑦ, ᓯᑕᒪᑦ ᐊᖅᑭᓂᖅᓱᑦᑦ ᓯᑲᑦᓪᓚᐅᐅᒃᖃᖅ :

ᓯᑲᑦᓪᓚᖅ 1 ᐱᐅᑦᓪᓚᐊᑎᓪᓗᔪ ᐱᓇᓯᖅᑲᑎᑭᓂᓂᖅᓴᖅ ᐊᐅᑎᒥ ᖃᐅᓂᒪᓇᖅᑐᓄᑦ ᖃᐅᔨᒪᖅᓯᓂᖅᓴᖅ

ᓯᑲᑦᓪᓚᖅ 2 ᐊᓪᓚᓇᖅᓴᖅᑐᑐᒃᓯᓯᓂᖅᓴᖅ ᐊᐅᑦᓪᓚᓪᓚᒥᒃ ᓄᓇᒥ ᐊᒪᒪᓕ ᓄᓇᒃᔪᔭᓇᓂᖅᖁᖅᓯᑎᑐᖅ

ᓯᑲᑦᓪᓚᖅ 3 ᖅᑐᑦᓴᖅᑲᑎᑭᓂᓂᖅᓴᖅ ᐃᓯᒪᖅᔪᑦ ᐃᑕᓯᑦᓪᓚᓇᓂᑦᒥᒃ ᓂᖅᑭᑦᑎᖅᑲᑦᓯᓯᐊᓂᖅᔪᑕ

ᓯᑲᑦᓪᓚᖅ 4 ᖅᔨᓯᑎᑦᓯᓂᖅᓴᖅ ᐊᑐᑦᑕᐅᓪᓚᒪᐊᖅᖁᖅᑐᑐᒃᓴᖅ ᐱᔪᑦᓴᓂᓪᓚᖅᐅᓪᓚᑕᐊᖅᑦᑦ ᓯᓪᓚᑦᓂᑐᓂᖅᓯᓂᓪᓚᑕᐊᖅᑦᑦ

ᑌᒣᓪᓚᑦ, ᐱᓪᓚᓇᐅᑐᖅ ᐊᖅᑎᓯᒥᒃ ᐃᖅᖁᑎᐅᓪᓚᖅᖁᖅᓂᓂᖅᓴᖅ ᓯᓪᓚᐅᑦ ᐊᓯᑦᓴᐸᑦᓪᓚᐊᓂᖅᓴᑦᑐᑦ ᐊᑐᑦᑕᐅᓪᓚᓓᓕᔪᓂᑦ ᐊᑐᑦᑕᐅᓪᓚᑦᓯᓪᓚᔪᓐᓇᓪᓚᑭᓯᓯᓂ ᐊᑐᑦᑕᐅᓪᓚᑦᓯᓪᓚᔪᓐᓇᓪᓚᑭᓯᓯᓂ ᓯᓪᓚᑦᓂᑐᓂᖅᓯᓂᓪᓚᑕᐊᖅᑦᑦ ᐊᑐᑦᑕᐅᓪᓚᑦᓯᓪᓚᔪᓐᓇᓪᓚᑭᓯᓯᓂ ᐊᓪᓚᓇᖅᑐᓂᖅ ᐊᑐᑦᑕᐅᓪᓚᑦᓯᓪᓚᔪᓐᓇᓪᓚᑭᓯᓯᓂ ᐊᓪᓚᓇᖅᑐᓂᖅ ᐊᑐᑦᑕᐅᓪᓚᑦᓯᓪᓚᔪᓐᓇᓪᓚᑭᓯᓯᓂ ᓄᓇᒥ ᐊᒪᒪᓕ ᓄᓇᒃᔪᔭᓇᓂᖅᖁᖅᓯᑎᑐ

SUMMARY

In Nunavik, climate change is advancing far more rapidly than the global average, posing an escalating threat to populations' health and well-being (Health Canada, 2022). These shifting dynamics lead to profound transformations across the region's territory, ecosystems, infrastructures and the traditional Inuit ways of life (Health Canada, 2022). In response to this reality, the Department of Public Health of the Nunavik Regional Board of Health and Social Services conducted a regional climate risk assessment. This process aimed to identify primary hazards and their impacts on health determinants while establishing foundational adaptation priorities for the coming decades.

Climate Projections

The climate risks assessment for Nunavik focused on six hazards :

CLIMATE HAZARD	**Principal findings** (ClimateData.ca 2026; Ouranos 2026d)
 PERMAFROST THAWING	• Thickening of the soil's active layer • Shrinking permafrost thickness • Discontinuous permafrost zones
 COASTAL EROSION	• Increased frequency and intensity of marine storms • Heightened storm surges • Elevated frequency of freeze-thaw cycles leading to ground subsidence
 ABUNDANT PRECIPITATION	• Rise in total annual precipitation • Reduced precipitation falling as snow during spring and autumn transition periods
 HEAT WAVES	• Rise in average summer temperature by 2°C to 4°C • Increase in the annual number of days exceeding 25°C
 WILDFIRES AND SMOKE	• Greening of Nunavik, elevating wildfire risk • Extension of the active wildfire season • Greater frequency of poor air quality episodes
 BLIZZARDS	• More frequent, prolonged and severe winter storms • Higher concentration of storms during peak winter months

HEALTH IMPACTS

As part of the community component of Qanuilirpitaa? 2017 health survey, Inuit of Nunavik developed the IQI model to conceptualize their own holistic approach to health (Fletcher et al., 2021). The climate risk assessment and the data-gathering process carried out beforehand are based around this model's core dimensions of health and its underlying determinants. In 2025, a series of regional community visits enabled consultations with approximately 450 participants across 11 of the 14 Nunavik communities. To ensure broad public engagement, the project team organized open-line broadcasts on local radio stations, stakeholder partners meetings, and interactive booths in general stores (Co-op).

The figure below synthesizes the testimonies gathered during these consultations, integrating the health impacts of climate change onto the IQI model.

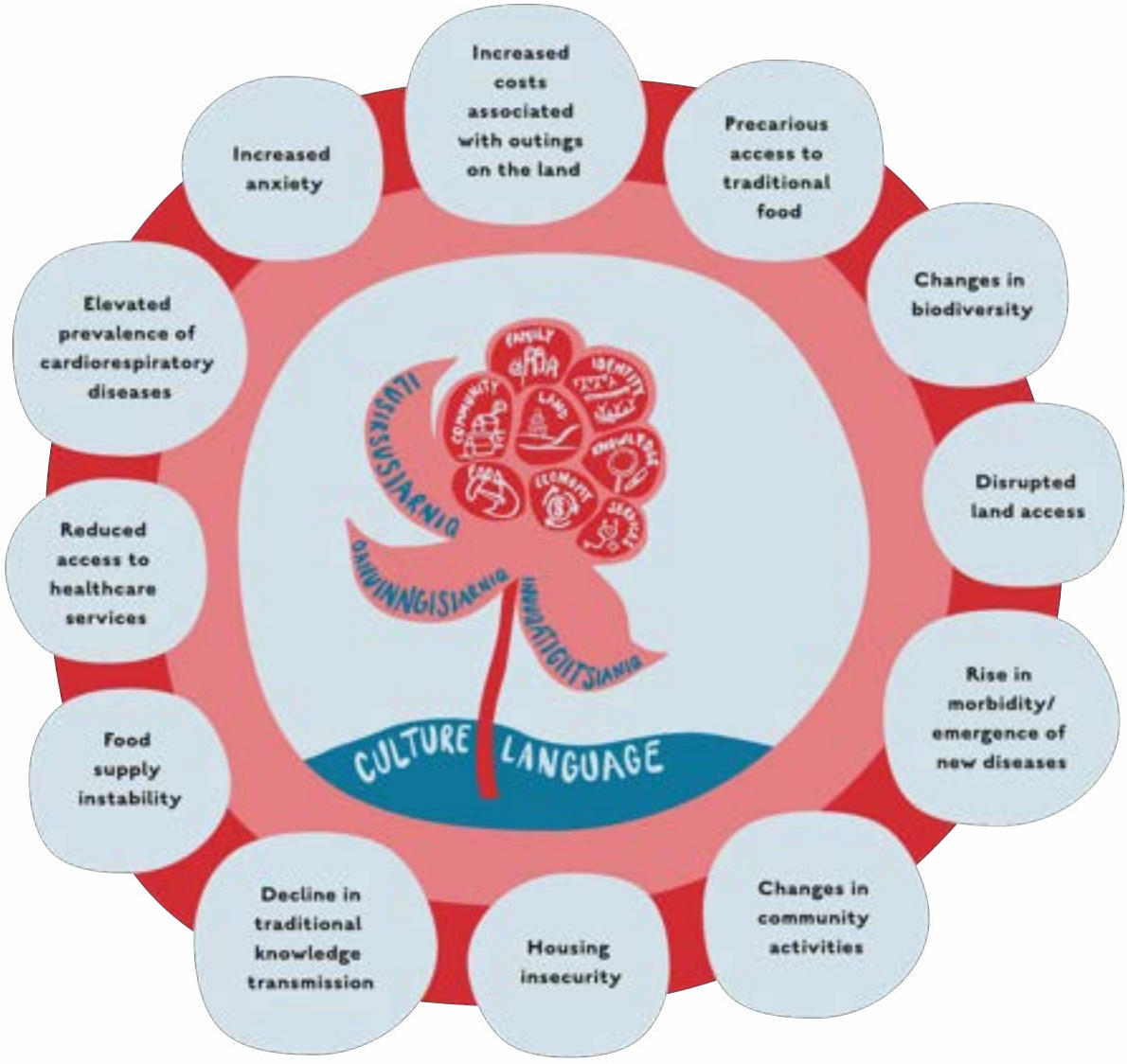


Figure 1—**Health impacts of climate change according to Nunavimmiut (centre : IQI model from Fletcher et al., 2021)**

Climate change will have profound consequences on the health, well-being, and social cohesion of Nunavimmiut. Rapid transformations across the land directly threaten Inuit identity, culture, and long-term food security. Specifically, ice cover instability, unpredictable weather patterns, altered topography, and hydrographic shifts will make outings on the land increasingly complex and hazardous. These disruptions have already compromised the safety of traditional hunting, fishing, and gathering activities, worsened food insecurity and disrupted the intergenerational transmission of traditional knowledge (Furgal et al., 2022). Furthermore, the traditional Inuit diet is threatened by shifting wildlife migration routes, changes in wild berry distribution, and the natural introduction of new species. Because Nunavik has no highway links to southern Québec, its communities are entirely dependent on maritime and air shipping for essential supplies. Consequently, extreme weather events pose an immediate threat to food supply chains. This vulnerability is further amplified by a baseline lack of permanent infrastructure for drinking water distribution and sewage disposal. Compounding these challenges, accelerating permafrost thaw severely undermines the stability of housing and public service infrastructure, which are already in a fragile state (Allard et al., 2020).

Climate change already exacerbates both direct and indirect threats to the physical and mental health of Nunavimmiut, as documented in the literature review by Demers-Bouffard (2021) :

- The rise in temperatures elevates the risk of cardiovascular diseases exacerbation, respiratory complications, acute heat stress and hospitalizations
- Exposure to drifting wildfire smoke increases morbidity and premature mortality, with higher rates of respiratory diseases such as asthma or chronic obstructive pulmonary disease (COPD), as well as cardiovascular diseases
- Unstable ice conditions, severe storms, and sudden land subsidence multiply the risk of falls, drownings and serious snowmobile and all-terrain vehicles (ATV) accidents
- Changes in the water cycle and the permafrost thaw increase vulnerability to new contaminants or waterborne diseases
- Rapid transformation of the Arctic landscape, ice and biodiversity triggers anxiety, distress, a sense of powerlessness and the loss of cultural reference points
- Eco-emotions, most notably solastalgia, are a dominant and recurring theme across recent community consultations

NUNAVIMMIUT EXPOSURE, SENSITIVITY AND ADAPTABILITY

Some population groups within Nunavik exhibit heightened vulnerability to climate hazards, defined by their exposure, intrinsic individual sensitivity, and an adaptability reliant on external resources (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025). Several factors make Nunavimmiut more vulnerable to climate change than the average Québec population :

- The vast majority of the population regularly engages in hunting, fishing and gathering activities. This frequent land use increases direct exposure to climate hazards, and elevates the baseline risk of falls and injuries (Beaulieu et al., 2020)
- 19.1% of Inuit live in dwellings requiring major structural repairs, which are often poorly adapted to withstand adverse weather conditions (Fletcher et al., 2020)
- Children under five years old make up 12.8% of the population. This demographic has a limited physiological capacity for thermal acclimatization and fewer mechanisms to manage acute stress (Statistics Canada, 2021)
- 32.8% of the population resides in overcrowded, inadequate housing characterized by insufficient water reservoir capacities, excessive indoor temperatures, deficient ventilation systems, etc. These living conditions directly contribute to developing stress and anxiety (Fletcher et al., 2020)
- 68.5% reported excessive alcohol or drug use, a factor that increases physiological sensitivity to extreme heat and reduces cognitive capacity to react safely during adverse weather events (Bélanger et al. 2020 ; Lebel et al., 2022)
- 13% reported experiencing suicidal thoughts within the past year, which may highlight difficulties adjusting to challenges (Bélanger et al., 2020)
- 80.5% reported living with food insecurity, increasing the risk of developing anxiety, mental health disorders, malnutrition and chronic diseases (or aggravating an existing condition) (Furfal et al., 2021)

Climate change adaptation within Inuit communities must be anchored in the active participation of local populations, the leadership of Inuit organizations, and the integration of scientific research and traditional knowledge. Community self-determination is critical to establishing a resilient and enduring adaptive capacity, particularly as current regional vulnerabilities remain deeply intertwined with the historical impacts of colonialism. Consequently, policy decisions and adaptation frameworks must be conceived and driven by the communities themselves.

CONCLUSIONS AND RECOMMENDATIONS

The health and well-being risks associated with each climate hazard were defined by integrating climate projections, documented health impacts, and the population's baseline vulnerabilities and health profile. To calculate overall risk, the probability of a hazard's occurrence was cross-linked with its potential consequences. This calculation systematically considers exposure, sensitivity, adaptability and the hazard's health outcomes (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025). The figure below illustrates the risk levels determined for each community across all evaluated hazards.

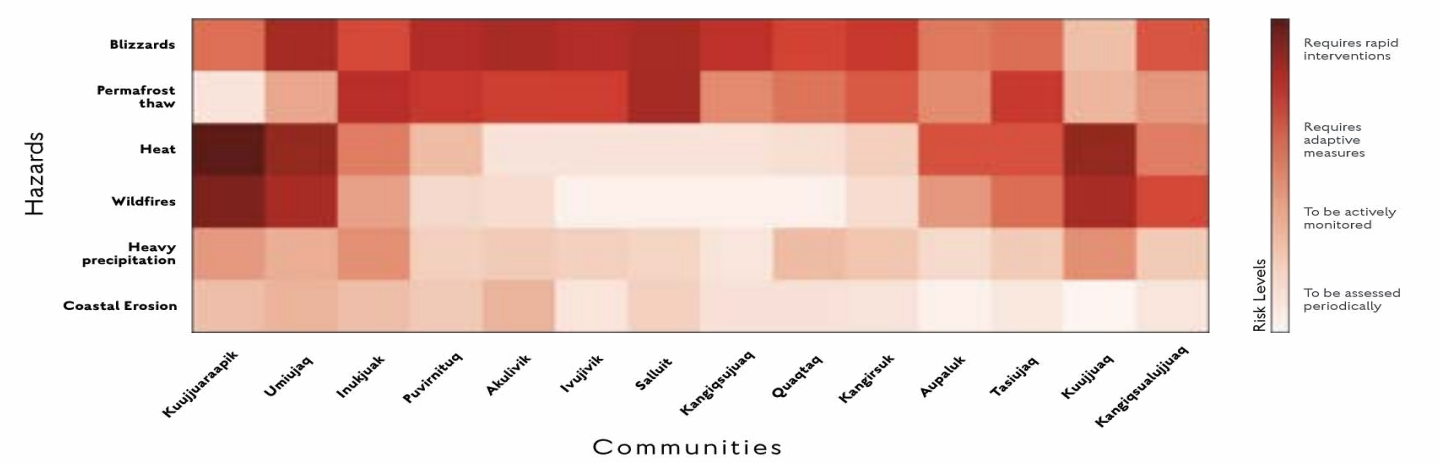


Figure 2 — **Heat map of climate risks across Nunavik communities**

An evaluation of the regional climate risk heat map demonstrates that permafrost thaw and severe blizzards represent the most critical threats across most Nunavik communities. Conversely, heat waves and wildfires are particularly worrisome for the southernmost communities of the region. Public testimonies confirm that food insecurity, compromised water access, and mental health impacts stand out as major consequences impacting Nunavimmiut health and well-being.

The principal findings of the risk assessment are as follows :

- Permafrost thaw constitutes the most critical and immediate threat facing the region
- Rising temperatures alter ice conditions and compromise access to the land
- Blizzards emerge as the climate phenomenon disrupting the greatest number of communities
- Heat waves, wildfires and smoke constitute rapidly escalating, emerging risk
- Impacts on psychological well-being and food security are felt universally across the region

Drawing from the findings from the risk assessment process, four broad priorities have emerged :

Priority 1
Optimize environmental and epidemiological surveillance in collaboration with partners

Priority 2
Enhance land travel safety and preserve access to the land

Priority 3
Foster psychological well-being and strengthen food security

Priority 4
Guarantee the continuity of essential services during extreme weather events

Nevertheless, it is important to recognize that the greatest impacts of climate change in Nunavik will stem not from a single isolated hazard, but rather from the cumulative interaction between all environmental threats, the deep dependence on the land and pre-existing vulnerabilities. Cultivating community resilience, preserving secure access to the land, reinforcing essential service infrastructure, and supporting local initiatives constitute the definitive pathways to safeguarding Nunavimmiut health and well-being over the coming decades.

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List of Abbreviations, Acronyms and Partners

Anguvigaq	Association of Nunavik Hunters, Fishers and Trappers
Attaniuvik	Nunavik Research Governance Organization
CAR du Nord-du-Québec	Nord-du-Québec Regional Administrative Conference
CEN	Centre d'études nordiques — Université Laval
ECCC	Environment and Climate Change Canada
GDD	Growing degree-days
IHC	Inuulitsivik Health Centre
INSPQ	Institut national de santé publique du Québec (Québec National Institute of Public Health)
IPCC	Intergovernmental Panel on Climate Change (GIEC in French)
IQI	Ilusirsusiarniq, Qanuinngisiarniq, Inuuqatigiitsianiq
ITK	Inuit Tapiriit Kanatami (national representational organization protecting and advancing the rights and interests of Inuit in Canada)
KRG	Kativik Regional Government (Public agency wielding jurisdiction north of the 55th parallel)
Makivvik	Indigenous political organization representing the Inuit of Nunavik since 1978
NHB	Nunavik Housing Bureau
NMRWB	Nunavik Marine Region Wildlife Board (main instrument of wildlife management in the Nunavik Marine Region)
NRBHSS	Nunavik Regional Board of Health and Social Services

PARC	Plan régional d'adaptation au climat en santé publique (Regional plan for climate adaptation in public health)
RCP	Representative Concentration Pathways
RDPH	Regional Department of Public Health
RNC-SCF	Natural Resources Canada – Canadian Forest Service
SOPFEU	Société de protection des forêts contre le feu (Quebec's provincial wildfire management agency)
SSP	Shared Socioeconomic Pathways
UTHC	Ungava Tulattavik Health Centre
VRAC	Évaluation (ou appréciation) régionale multi-aléas de la vulnérabilité ou du risque populationnel au climat changeant (Regional climate risk assessment (or evaluation) of population vulnerability)

Glossary

Active layer
Layer of soil which thaws each year, situated on top of permafrost (Ouranos 2026b).

Adaptation
In human systems, the process of adjustment to actual or expected climate and its effects, to moderate harm or exploit beneficial opportunities. In natural systems, the process of adjustment to actual climate and its effects; human intervention may facilitate adjustment to expected climate and its effects.

Adaptive capacity or adaptability
Ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities or to respond to consequences.

Arctic amplification
Phenomenon where the Arctic region warms faster than the global average (AMAP 2021).

Climate change
A change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer.

Country or land
For the Inuit, ancestral land is defined by Inuit Nunangat. In Québec, it is defined by the Nunavik territory, which was established in the James Bay and Northern Québec Agreement of 1975. The term “Inuit Nunangat” includes the land, the water and the ice. The Inuit consider the land, the water and the ice of their ancestral land as integral parts of their cultural identity and traditions (Inuit Tapiriit Kanatami 2026).

Exposure
Contact between an individual and a stressor of biological, psychosocial, chemical or physical origin, including stressors affected by climate change (Health Canada 2022).

Extreme climate (or meteorological) event
Meteorological phenomena characterized by their rarity, their intensity or the damage they cause. They are phenomena that deviate from seasonal climate norms.

Greenhouse gas
Some gases naturally occurring in the earth’s atmosphere contribute to retaining heat close to the earth’s surface. They are called “greenhouse gases” (GHGs) and primarily consist of water vapour, carbon dioxide (CO_2 or carbonic gas), methane (CH_4), nitrogen dioxide (NO_2) and ozone (O_3) (Ouranos 2015).

Hazard
A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

IQI model
Model of health as defined by Inuit as part of the community component of the Qanuilirpitaa? 2017 health survey consisting of three main components, Ilusirsusiarniq (physical health), Qanuinngisiarniq (state of well-being), Inuuqatigiitsiarniq (living harmoniously in the community) and eight determinants of health : community, family, identity, food, land, knowledge, economy and services (Fletcher et al. 2021).

Likelihood
The possibility that a hazard occurs; can be expressed qualitatively or quantitatively (Ouranos 2015).

Mitigation
Human intervention aimed at reducing sources of emission or reinforcing greenhouse-gas sinks.

Negative storm surge
Important drop in sea level due to tides and storms, exposing the ground.

Nunavimmiut
Demonym for the Inuit people of Nunavik.

Positive storm surge
Extremely high water levels often linked to strong tides or storm tides that can cause flooding or coastal erosion.

Resilience
“The capacity of social, economic, and environmental systems to cope with a hazardous event, trend, or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure, while maintaining the capacity for adaptation, learning, and transformation” (Health Canada 2022).

Response
Adaptation measure to mitigate the effects of climate change or extreme weather events (Leclerc, Landaverde, Demers-Bouffard and Sankara 2025).

Risk
Uncertainty relative to future events and their consequences; probability that an event occurs and its potential influence on attainment of an organization’s objectives (Health Canada 2022).

Sensitivity
Predisposition of an individual or group of individuals to be affected, in this case, by climate change (Leclerc, Landaverde, Demers-Bouffard and Sankara 2025).

Shrubification
Climate-driven expansion, increased density and upward growth of woody shrub species such as willow and birch in the Arctic.

Social inequalities in health
“Differences in health between different population groups based on their social position. These differences depend particularly on income level of education, ethnocultural background and gender” (Aïach 2000).

Solastalgia
Distress caused by a negatively perceived change in environment; homesickness at home (The Guardian 2020).

Threshold
Climate point or level where impacts emerge among the population (Health Canada 2022).

Vulnerability
Propensity or predisposition for a population to be adversely affected if exposed to a hazard. Vulnerability primarily includes sensitivity, adaptability, and exposure.

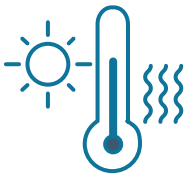
Well-being
This term encompasses a feeling of overall comfort, contentment and peace, free of pain, worries or emotional distress (Fletcher et al. 2021).













INTRODUCTION

Climate change represents one of the greatest challenges and threats to public health (IPCC, 2019 ; AMAP, 2021). Beyond its impacts on the environment and biodiversity, climate change directly and indirectly affects the physical and mental health, and well-being of the entire population. In Canada, these impacts are particularly pronounced in northern regions, where warming occurs more rapidly than the global average and where the population maintains deep ties to the land and its ecosystems (AMAP, 2021).

In Nunavik, the effects of climate change are already being reported by communities. These include highly unpredictable weather conditions, reduced ice cover, accelerated snow and ice melt, severe heat waves, an increased frequency of wildfire smoke, permafrost thaw, changing ecosystems, etc. (Makivvik, 2024; Community Consultations 2025, Appendix 5). These transformations disrupt critical infrastructure and essential services while undermining cultural practices, access to traditional foods, land outings, and identity. Ultimately, these shifts have profound repercussions on the three interconnected pillars that define holistic Nunavimmiut health : Ilusirsusiarniq (the body), Qanuinngisiarniq (well-being), and Inuuqatigiitsianiq (social relationships) (Fletcher et al., 2021).

To better understand the current and future impacts of climate change on the health of Nunavimmiut, the Department of Public Health of the Nunavik Regional Board of Health and Social Services (NRBHSS) conducted a regional assessment of climate risks to their health and well-being. This project is funded by the Government of Québec under the initiative "Supporting the implementation of risk assessments and adaptation plans – Health" of the Plan pour une économie verte 2030 [Plan for a Green Economy, 2030]. By characterizing the climate hazards likely to affect the region, the study highlights the specific exposure, sensitivity, and adaptation factors unique to these communities. These findings establish the priorities for action required to develop the upcoming regional public health adaptation plan.

The analysis presented in this report is based on scientific literature, predictive modeling, the expertise of regional partners, and testimonies gathered directly from the Inuit population. In 2025, a consultation tour spanning 11 of the 14 Nunavik communities enabled engagement with nearly 450 participants, including municipal representatives, healthcare staff, hunters, teachers, Elders, and youth. These exchanges grounded the risk assessment in the lived realities of Nunavimmiut, integrating local and Inuit knowledge into the broader understanding of climate risks. Ultimately, this report reflects the reality of Nunavimmiut and sheds light on the still under-documented repercussions of climate change on their health and well-being.

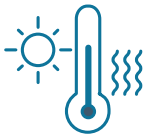
This report first outlines the methodological framework used for the climate risk assessment, followed by a description of the primary climate hazards likely to affect Nunavik. It then examines their subsequent effects on health and health determinants, provides a comprehensive overview of community vulnerabilities and adaptive capacities, and delivers a regional climate risk evaluation. The ultimate objective is to support decision-making, reinforce community resilience, and contribute to the protection of Nunavimmiut health and well-being in the face of a changing climate.













A

FRAMEWORK & METHODOLOGY

The climate risk assessment for Nunavimmiut's health and well-being aligns with a broader initiative by the Government of Québec. Its scope was defined by the INSPQ's Cadre méthodologique d'appréciation des risques en santé publique [Public health climate risk assessment methodological framework].

1. Framework for the Assessment of Climate Risks

The methodological framework defines the report's parameters, ensuring rigorous procedural consistency while guaranteeing the reliability of both the findings and the subsequent recommendations. Consequently, this scoping phase constitutes a determining step for interpreting the assessment's outcomes and guiding the decisions that stem from them.

a. VRAC-PARC Project and Objectives

The VRAC-PARC project is divided into two phases :

1. **The assessment of climate risks to public health and populations' well-being (VRAC)**
2. **The design of a regional public health adaptation plan to address climate change (PARC)**

Since 2019, the Institut national de santé publique du Québec (INSPQ) has spearheaded the VRAC-PARC project, providing scientific oversight to regional departments of public health. Within this framework, a comprehensive risk assessment serves as a preliminary prerequisite to drafting the regional adaptation plan. This initial phase identifies primary risks and potential adaptation measures, ultimately aiming to build community resilience while actively reducing social health inequalities. Ultimately, the VRAC-PARC project pursues the following objectives :

- Deliver a regional assessment of population vulnerability (or risk) to climate change
- Design a regional climate change adaptation plan, outlining actionable interventions to be implemented by the public health sector, the broader healthcare network, and regional partners
- Consolidate institutional collaboration across the internal services of the Department of Public Health and with external partners to foster complementarity and synergy of the regional actions in the fight against climate change
- Cultivate regional actor awareness regarding the direct impacts of climate change on health and its underlying determinants

b. Region of Interest : Nunavik

The geographic scope for this climate risk assessment is the region of Nunavik. Situated north of the 55th parallel, Nunavik encompasses approximately one-third of the total land area of the province of Québec. The region's population is distributed across 14 coastal communities settled along the shores of Ungava Bay and Hudson Bay. Nunavimmiut reside primarily within the Category I treaty lands defined under the James Bay and Northern Québec Agreement. Category II lands surround these settlements and are often used for outings on their ancestral land.

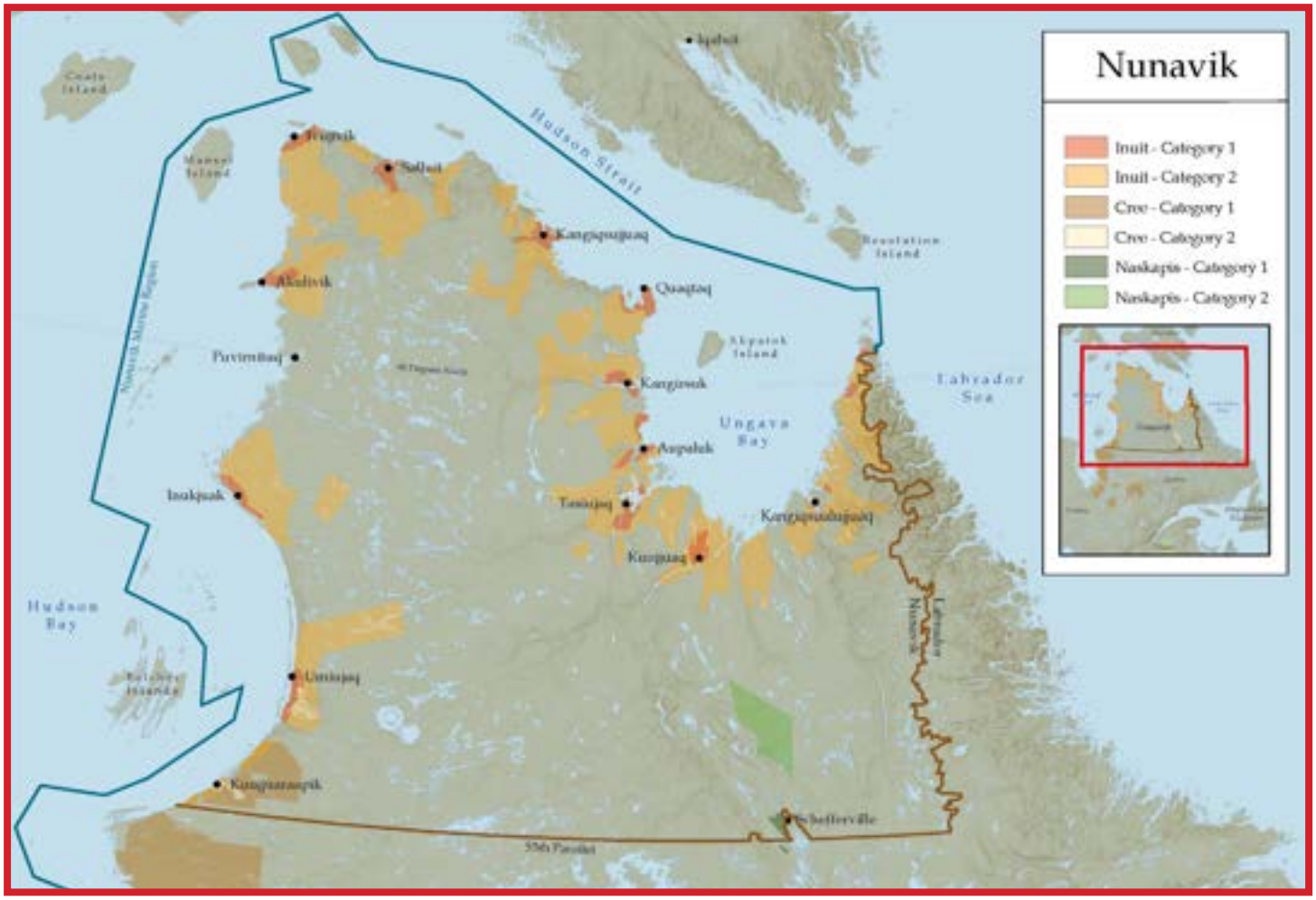


Figure 3 — **Category I and II lands according to the James Bay and Northern Québec Agreement (James Bay and Northern Québec Agreement, n.d.)**

These Category I and II treaty lands, along with the distinct health centre jurisdictions of Hudson Bay (Kuujjuaraapik, Umiujaq, Inukjuak, Puvirnituq, Akulivik, Ivujivik, and Salluit) and Ungava Bay (Kangiqsujuaq, Quaqtaq, Kangirsuk, Aupaluk, Tasiujaq, Kuujjuaq, and Kangiqsualujjuaq), define the spatial parameters used to evaluate and present climate impacts and risks for Nunavimmiut.

Geographic isolation from major urban centres and the absence of interconnecting road networks - either between individual communities or linking the region to southern road networks – mean that Nunavik is accessible primarily by air (year-round) while marine shipping provides vital freight and cargo transport strictly during the brief summer season. According to 2021 census data, Nunavik has a population of just over 14,000 residents, the vast majority of whom are Inuit (Statistics Canada, 2021). The population of individual communities ranges from 233 to 2,668 inhabitants, with only Kuujjuaq, Puvirnituq, Salluit, and Inukjuak exceeding 1,000 residents. The regional administrative capital, Kuujjuaq, is the largest community with 2,668 residents, a demographic that included more than 20% non-Inuit occupants at the time of the 2021 census (Statistics Canada, 2021).

Given the vast geographical scale of the Nunavik territory, the climate risk analysis was executed at the community level to ensure a highly accurate risk assessment and deliver representative findings for all Nunavimmiut.

C. Climate Scenarios and Temporal Horizons

Since 2022, Shared Socioeconomic Pathways (SSP) scenarios have superseded Representative Concentration Pathways (RCP) scenarios in the assessments of the Intergovernmental Panel on Climate Change (IPCC). Consequently, SSP scenarios are prioritized for this climate risk assessment in Nunavik, as mandated by the INSPQ methodological framework (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025). The climate projections analyzed in this report utilize the SSP2-4.5 and SSP3-7.0 emissions scenarios; however, to identify key vulnerabilities, the higher-emission SSP3-7.0 scenario will be prioritized. Because certain climate data repositories still rely on previous RCP modeling, RCP4.5 and RCP8.5 scenarios will be used to complement the climate profile when specific indicators are unavailable in SSP format (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025).

To better understand the impacts of climate change already experienced in Nunavik, the assessment utilizes the 2041–2070 (medium-term) and 2071–2100 (long-term) climate time horizons, as recommended in the INSPQ's Cadre de l'appréciation des risques [Risk assessment framework] (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025). Evaluating both temporal horizons enables the projection of medium- and long-term impacts on health and well-being, while highlighting the necessary adaptation measures to develop. The historical period spanning 1991–2020 serves as the baseline for all climate comparisons.

2. Selection of the Risk Assessment Methodology

The chosen framework for assessing climate risks to population health and well-being is based on the INSPQ Reference Framework (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025). This structured approach accounts for climate hazards, population exposure to these hazards, and overall population vulnerability which encompasses both community sensitivity and adaptive capacity. As illustrated in Figure 4, the public health impacts resulting from climate risks emerge at the intersection of these three core parameters. Consequently, a population must be actively exposed to a hazard and possess an underlying vulnerability for that hazard to manifest as a tangible risk and generate measurable impacts on public health.

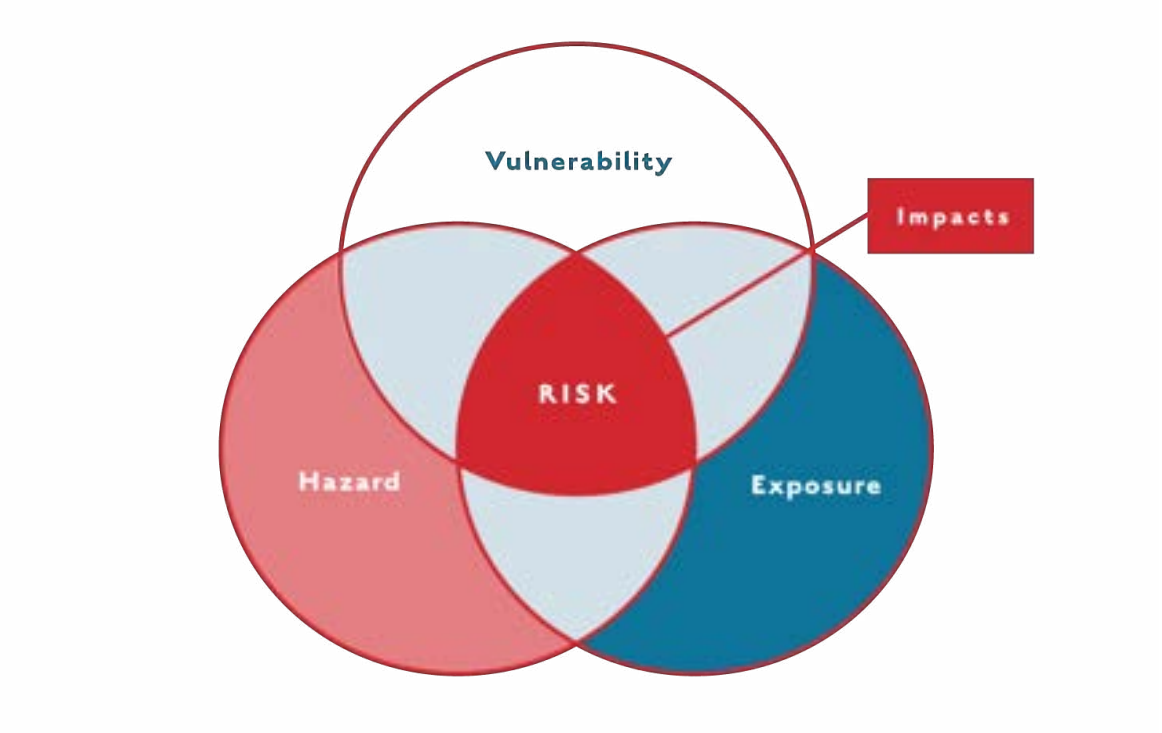


Figure 4 — **Conceptual representation of climate risk (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025)**

a. Hazards

The risk assessment focuses primarily on six climate hazards and their subsequent consequences, as mapped out in the impact chains. These hazards were selected by the Environmental Health team at the Nunavik Department of Public Health following a comprehensive review of *Makivvik's Nunavik Climate Change Adaptation Strategy and Inuit Tapiriit Kanatami's National Inuit Climate Change Strategy*, as well as consultative discussions with various regional partners. The finalized selection of hazards was directly shaped by Nunavik's specific climate realities, the anticipated impacts identified by stakeholders, and the overall availability of data and indicators.

***Table 1* — Definition of Climate Hazards**

TYPE OF EVENT	HAZARDS	DESCRIPTION
Trend-based events	PERMAFROST THAW AND DECLINING ICE COVER	Permafrost is defined as a subsurface layer of soil or rock characterized by a temperature that remains at or below 0°C for at least two consecu-tive years. It lies beneath the active layer, which thaws when the tem-perature rises above 0°C annually. The overall thickness of the perma-frost layer is influenced by local weather conditions, vegetative cover, snow thickness, and specific soil properties (Ouranos, 2026a). Global warming drives permafrost thaw and deepens the active layer, which can induce ground instability, and landslides (Ouranos, 2026a). To quantify the probability of this hazard, the assessment utilizes two primary thresholds : A frost-free season extending to 100 days and the exposure of at least 5% of community buildings situated within desig-nated high-risk zones
	COASTAL EROSION	Coastal erosion occurs when shoreline soils and sediments erode and displace under the dynamic action of water, wind, or ice. There are two primary types of coastal erosion : vertical erosion, characterized by a loss in elevation (such as the deepening of steep relief beds), and horizontal erosion, which constitutes the landward retreat or loss of shoreline depth (Office québécois de la langue française, 2026). Rising sea levels, increased storm frequency and intensity, permafrost degradation, and declining sea ice cover collectively accelerate and exacerbate coastal erosion. To quantify the probability of this hazard, a storm surge threshold between 100 and 110 cm has been identified as being likely to aggravate coastal erosion.
	HEAVY PRECIPITATION	Heavy precipitation can trigger flooding while also altering the flow rates and channels of watercourses. Between 1948 and 2012, mean annual precipitation in Québec increased by 10.5%. Both average pre-cipitation volumes and heavy rainfall episodes are projected to in-crease progressively in the coming years (Demers-Bouffard, 2021). A threshold of 20 mm of liquid precipitation - or its solid equivalent - within a 24-hour period has been identified as a benchmark capable of generating adverse impacts on populations.

TYPE OF EVENT	HAZARDS	DESCRIPTION
Episodic events	**WARMING : PROLONGED WARM PERIOD OR EXTREME HEAT WAVE**	This hazard refers to the rise in baseline temperature that occurs as atmospheric concentrations of greenhouse gases increase. The heat warning thresholds for Nunavik established in 2026 by Environment and Climate Change Canada are : • A daytime maximum of 26°C and a nighttime minimum of 13°C for two consecutive days for Kuujjuaraapik, Umiujaq, Inukjuak, Aupaluk, Tasiujaq, Kuujjuaq, and Kangiqsualujjuaq; • A maximum temperature reaching 22°C for two consecutive days, regardless of the time of day was determined for Puvirnituq, Akulivik, Ivujivik, Salluit, Kangiqsujuaq, Quaqtaq, and Kangirsuk.
	WILDFIRES AND SMOKE	A wildfire is an unplanned fire that consumes natural materials in forested environment, originating from either natural or anthropogenic causes. The smoke generated by wildfires contains fine particulate matter (PM2.5) that is hazardous to human health and capable of traveling long distances downwind (Bustinza et al., 2011). Projections indicate that an increase of drought periods could directly intensify both the frequency and extent of wildfires (Ouranos, 2026c). A growing season threshold of 670 to 700 degree-days would allow boreal forest species to encroach into Nunavik's current tundra ecosystem.
	BLIZZARDS	Blizzards are severe winter storms characterized by sustained high winds accompanied by heavy snowfall or blowing snow. These systems significantly impair visibility and make travel exceptionally hazardous (ECCC, 2026). A blizzard is defined by wind speeds exceeding 40 km/h that reduce visibility to less than 400 metres for a minimum duration of six hours (ECCC, 2026). Climate change could drive an increase in the frequency of severe winter storms and blizzard risk due to elevated atmospheric moisture, which effectively fuels extreme weather events (Rawlins and the Conservative US, 2022). Given the reality in Nunavik, it has been established that a blizzard must persist for three consecutive days before generating measurable impacts on public health, assuming all other conditions remain constant.

b. Communities Profile : Sensitivity, Exposure and Adaptability Data

To ensure a rigorous risk assessment, particular attention is directed toward specific subgroups within the Inuit population who are more susceptible to the adverse effects of climate hazards due to heightened sensitivity, limited adaptability, or elevated exposure levels. These vulnerable subgroups include children, Elders, individuals experiencing food insecurity, low-income households, outdoor workers and first responders, as well as active hunters, fishers, and gatherers. Developing a comprehensive population profile, identifying specific exposure factors, and mapping the health impacts of climate hazards on these subgroups will establish a baseline for determining their vulnerability to climate change.

c. Risk Assessment

To evaluate climate change risks, the likelihood of a hazard occurring is cross-referenced with the severity of its potential consequences within a standardized risk matrix, which defines four distinct risk levels :

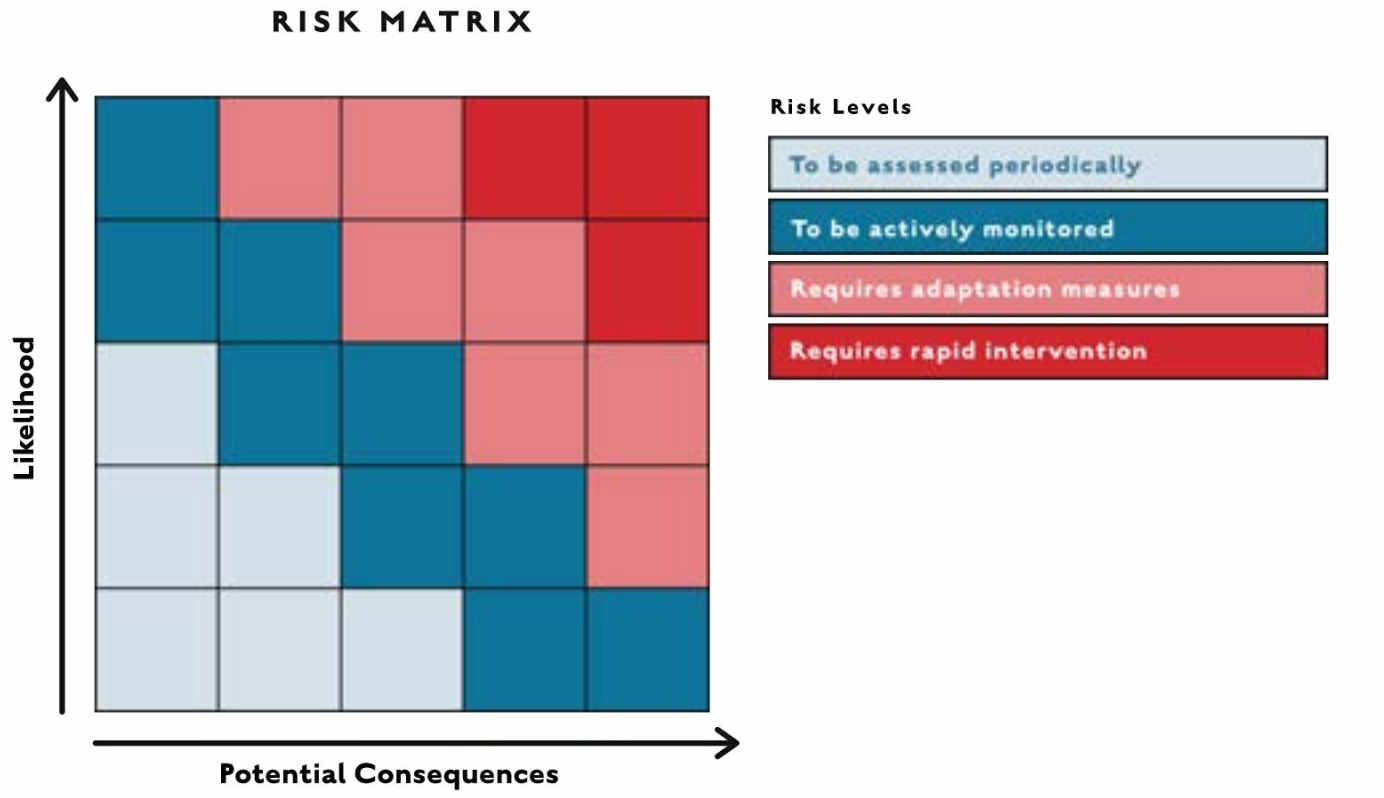


Figure 5 — **Risk matrix model**

i. Establishing the Likelihood Score

The evaluation of hazard likelihood was conducted through a comprehensive literature review of regional risk management reports compiled for Nunavik, paired with detailed climate projection data and an internal peer-review process executed by a dedicated working committee at the Nunavik Regional Board of Health and Social Services (NRBHSS). To calculate the definitive likelihood score, the assessment utilizes an operational scale adapted from the INSPQ methodological framework (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025).

***Table 2* — Likelihood Levels Scale**

LIKELIHOOD LEVEL	VERY UNLIKELY	UNLIKELY	LIKELY	VERY LIKELY	NEARLY CERTAIN
	1	2	3	4	5
Episodic hazards	Will occur rarely, every 20 years	Will occur less frequently, every 5-15 years	May occur frequently, every 2-5 years	Will occur once a year or very frequently	Will occur multiple times a year or recurrently
Trend-based hazards	Will be well below the threshold	Will be below the threshold	Will have reached the threshold	Will slightly exceed the threshold	Will significantly exceed the threshold

ii. Establishing the Consequence Score

The determination of the total consequence score is based on an evaluation of each community's exposure, the sensitivity of Nunavimmiut, and their baseline adaptability. Additionally, this score integrates the specific health consequences associated with each identified climate hazard.

To establish the health consequence score, a comprehensive weighting scale for the various categories of health impacts , complete with detailed examples for each severity tier and consequence type, is provided in Appendix 2. This scale was adapted from the INSPQ methodological framework (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025) to explicitly incorporate the elements raised by regional partners and community members during consultations. The weighting of the different health impact categories and the scores was conducted by an internal working committee of the NRBHSS (NRBHSS-CC) and peer-reviewed by Inuit colleagues.

Table 3 — **Health consequences Scoring Scale (Summary)**

TYPE OF CONSEQUENCE	SCALE TIER				
	NULL / MINIMAL	MINOR	MODERATE	MAJOR	SEVERE
	1	2	3	4	5
Mortality	No death	A few isolated deaths	Minor increase in deaths	Moderate increase in deaths	Moderate to severe excess mortality
Chronic physical disorders (e.g., cardiovascular diseases, respiratory diseases, cancers)	No new cases	Very rare onset of new cases	Rare onset of new cases	Occasional onset of new cases	Frequent onset of new cases
Acute physical disorders (e.g., poisonings, infections, injuries)	No cases or very few cases observed	Minor increase in cases	Moderate increase in cases	Major increase in cases	Severe increase in cases
Psychological disorders (e.g., anxiety, depression, stress, ecoanxiety)	No mental health disorders or rare presence of concerns	Temporary emotional reactions	Short-term symptoms of mental health disorders	Medium-term symptoms of mental health disorders	Long-term psychological disorders
Impacts on traditional knowledge, culture and language	Little to no consequences	Minor changes in social behaviours	Moderate changes in social behaviours and local traditions	Major changes in social behaviours, daily habits and cultural values	Fundamental changes to culture and ways of life; considerable loss of local cultural identity
Impacts on food security and access to the land	Most of the population has stable access to sufficient food	A few individuals experience occa-sional difficulties	Several individuals face occasional food shortages	A large number of individuals experience frequent food shortages	Widespread food insecurity
Social disruptions (e.g., social isolation, loss of feelings of belonging, relocation, violence and criminality, degradation of the living environment, housing issues)	No consequences	Rare consequences on social relations	Social fracture	Frequent division among social groups	Crumbling of the social fabric, leading to serious conflicts
Impacts on public health resources and the healthcare system (indirect effects)	No impact on health resources	Minor increase in the use of healthcare services and mobilization of public health resources for monitoring purposes only	Moderate increase in the use of healthcare services and mobilization of few public health teams	Major increase in the use of healthcare services and frequent public health interventions mobilizing several teams	Overloaded healthcare system and emergency public health interventions mobilizing several teams

To determine the exposure, sensitivity and adaptability scores, the available health survey data for Nunavik were analyzed by the internal working committee. To characterize exposure, land-use planning maps from the CEN were used.

3. Internal and External Collaborators

Several stakeholders collaborated in the assessment of climate risks for Nunavimmiut health and well-being. Within the Nunavik Regional Board of Health and Social Services, a climate change committee (NRBHSS-CC) was formed to support the selected methodology, identify the impacts of climate hazards, and highlight actions undertaken by both communities and the Department of Public Health (DPH) in response to these hazards. An internal working committee within the DPH, made up of members of the NRBHSS-CC committee, participated in weighting the types of consequences, likelihood and overall risk. Several regional partners contributed by identifying risks specific to their organizations and the actions implemented to mitigate them. Stakeholders mapping helped determine the partners' desired level of involvement by identifying their interest in and influence on the climate risk analysis

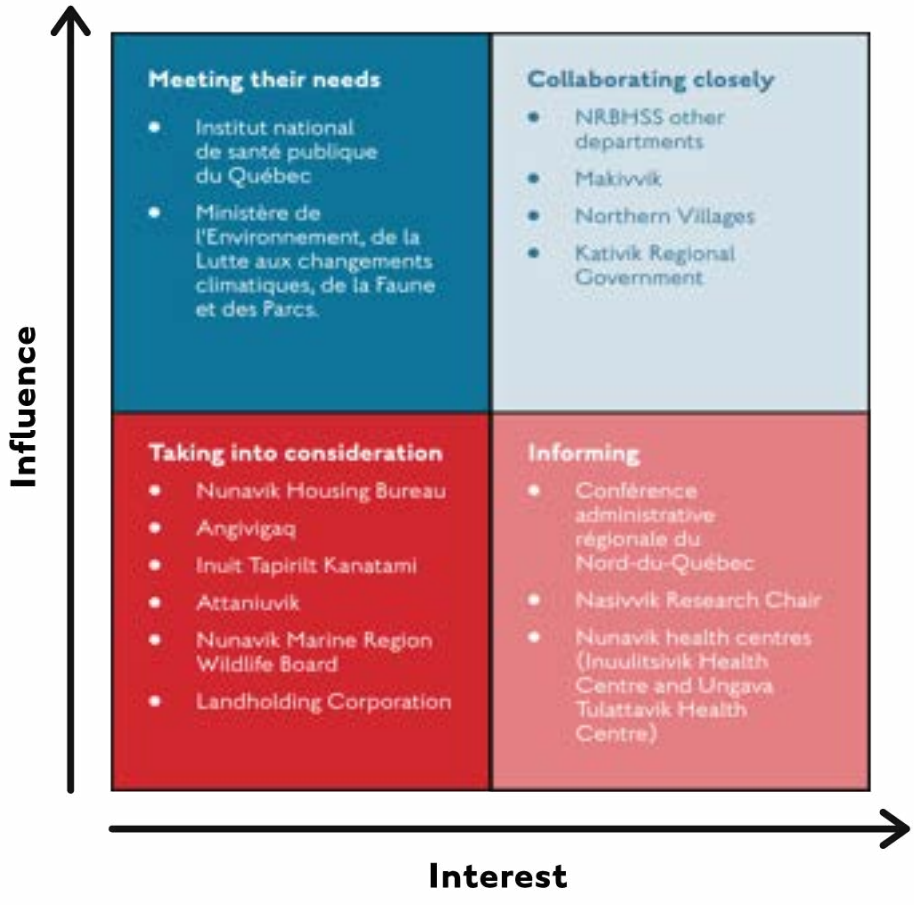


*Figure 6 — **Stakeholders mapping.***

Ultimately, in a spirit of decolonizing this work at the Regional Public Health Department and with the goal of honouring Inuit self-determination in Nunavik, the risk assessment was conducted in constant collaboration with the communities to support their future climate change adaptation projects and better understand health impacts. In 2025, the public health professionals responsible for the climate change portfolio undertook a community tour across Nunavik. They visited 11 of the 14 northern villages, though the visits scheduled for the remaining 3 communities had to be canceled due to unforeseen weather conditions. Due to a lack of available accommodations, a second tour to complete the exercise across all communities was not possible

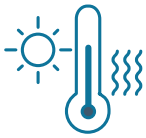
Several meetings took place in the visited villages, during which all community members had the opportunity to share their thoughts on the impacts of climate change on their personal health and that of their community, their perception of risks and hazards, as well as the projected changes to their well-being and habits. To gather the real-world impacts experienced by the population, the public health team met with representatives from the northern villages, senior management or elected officials (mayors and councillors), hunters and fishers' representatives, health centre staff, and community members. Close to 450 people were met with across the 11 communities, including Elders, teachers, and secondary school students. These discussions with the population enriched the sections concerning the health impacts of hazards, as well as the section on risk assessment. In addition to partner visits and private interviews, the public health team hosted open-line radio shows on community radio, set up booths in general stores (Co-ops), and held open-house events in community halls to gather as many testimonies as possible. A summary of the testimonies collected can be found in Appendix 5.













B

CLIMATE PROFILE & HEALTH IMPACTS

Climate change drives well-documented alterations to global environments and meteorological conditions. These shifts are particularly pronounced in polar regions, most notably in Nunavik where the population actively experiences tangible, real-time consequences. The following priority climate hazards have been selected for evaluation across the Nunavik territory : rising baseline temperatures leading to extreme heat waves, permafrost thaw, coastal erosion, wildfires and their smoke, severe blizzards, and increasingly heavy precipitation events. This section presents historical climate data alongside future climate projections. These distinct climate profiles are structured and analyzed (1) at the regional scale for all of Nunavik, and (2) individually at the community level where localized data are available.

1. Climate Profile

a. Methodology

To establish a comprehensive climate profile for Nunavik, historical baseline data and future climate projections will be presented for each selected indicator. Between three and seven specific indicators have been identified for each climate hazard to ensure an accurate assessment. The underlying data are derived from various scientific sources, which are detailed in this section, including :

- Ouranos
- Canada climate data
- Centre for Northern Studies
- Climate Atlas

The selected climate hazards have been classified into two main categories : trend-based events and episodic events.

b. Trend-based hazards

Trend-based hazards, or slow-onset events, are climate hazards that develop progressively over multiple years. Within the context of Nunavik, this category encompasses permafrost thaw, coastal erosion, and shifting heavy precipitation patterns.

i. Permafrost Thaw

Permafrost is defined as the ground layer that remains permanently frozen, maintaining a temperature below 0°C for at least two consecutive years (Allard et al., 2020). Permafrost thaw is directly driven by rising global temperatures, which alter the thickness of the active layer, the surface soil layer above permafrost that thaws annually.



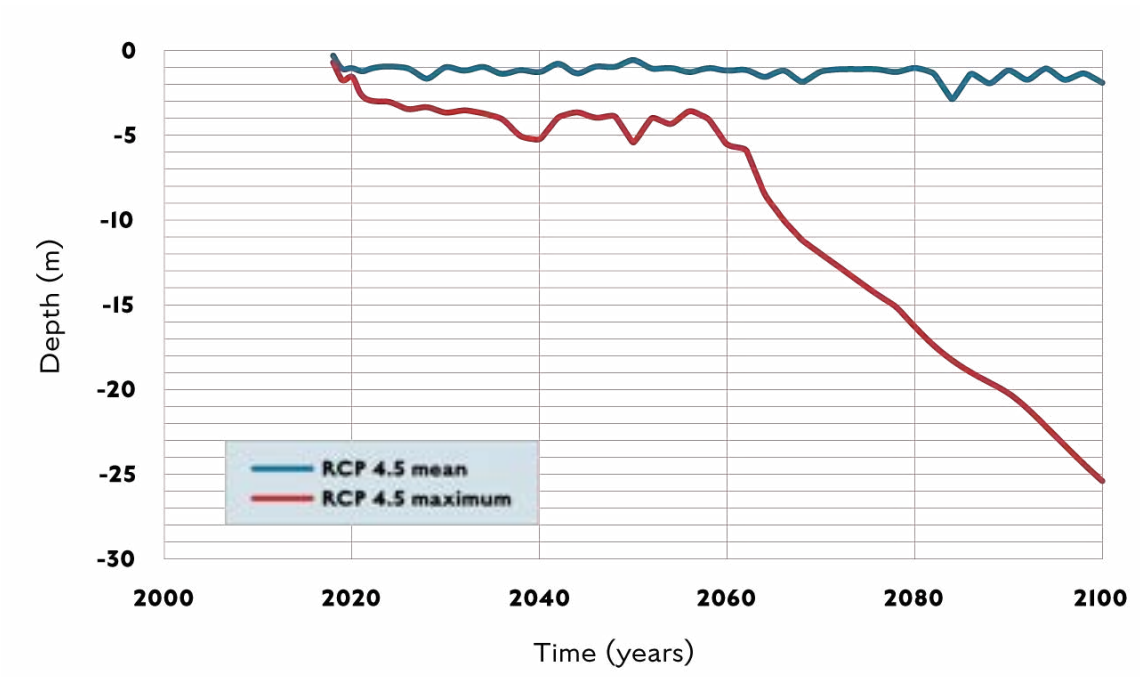


***Figure 7* — Representation of ground layers (Ouranos, 2026b)**

***Figure 8* — Simulation of the maximum thaw depth evolution at borehole site FP2 in Salluit (27-meter borehole within an ice-rich clay deposit), under the mean and maximum RCP 4.5 scenarios (Allard et al., 2020)**

To evaluate the risks associated with permafrost thaw across the communities, six indicators have been identified :

- Mean annual temperatures
- Soil type and construction potential map
- Permafrost content (continuous or not)
- Permafrost thickness
- Final spring frost date
- Initial autumn frost date

MEAN ANNUAL TEMPERATURES

Rising mean annual temperatures will exert a long-term impact on the thickness, depth, and spatial extent of permafrost [Ouranos, 2026a]. Communities where mean annual temperatures transition above 0°C will progressively experience a deepening active layer alongside a corresponding thinning of the underlying permafrost. By 2100, several northern communities are projected to see their mean annual temperature rise above the freezing point, specifically : Kuujjuaraapik, Umiujaq, Inukjuak, Kuujjuaq, and Kangiqsualujjuaq [Ouranos, 2026d]. The following figure illustrates the gradual warming trajectory projected across Nunavik in the coming years.

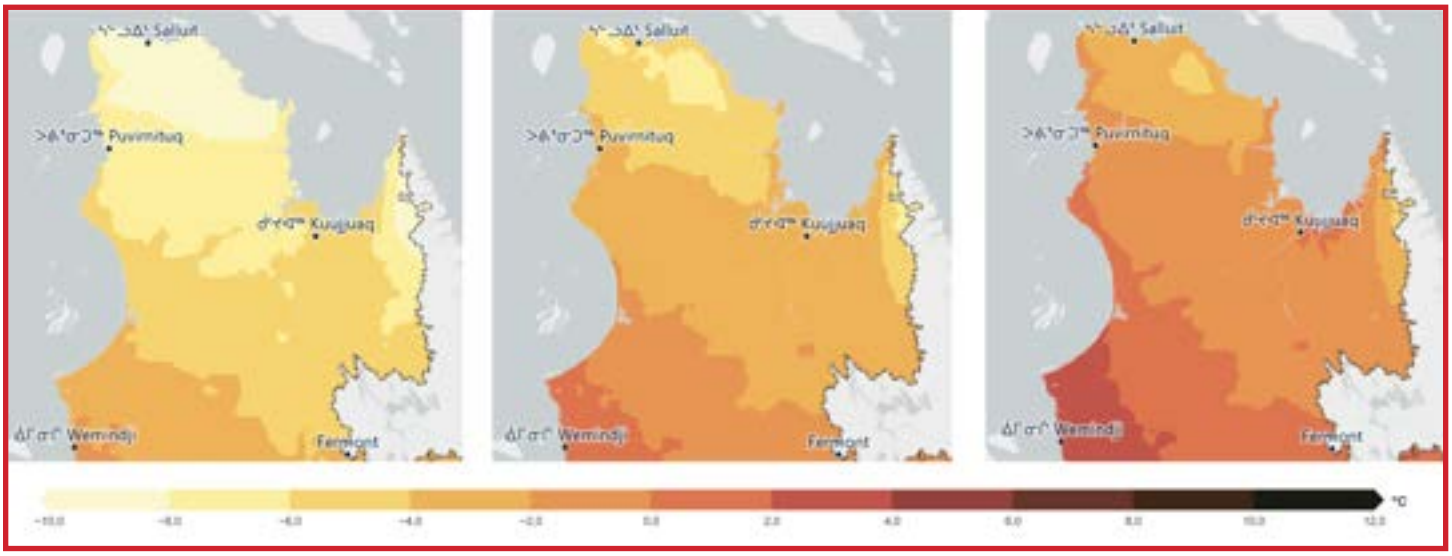


Figure 9 — **Mean annual temperatures under the SSP3-7.0 scenario for the 1991-2020, 2041-2070 and 2071-2100 horizons**

SOIL TYPES AND CONSTRUCTION POTENTIAL MAP (ALLARD ET AL.2020)

The underlying soil profile of northern villages significantly influences permafrost distribution and thickness. Fine-textured marine soils with high ice content (such as clay, silt, and fine sands) are highly susceptible to ground subsidence and landslides during seasonal thaw cycles, contrasting with stable bedrock or granite formations (Allard et al., 2020).

The Centre for Northern Studies (Centre d'études nordiques, CEN) at Université Laval developed construction potential maps for 13 of the 14 communities in Nunavik. Kuujjuaraapik was excluded from the study due to the absence of underlying permafrost. These construction suitability maps integrate surface deposits geology maps with detailed permafrost condition surveys. While surface deposit maps identify areas where superficial sediments directly influence permafrost composition, permafrost condition maps quantify ice content, soil texture, and the thickness of superficial deposits on bedrock. The construction potential map developed by Allard et al. (2020) combines both datasets alongside local terrain topography to identify the safest zones for expanding communities. Furthermore, these maps serve to quantify the exact number of existing buildings currently situated on terrain vulnerable to permafrost thaw degradation and subsequent soil instability.

The communities predominantly situated on fine-textured, ice-rich soils, and facing the highest concentration of problematic terrain, are Inukjuak, Puvirnituq, Akulivik, Ivujivik, Salluit, Tasiujaq, and Kangiqsualujjuaq. Among these, Salluit is recognized as the most highly vulnerable, as its ground ice composition contains saline water, which significantly depresses its freezing point and accelerates destabilization.

***Table 4* — Buildings in high-risk zones, by community**

 COMMUNITIES	NUMBER OF BUILDINGS AT RISK IN 2020	% OF BUILDINGS IN RISK ZONES OUT OF TOTAL BUILDINGS	ADDITIONAL EXPLANATIONS FROM CEN
Umiujaq	**25**	**7.2 %**	Most of the village is built on bedrock while discontinuous permafrost is progressively disappearing around the periphery of the community. The watershed of the river that supplies the community's drinking water is located in a less table zone and should be excluded from new construction.
Inukjuak	**950**	**83.7 %**	Coastal homes are at risk of storm damage, whereas buildings providing essential services, including schools, are built in a zone deemed stable. Although permafrost degra-dation is expected to progress over the coming decades, predicting a precise timeline remains difficult. Several stable land parcels can be found east of the Innuksuak River.
Puvirnituq	**875**	**66.0 %**	A large number of buildings (nearly 600) were constructed on ground with high ice content (between 30% to nearly 100%). While these soils can support construction, caution is required. The primary constraint on the development of Puvirnituq is the presence of vast zones of ice-rich perma-frost. A few roads and residences have already sustained minor damage from initial ground subsidence.
Akulivik	**180**	**47.4 %**	Permafrost degradation is projected to occur around 2050–2060, and new construction projects to the east of the village are situated in a designated hazard zone.
Ivujivik	**180**	**42.8 %**	The centre of the village rests on a layer of ice-rich marine sediments. This developed sector will face long-term impacts and must be monitored closely in the event of accelerated warming. Conversely, the rocky area northwest of the airport is suitable for future construction.
Salluit	**755**	**73.3 %**	The community of Salluit is highly vulnerable due to its sur-rounding topography of steep valleys and cliffs, which se-verely restricts infrastructure development. Additionally, this rugged terrain combined with accelerating permafrost thaw places the community at an elevated risk for landslides.

COMMUNITIES	NUMBER OF BUILDINGS AT RISK IN 2020	% OF BUILDINGS IN RISK ZONES OUT OF TOTAL BUILDINGS	ADDITIONAL EXPLANATIONS FROM CEN
Kangiqsujuaq	**15**	**2.5 %**	The coast and the northeastern sector of the community are highly sensitive to permafrost thaw, and all construction there should be prohibited. Conversely, a large part of the community is situated directly on bedrock or on surficial deposits where the active layer is less than 2 meters deep.
Quaqtaq	**40**	**12.5 %**	The community of Quaqtaq possesses several solid, stable land parcels resilient to permafrost thaw that should be prioritized for future development. Building directly on bedrock is the optimal strategy, particularly given that local gravel reserves are exhausted.
Kangirsuk	**70**	**25.9 %**	In total, 60 of these buildings are located within a risk zone that can still be developed provided that proper precautions are taken. Several land parcels are available for construction directly on bedrock. Known avalanche-prone zones must be closely monitored, and any future construction within them should be prohibited.
Aupaluk	**15**	**6.4 %**	The community of Aupaluk and its airport are built on stable ground with very low ice content.
Tasiujaq	**250**	**92.9 %**	158 of these buildings are located within a zone sensitive to permafrost thaw, which can still be developed by utilizing specific adapted foundation's types. As the active layer deepens, adjustments to slabs and platforms will be required in the future.
Kuujjuaq	**125**	**6.7 %**	The community of Kuujjuaq possesses several plots of land at low risk relative to permafrost thaw that should be prioritized for new construction. Little permafrost remains on the land of the Kuujjuaq community, and what is left is expected to disappear quickly.
Kangiqsualujjuaq	**60**	**10.7 %**	Gravel and sand used for construction are unavailable, as they are located in an avalanche risk zone. There is little land available for new construction. Research should be done to assess the feasibility of building on permafrost east of the valley rather than developing a new sector beyond the airport where the ground is unstable.
Nunavik	N/A	**36.77 %**	Regional average

PERMAFROST DISTRIBUTION

There are three types of permafrost :

1. Continuous permafrost, which occupies 80% of the ground
2. Discontinuous permafrost, which is found in regions where the ground is partially frozen, with a constant frost proportion ranging from 30% to 80%
3. Sporadic permafrost, which occupies less than 30% of the ground

Permafrost content makes it possible to identify zones considered at risk when rising temperatures cause it to thaw. In certain places, the permafrost is so scattered and residual that it is no longer considered a risk to the community (such as in Kuujjuaraapik), whereas in northern Nunavik, it is omnipresent across the communities' territories and therefore poses a greater risk as it declines. The following figure shows the soil permafrost content in Nunavik in 2019.

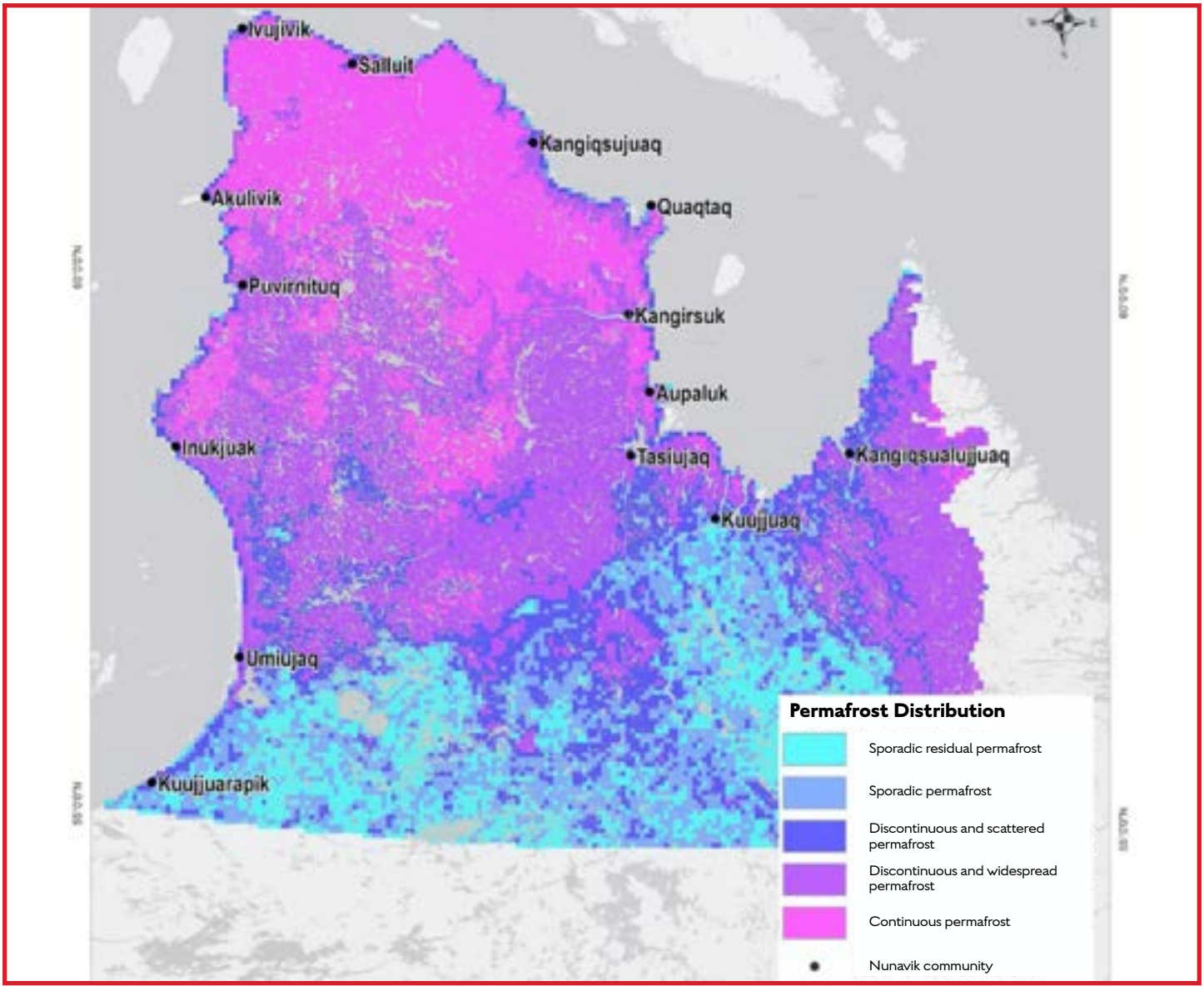


Figure 10 — **Permafrost distribution in Nunavik (Allard et al., 2020)**

PROBABLE PERMAFROST THICKNESS

The thicker the permafrost, the more difficult it will be to implement adequate adaptation measures for communities, such as water supply networks or stilt construction, because the associated costs will be higher and the work will span a longer period. Thicker permafrost will also take more time to thaw completely, and its thawing will lead to long-term impacts on the community. Figure 11 shows permafrost thickness in Nunavik between 2000 and 2016.

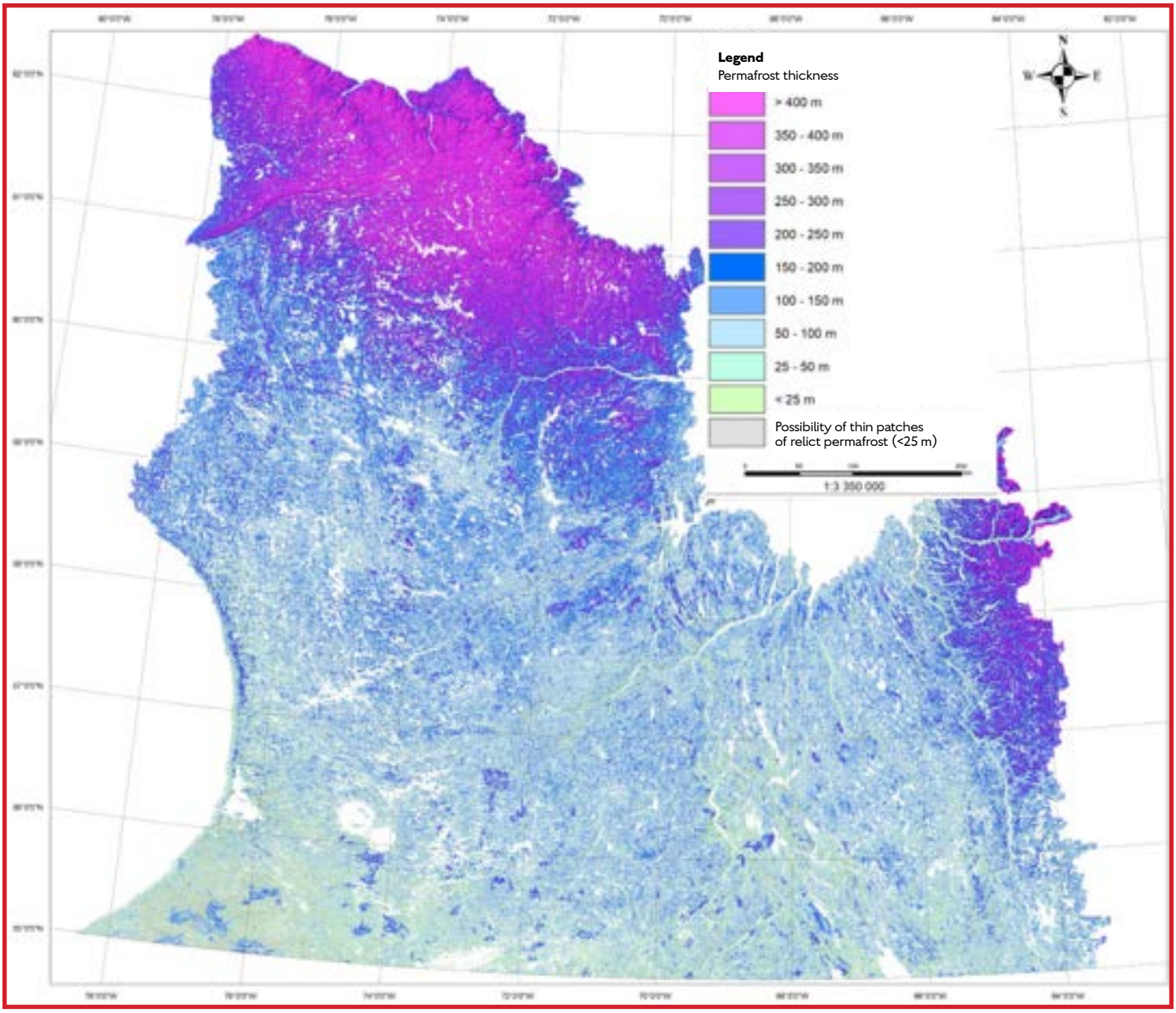


Figure 11 — **Map of probable permafrost thickness calculated from the average temperatures of the upper permafrost layer for the 2000-2016 period (Ouranos, 2026a)**

LAST SPRING FROST AND FIRST FALL FROST

Vegetation and snow covers are two factors that influence the active layer thickness and impact permafrost (Ouranos, 2026a). The date of the last spring frost and the first fall frost provide an overview of the number of days when the minimum temperature will be above 0 °C, thereby determining the plant growing season and the duration of the season when snow will not remain on the ground.

Table 5 —
Projection of the plant growing season in Nunavik communities according to the Climate Atlas of Canada (Climate Atlas, 2019)

 COMMUNITIES	Last frost day		First frost day		Growing season
	HISTORICAL 1976 - 2005	PROJECTION 2051 - 2080	HISTORICAL 1976 - 2005	PROJECTION 2051 - 2080	DIFFERENCE BETWEEN HISTORICAL & PROJECTION (NUMBER OF DAYS)
Kuujjuaraapik	June 20	May 25	October 2	October 28	51
Umiujaq	June 18	May 26	September 28	October 24	48
Inukjuak	June 20	May 28	September 25	October 19	46
Puvirnituq	June 19	May 30	September 21	October 14	43
Akulivik	June 19	May 31	September 19	October 11	41
Ivujivik	June 22	June 3	September 10	October 5	44
Salluit	June 24	June 1	September 9	October 4	48
Kangiqsujuaq	June 21	May 30	September 13	October 8	47
Quaqtaq	June 27	June 3	September 12	October 8	50
Kangirsuk	June 21	May 30	September 16	October 9	45
Aupaluk	June 15	May 27	September 20	October 12	42
Tasiujaq	June 14	May 26	September 19	October 13	43
Kuujjuaq	June 14	May 25	September 17	October 10	43
Kangiqsualujjuaq	June 16	May 27	September 17	October 11	44
Nunavik	June 19	May 28	September 18	October 12	46

SUMMARY

The overall increase in temperature and the lengthening of the frost-free season are factors that predict a decrease, or even a disappearance, of permafrost in several Nunavik communities. Permafrost thaw is already affecting the structure of multiple buildings where essential services are provided to the population, as well as the integrity of drinking water reservoirs. In the absence of predictive modeling, it is difficult to forecast the intensity and extent of the impacts of permafrost thaw, but it is certain that most of the population of Nunavik will be affected by these changes.

ii. Coastal Erosion

The 14 northern villages are all located on the banks of a river or a bay, mostly under tidal influence, and their environment could be altered by coastal flooding and the resulting erosion. The reduction of ocean ice cover, meaning the decline in the extent and thickness of sea ice due to global warming, permafrost thaw, increasing winds and storms, as well as fluctuating ocean levels are all factors that could influence the scale of coastal erosion in Nunavik. Three indicators have been selected to measure this phenomenon :

- Positive and negative storm surges
- Sea level rise
- Freeze-thaw events

POSITIVE AND NEGATIVE STORM SURGES

The phenomena of positive and negative storm surges are defined as extremely low water levels due to tides and storms (negative surges) or extremely high water levels often associated with high tides or storm surges (positive surges). During storms, waves are larger and winds are stronger, causing exceptional variations in tidal levels. Tidal range is the term used to define the amplitude of tides : it is low on the Hudson coast, moderate in the Hudson Strait, and high in Ungava Bay (Hachem & Bleau, 2020). Sites with a lower tidal range, as well as lower-lying areas relative to sea level, will be more vulnerable to storm-induced flooding and coastal inundation, as erosion is often accelerated during water recession. Coastal geology and the underlying soil type will also influence the risk of coastal erosion.

According to the RCP8.5 scenario, the IPCC projects that positive storm surges will decrease, whereas negative storm surges could become more frequent (Hachem & Bleau, 2020). Even if less frequent, positive storm surges can still cause coastal flooding and erosion during water retreat. The following figure identifies the future sensitivity of each Nunavik community to positive storm surges.

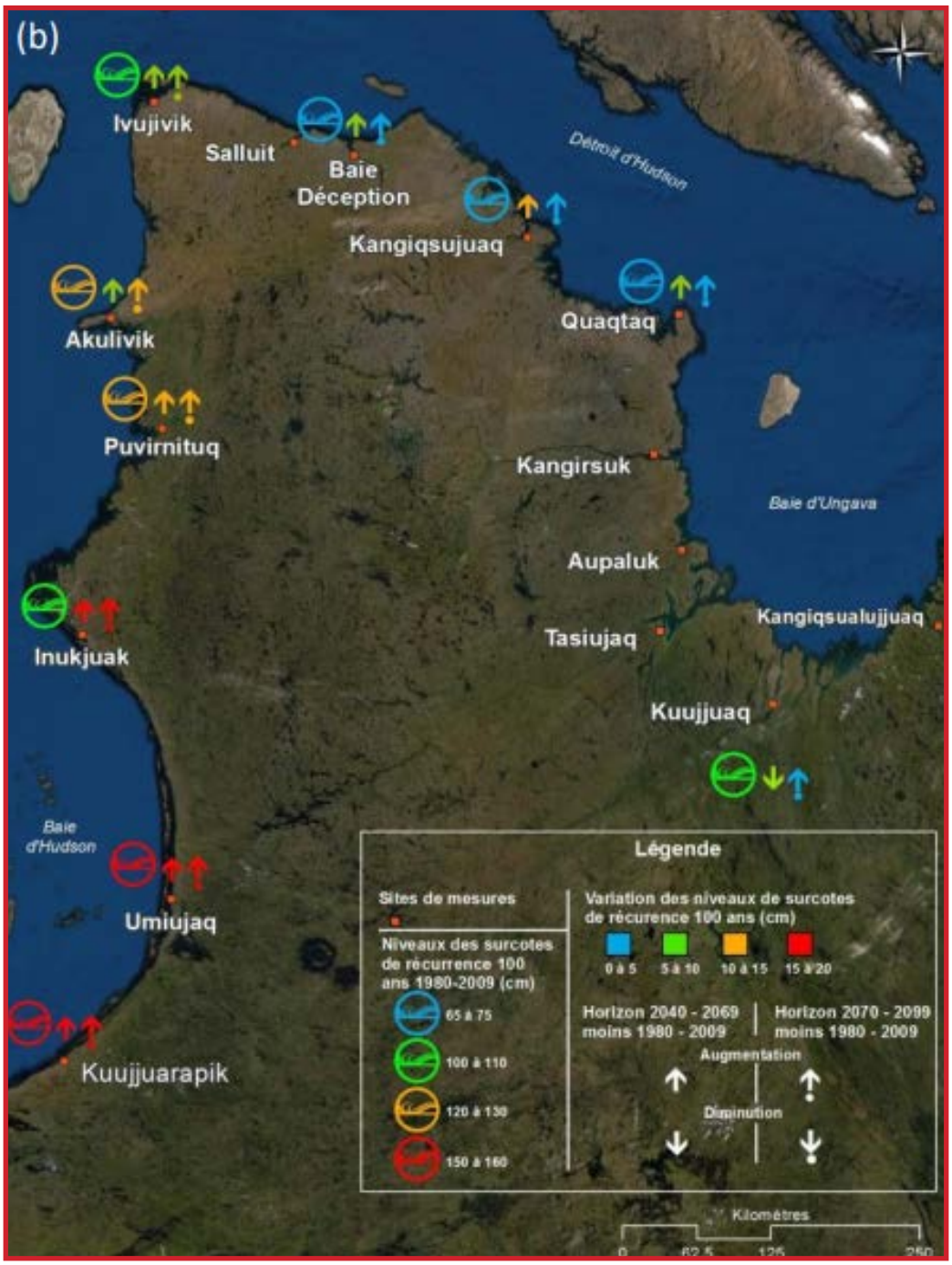


***Figure 12* — Coastal sensitivity to positive storm surges for 2041-2070 and 2071-2100 time horizons in Nunavik (in French only)**

For the Hudson Bay coast, tidal amplitude is expected to increase during storms under the same scenario (Hachem & Bleau, 2020). Negative and positive storm surges would become more frequent and pronounced, with positive storm surges causing flooding and erosion along the coastlines. With a shorter ice season, negative storm surges could become more frequent at the beginning and end of the winter period (IPCC, 2019). In the Hudson Strait and along the Ungava Bay coast, where tides are larger, negative and positive storm surges would be less pronounced, resulting in a lower risk of erosion.

SEA LEVEL CHANGE

Sea level rise is often associated with an increase in coastal erosion (IPCC, 2019). Sea level change is the variation of the ocean level relative to the land (ClimateData.ca, 2026). This variation in water level can be attributed to melting glaciers, increased precipitation, or the thermal expansion of water. Although sea level rise will manifest in Nunavik, ongoing isostatic rebound will simultaneously cause the land to rise by 0.6 to 1.4 centimeters per year, which will counteract sea level rise over the long term (IPCC, 2019). Isostatic rebound is defined as the rise of the land following the retreat of ice from the last glaciation, with Hudson Bay being one of the regions most affected by this phenomenon (Hilaire-Marcel, 1976). The following figure shows mid- and long-term land level changes under the RCP4.5 and RCP8.5 scenarios (ClimateData.ca, 2026).

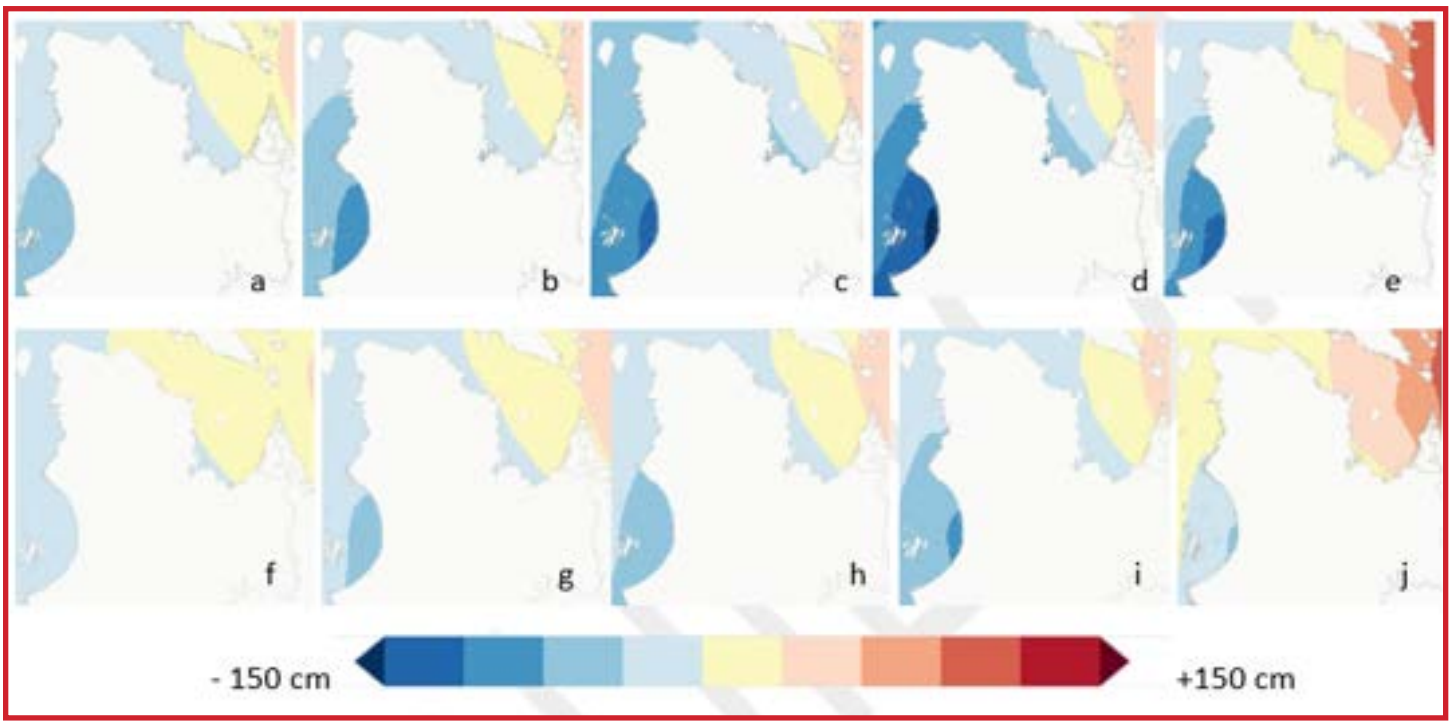


***Figure 13* — Sea level variation according to the RCP4.5 median for the 2040(a), 2060(b), 2080(c), 2100(d) horizons and the 2100 95th percentile (e), as well as for the RCP8.5 median and the 2040(f), 2060(g), 2080(h), 2100(i) horizons and the 2100 95th percentile (j) (ClimateData.ca, 2026)**

According to modeling by Natural Resources Canada, greenhouse gas emissions are directly linked to rising ocean levels. Sea level changes could differ from one region to another depending on the various climate scenarios considered, including in Nunavik, despite isostatic rebound (ClimateData.ca, 2026).

FREEZE-THAW EVENTS

Freeze-thaw events promote landslides and coastal erosion by stimulating soil movement. A freeze-thaw event is observed when, over a 24-hour period, the minimum temperature is below 0°C and the maximum temperature is above 0°C (Ouranos, 2026d).

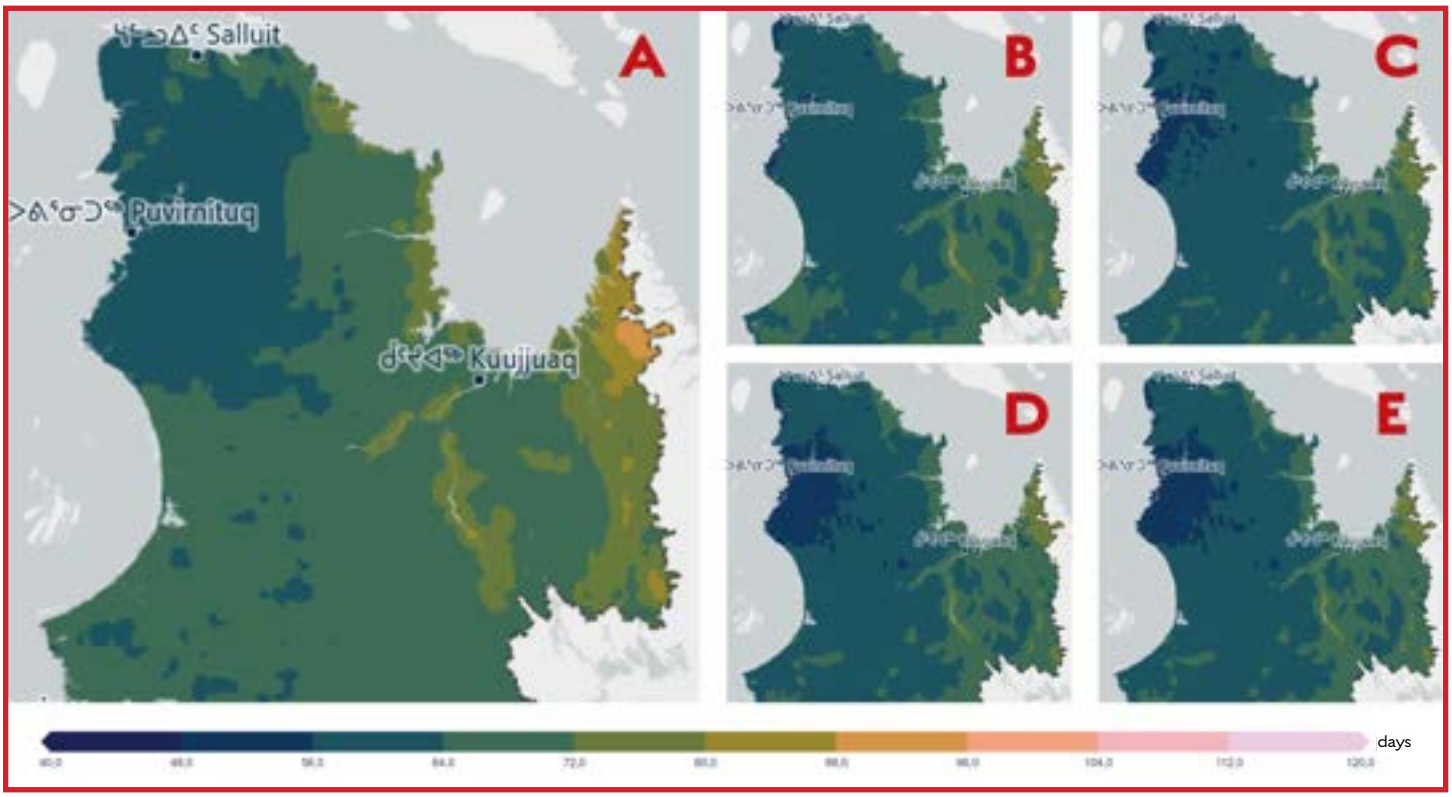


***Figure 14* — Annual freeze-thaw events (in days) according to the SSP2-4.5 and SSP3-7.0 scenarios in 1991-2020 (A), 2041-2070 (B-SSP2-4.5 and D-SSP3-7.0), and 2071-2100 (C-SSP2-4.5 and E-SSP3-7.0)**

Climate projections available on the Ouranos website show that annual freeze-thaw events will decrease in the medium and long term due to global warming. Seasonal profiles indicate that freeze-thaw events will tend to decrease during the summer and fall seasons (except in the Hudson Strait) and increase during the spring.

SUMMARY

The increase in storms and positive and negative storm surge phenomena, the loss of ice cover, and more frequent freeze-thaw episodes in spring will promote coastal erosion near communities. The sand- and clay-rich soils of the southern Hudson Bay region will be more affected than the rocky soils of the Hudson Strait and the Ungava coast.

iii. Heavy Precipitation and Changes in River Flow

Climate change will cause variations in total precipitation, as well as changes in its form (solid or liquid) leading to modifications in watersheds hydrology, the formation of ice jams, or flash floods. Four indicators have been selected to characterize projected precipitation in Nunavik and to assess their impacts on watersheds :

- Total annual precipitation
- Number of days with precipitation > 1mm
- Maximum one-day total precipitation
- Flood data for selected watersheds

To facilitate comparison between the various data sources, the climate scenario used for the precipitation section is SSP2-4.5, as certain data are unavailable for the SSP3-7.0 scenario. However, the total annual projections for the SSP3-7.0 scenario will be added for comparison purposes for the 2071-2100 time horizon.

TOTAL ANNUAL PRECIPITATION

Total annual precipitation represents the sum of rainfall and the water equivalent of snowfall (Ouranos, 2026d). The following table shows that in the medium and long term, precipitation will tend to increase in Nunavik regardless of the climate scenario. This trend will be present across all communities.

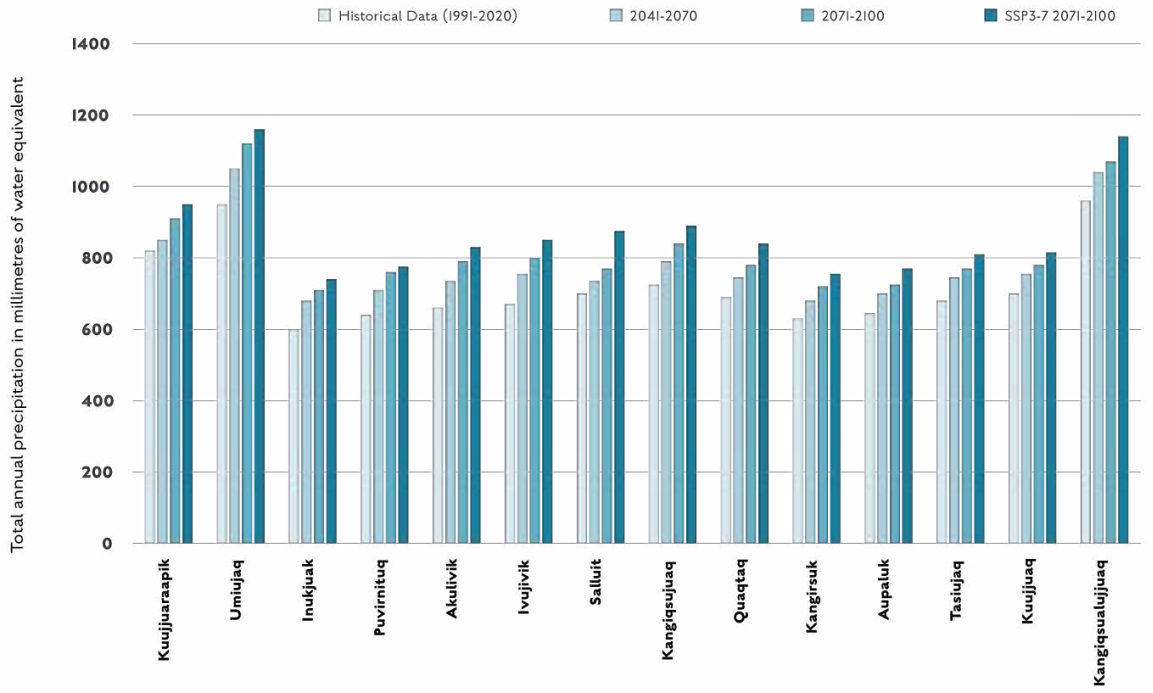


***Figure 15* — Comparison of historical and projected annual precipitation for the 14 Nunavik communities under scenario SSP2-4.5 (Ouranos, 2026d)**

To establish certain precipitation trends, the projections for six communities have been detailed in the following figures. Generally, liquid precipitation will increase during the summer and fall periods. Snowfall will tend to decrease in fall and disappear in summer, while winter rain events will become slightly more frequent.



Figure 16 — **Total precipitation by season for the communities of Kuujjuaraapik, Puvirnituq, Salluit, Kangirsuk, Kuujjuaq, and Kangiqsualujjuaq (Ouranos, 2026d)**

DAYS WITH PRECIPITATION > 1 MM

The indicator "precipitation days with more than 1 millimetre of rain" refers to the number of days when at least 1 mm of rain or its snow equivalent fell (ClimateData.ca, 2026). This indicator is limited to days when measurable precipitation occurred within the region. The following figures show that there will be an increasing number of days with precipitation in Nunavik in the medium term (2041–2070) and long term (2071–2100).

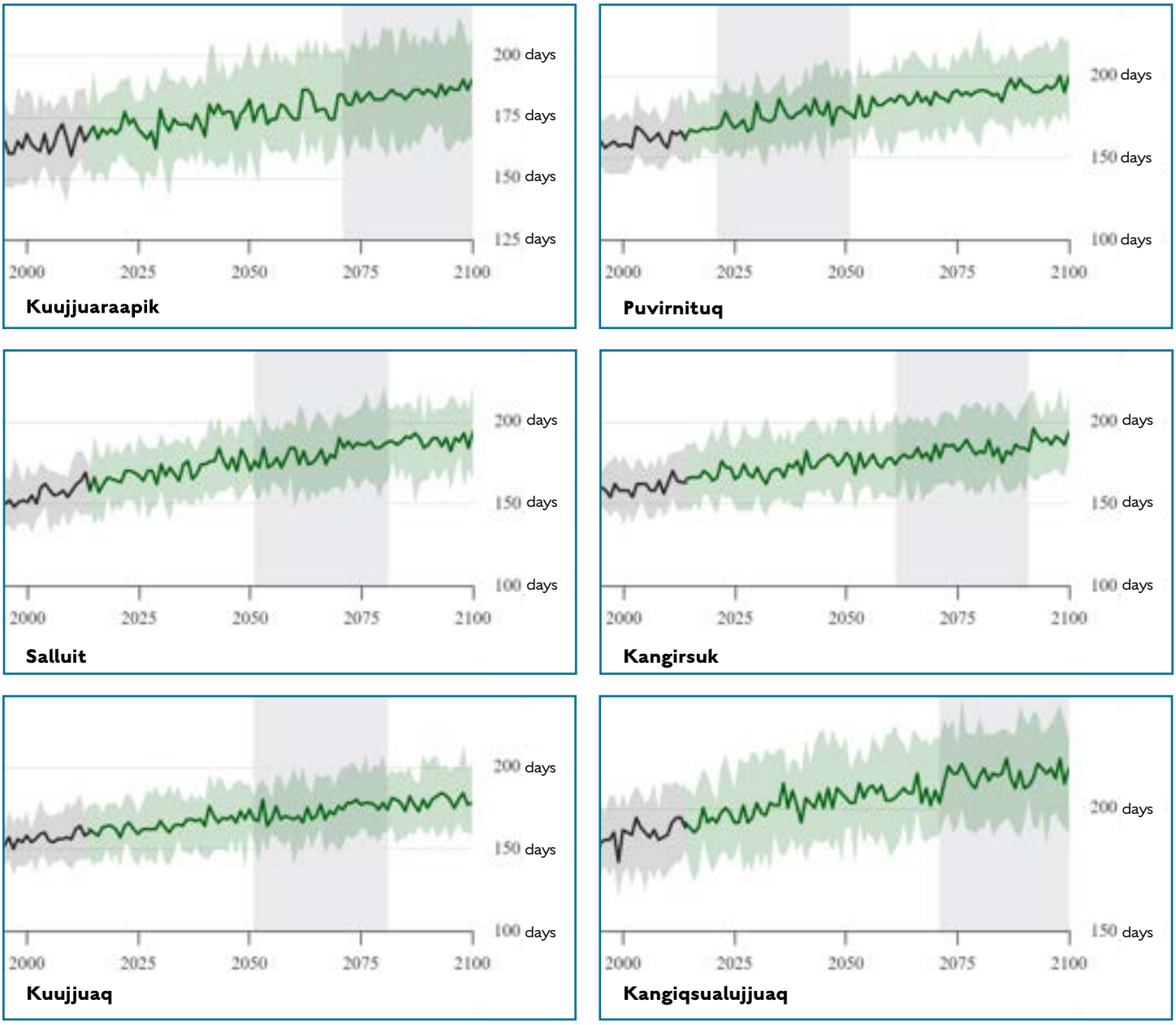


***Figure 17* — Projections of days with rain or snow under scenario SSP2-4.5 for the communities of Kuujjuaraapik, Puvirnituq, Salluit, Kangirsuk, Kuujjuaq, and Kangiqsualujjuaq (ClimateData.ca, 2026)**

MAXIMUM ONE-DAY TOTAL PRECIPITATION

This indicator describes the trend of the wettest day of the year based on the amount of precipitation that fell over a 24-hour period (ClimateData.ca, 2026). This precipitation, in the form of rain or snow, could be linked to a storm or consist of continuous precipitation throughout a day. This type of precipitation can cause flash floods and disrupt services or transportation. Table 6 shows the progression of maximum one-day precipitation under climate scenario SSP2-4.5 across two time horizons. This scenario projects a very slight increase in maximum precipitation by 2071–2100, but the modeling contains a high degree of uncertainty.

***Table 6* — Maximum precipitation in millimetres under scenario SSP2-4.5 for Nunavik across the 1991-2020, 2041-2070, and 2071-2100 time horizons**

COMMUNITIES	HISTORICAL 1991-2020	PROJECTION 2041-2070	PROJECTION 2071-2100
Kuujjuaraapik	33	36	39
Umiujaq	23	25	26
Inukjuak	26	29	31
Puvirnituq	18	21	22
Akulivik	16	18	19
Ivujivik	17	20	20
Salluit	17	19	19
Kangiqsujuaq	15	17	18
Quaqtaq	19	22	23
Kangirsuk	16	18	19
Aupaluk	18	20	20
Tasiujaq	20	22	22
Kuujjuaq	28	32	34
Kangiqsualujjuaq	18	21	21
Nunavik	20.2	22.8	23.8

FLOOD DATA FOR SELECTED WATERSHEDS

To assess the impacts of climate change on different watersheds, Ouranos studied three hydrological indicators : mean discharge, maximum daily discharge and maximum volume over a 14-day period. Ouranos used the RCP4.5 and 8.5 scenarios as well as the 2041-2070 and 2071-2100 time horizons for various watersheds modelling. Figure 18 illustrates the boundaries of the modeled Nunavik watersheds.

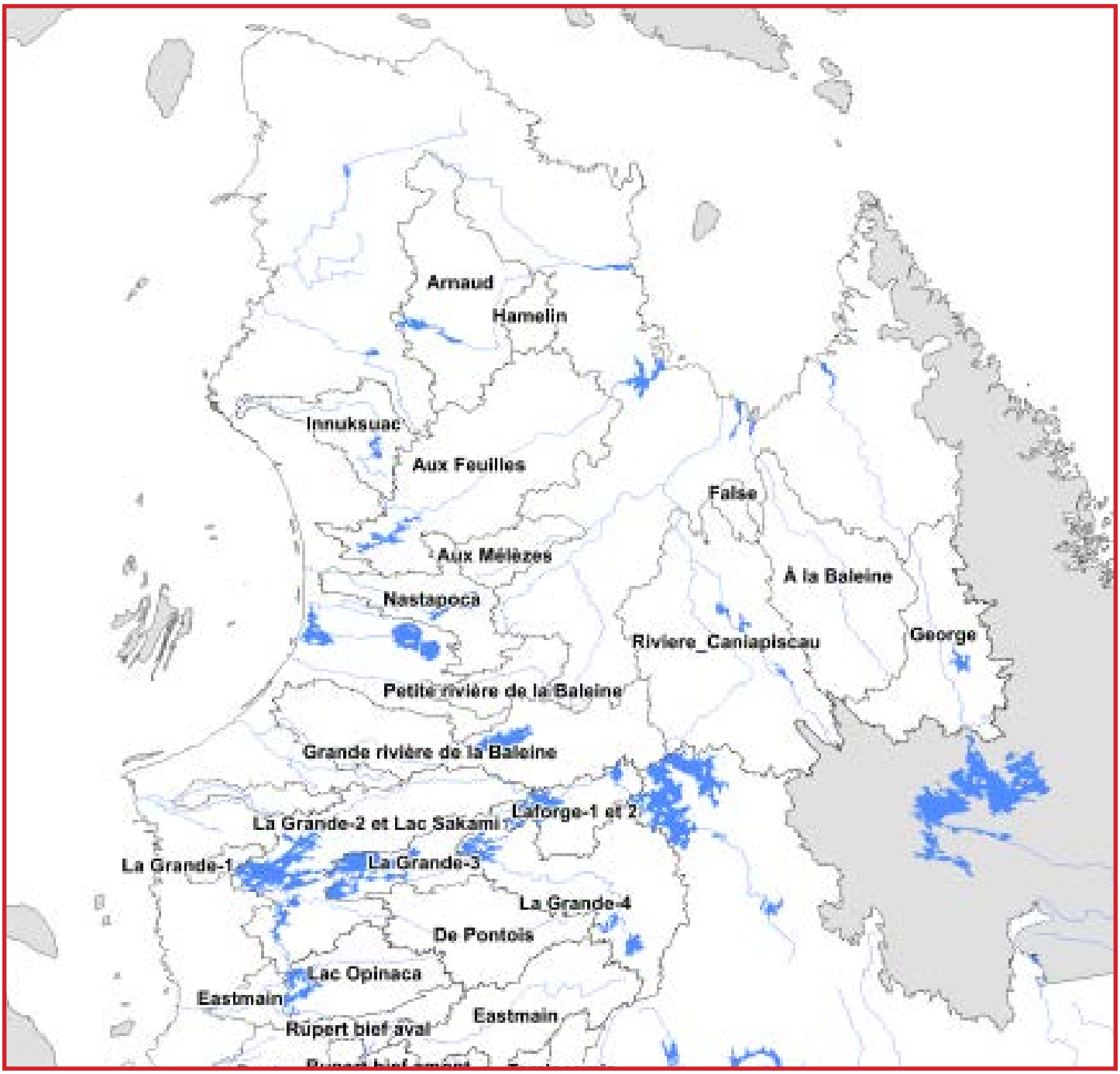


Figure 18 — **Boundaries of Nunavik watersheds**

Ouranos projections forecast an increase in mean annual discharge across all of Nunavik. The simulations show even greater probability and certainty regarding not only mean annual discharge, but also maximum daily discharge during winter and spring periods, which will increase regardless of the scenario and time horizon. Projections for mean summer discharge show a probable decrease, while autumn discharge could increase. The following figures illustrate the projected increases in annual discharge.

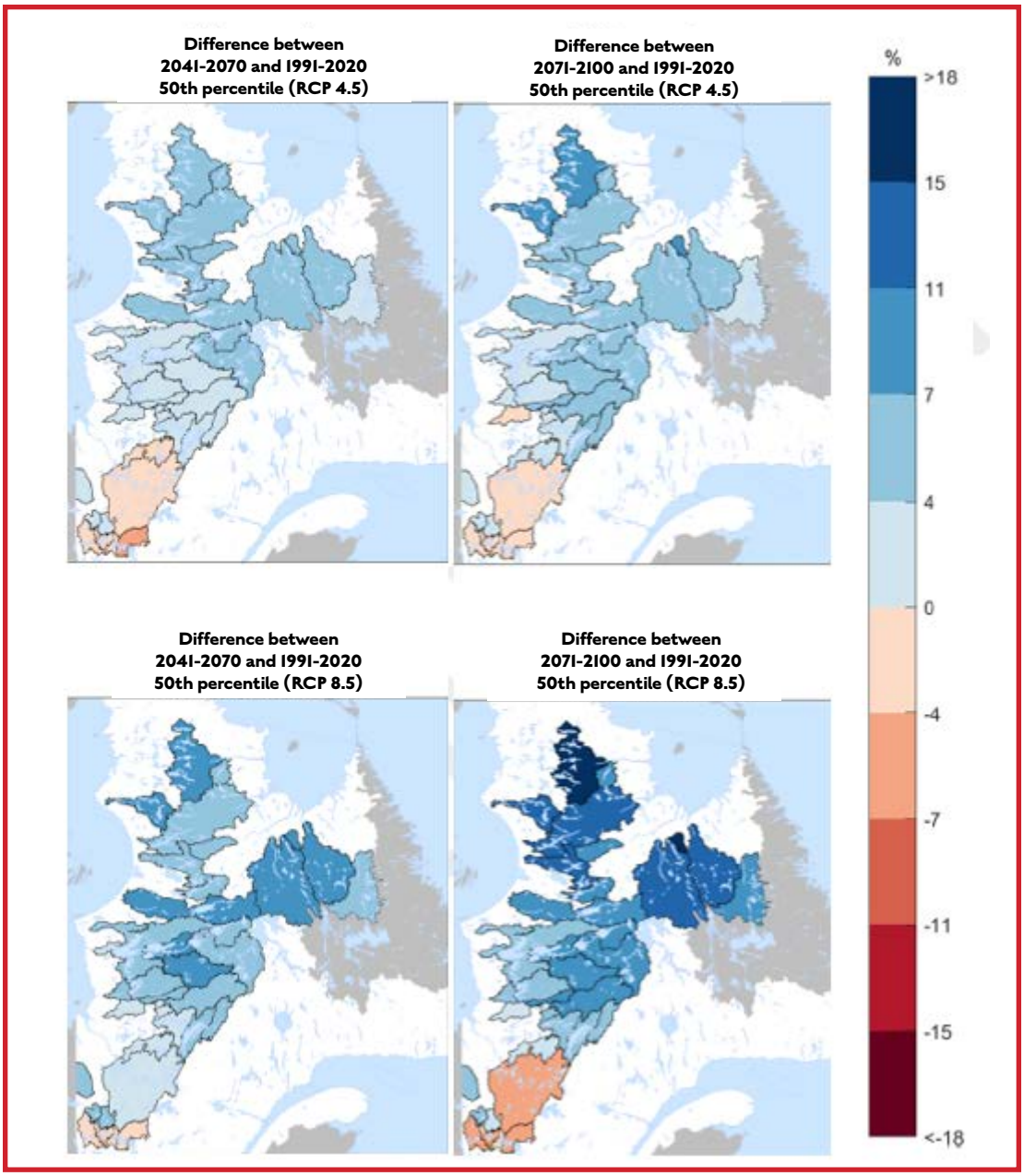


***Figure 19* — Extent of change of the mean annual discharge for the 2041-2070 and 2071-2100 periods (Paquin et al., 2022)**

SUMMARY

Generally, there will be an increasing number of rain and snow events in Nunavik. Climate projections reveal a consistent trend across the entire region, without highlighting specific differences between individual communities or between the two climate scenarios. Furthermore, the increase in average temperature could reduce the amount of snow accumulated in the fall and spring in favor of rain, restricting snowmobile outings across the land during these seasons.

C. Episodic Events

Episodic events, or extreme weather events, are hazards that occur over a short period within the territory; they are limited in duration. Wildfires and their smoke, blizzards, and heat waves are considered episodic events in this portrait of Nunavik.

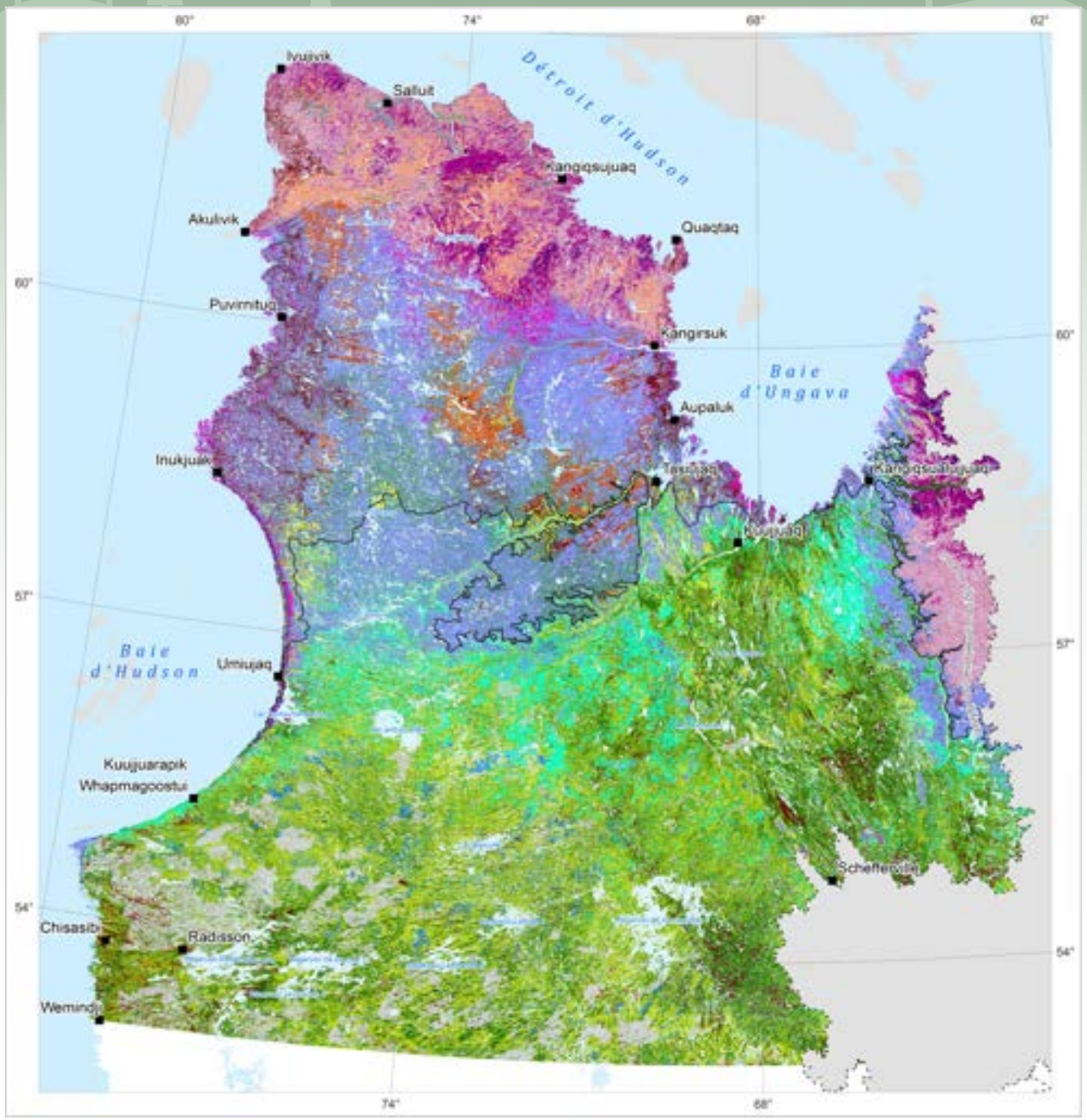
i. Wildfires and Smoke

Several factors influence the ignition of wildfires, including human activity, vegetation type, and weather conditions (Ouranos, 2026c). In the context of climate change, the intensification of wildfires is driven by rising temperatures, changing precipitation patterns, and drought episodes. In the past, wildfires were not a priority for Nunavimmiut, but episodes in recent years have revealed that Nunavik can be affected by them and their consequences. As tree lines expand further north across northwestern Canada (Yukon, Northwest Territories, Alberta, and British Columbia), wildfire smoke more frequently impacts air quality in Nunavik as atmospheric air currents push it eastward. To characterize the risk associated with wildfires and the resulting smoke, four indicators were selected :

- Tree line – forest cover area
- Historical wildfire data for Nunavik
- Projected burned area
- Tree growing season (wildfire season equivalent)

TREE LINE – FOREST COVER AREA

Vegetation type influences not only the number of wildfires that ignite, but also the total area affected by them. For example, the coniferous forests of the James Bay region burn more rapidly and intensely compared to the deciduous forests of southern Québec. As temperatures rise and the soil's active layer thickens, the Arctic is becoming increasingly green and undergoing shrubification (Myers-Smith et al., 2020). The greening of the Arctic is considered one of the most significant large-scale consequences of climate change. A growing body of research and studies suggests that the tree line will shift northward (Myers-Smith et al., 2020), resulting in more frequent wildfire exposure for certain communities in the future. The following figure shows the northern tree line as well as the vegetation types in Québec as mapped in 2018.



With vegetation

Forested

- Coniferous forest with deciduous shrubs
- Coniferous lichen woodland
- Coniferous lichen-moss woodland
- Coniferous moss forest
- Deciduous forest and mixed forest

Non-forested

- Wetland
- Shrubland
- Boreal lichen-heath
- Subarctic lichen-heath
- Erect-shrubs tundra

Non-forested

- Erect-shrub tundra with ostiolate shrubs
- Erect-shrub tundra with 30-70% erect shrubs
- Erect-shrub tundra dominated by the rock substrate
- Prostrate-shrub tundra
- Prostrate-shrub tundra with ostiolate shrubs
- Herb tundra with prostrate shrubs
- Prostrate-shrub tundra dominated by the rock substrate

Non-forested

- Burned area
- Non-vegetated land
- Human infrastructure

Border

- Québec-Newfoundland and Labrador border (this border is not definitive)

Limit

- Treeline

Metadata

Projection : Lambert Conic Projection with two parallels (45° and 60°)

0 50 100 km

Source

Végétation du Nord québécois, MFFP, 2018

Produced by

Ministère des Forêts, de la Faune et des Parcs
Direction des inventaires forestiers

© Gouvernement du Québec, 1er trimestre 2019

Forêts, Faune et Parcs
Québec

Figure 20 — **Northern Québec vegetation (Données Québec, 2026)**

HISTORICAL WILDFIRE DATA FOR NUNAVIK

In recent years, Nunavik has not been spared by the wildfires that have affected the entirety of Québec. Although it is difficult to trace the historical fire data for Nunavik, several newspaper archives mention fires south of Kuujjuaq and Kangiqsualujjuaq (Duhamel, 2022; Lebel, 2023) as well as near Kuujjuaraapik (Nicholls, 2000). SOPFEU has tracked fire statistics since 2014 in the northern zone (i.e. north of the 50th parallel), but wildfire mapping dating back to 1976 is only available for southern Québec (Données Québec, 2026). Table 7 shows the number of fires as well as the number of hectares burned in the northern zone since 2014.

Table 7 — **Number of wildfires recorded in the northern zone between 2014 and 2023 (Données Québec, 2026)**

YEAR	NUMBER OF FIRES	AREA BURNED (HECTARES)
2014	63	306.7
2015	4	980
2016	32	589.2
2017	31	762.2
2018	59	219.2
2019	4	441.4
2020	7	517.9
2021	42	752.5
2022	29	337.9
2023	147	3 245 105
2024	166	177 306
2025	31	5 473

The Canadian government, for its part, has mapped the locations of large wildfires based on data from various federal and provincial agencies. Figure 21 shows that a few large fires have occurred in Nunavik since 1980.

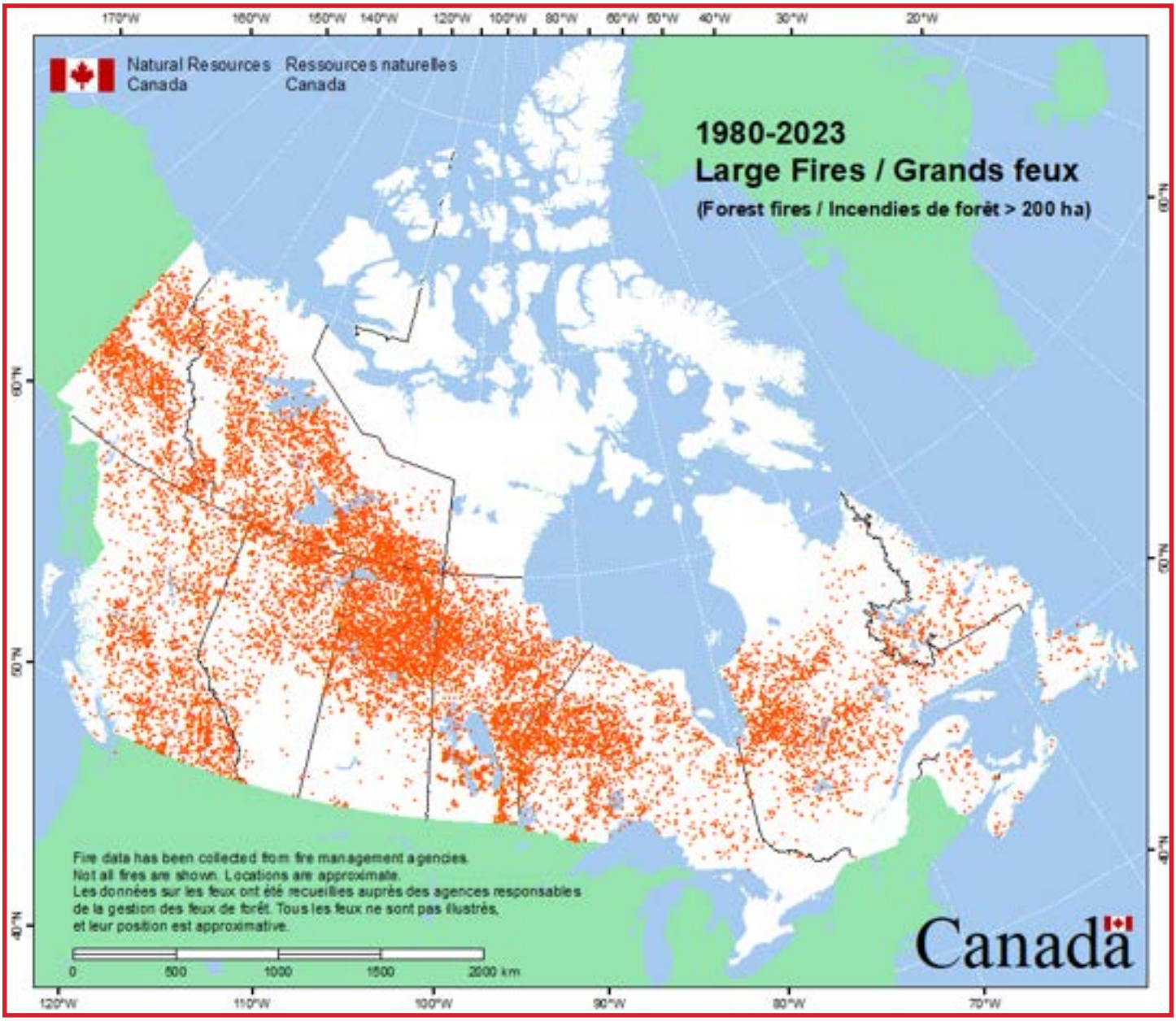


***Figure 21* — Location of large fires between 1980 and 2023**

PROJECTED BURNED AREA

Warmer and drier weather conditions will extend the length of the wildfire season, leading to an increase in both the number of large wildfires and the total area burned. Large fires are defined as those that spread over more than 200 hectares and often have significant socioeconomic and ecological consequences for communities (NRCan-CFS, 2026). The following two figures illustrate that by 2100, the number of large fires will increase, and the area burned by them will be more extensive. The selected scenarios closely align with the RCP 8.5 pathway, and Natural Resources Canada projections show that wildfire risk will rise across the country (NRCan-CFS, 2016). In Nunavik, the risk of a large fire being recorded in the region will be at least twice as high, and the affected area will be much vaster.

Wildfire projections for Canada indicate that Nunavik will be more frequently affected by poor air quality episodes due to smoke from wildfires in Québec and western Canada. Because fine particulate matter travels over several hundred kilometres, the increase in fires across Canada will impact the health of the Nunavik population, as well as its flora and fauna, even in the absence of nearby fires (Ouranos, 2026c).

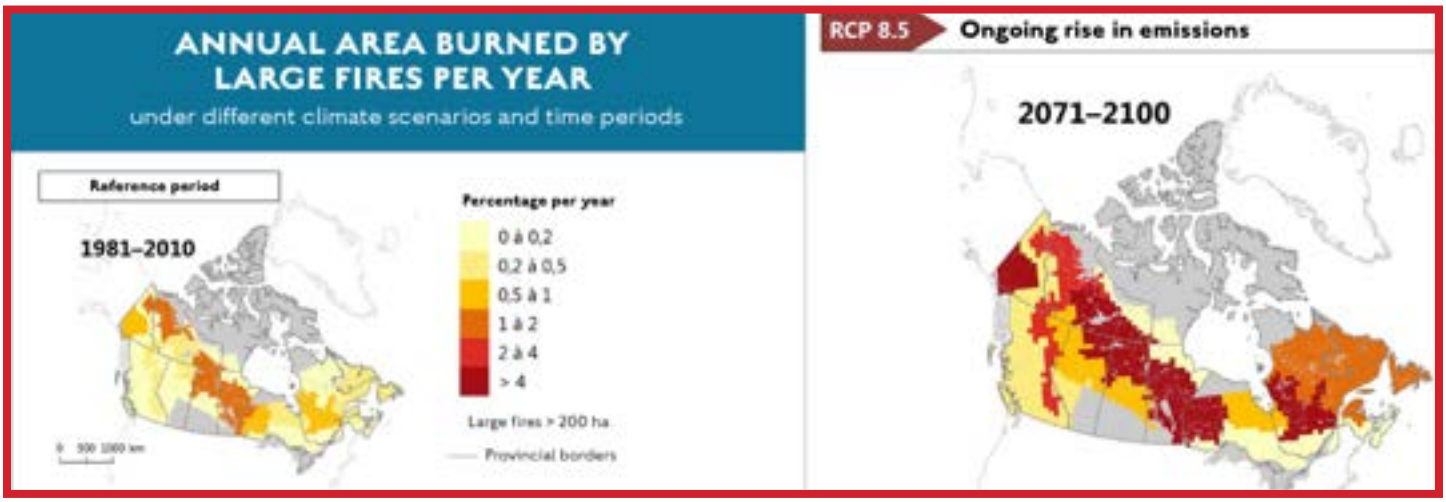


Figure 22 —
Historical data and projections under scenario RCP8.5 of the annual area burned by large wildfires in Canada (NRCan-CFS, 2016)

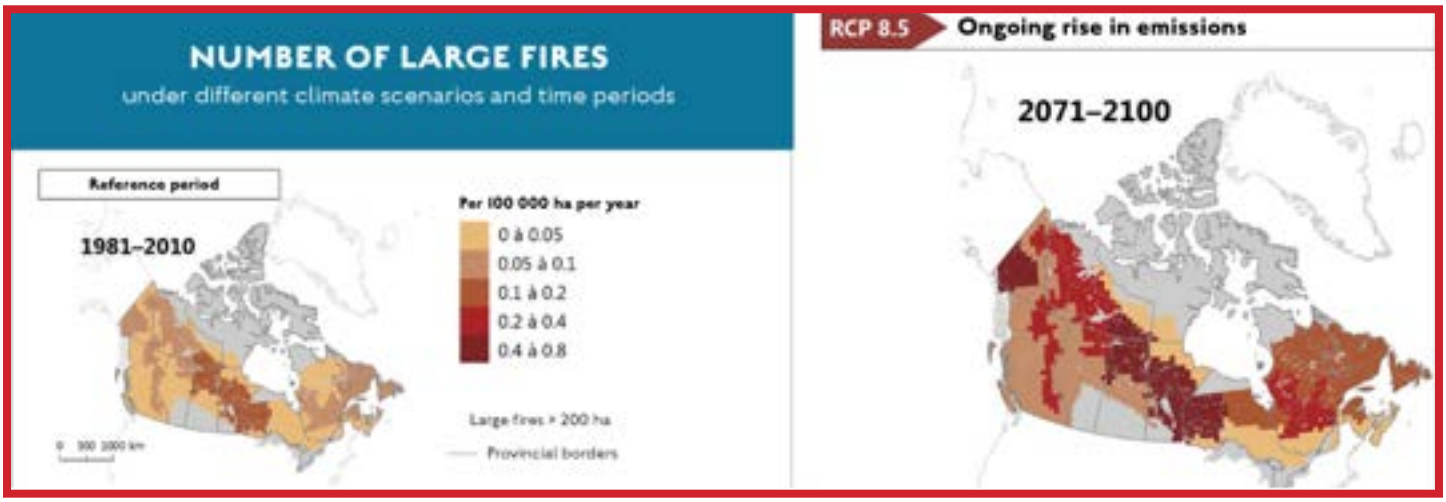


Figure 23 — **Historical data and projections under scenario RCP 8.5 of the number of large wildfires (over 200 hectares) in Canada (NRCan-CFS, 2016)**

TREE GROWING SEASON (WILDFIRE SEASON)

The wildfire season will become increasingly longer due to early spring thaw and late fall freeze. In Nunavik, this will mean 40 additional frost-free days in 2051–2080 compared to 1976–2005 (see the section on permafrost thaw). Rising temperatures will also drive greater activity during the wildfire season. According to Ouranos, the number of days conducive to fires could increase by 26% to 200% by the end of the century (Ouranos, 2026c).

The length of the fire season is the difference between the start and end dates of the season. The start date is determined when the daily temperature reaches 6°C for three consecutive days, and the end date when the temperature fails to reach 5°C for seven consecutive days (NRCan-CFS, 2026), with 5°C being the general temperature required for plant growth. Figure 24 shows the projected changes in the length of the wildfire season.

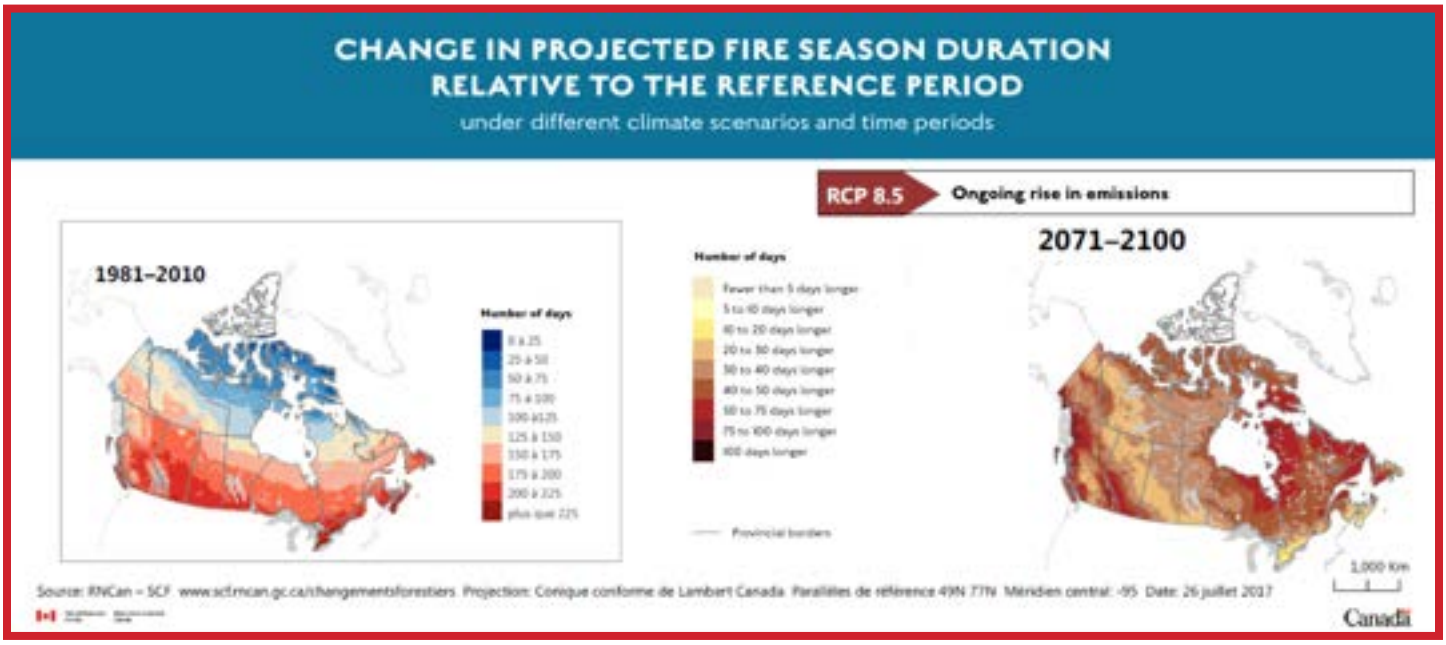


***Figure 24* — Change in the length of wildfire season under scenario RCP8.5 (NRCan-CFS, 2017)**

According to the RCP 8.5 scenario, the wildfire season would generally be 75 to 100 days longer in Nunavik by 2071–2100. To determine the projected number of days where temperatures will be conducive to plant growth, and thus to the creation of wildfire fuel, the number of growing degree-days with a base of 5°C will be used as an indicator for the communities. For example, between 670 and 700 growing degree-days (GDD) above 5°C are required for white spruce germination to be possible, noting that spruce is one of the species found in Québec's boreal taiga that is frequently affected with wildfires (Ricard & Bégin, 1999). The following table presents the projected GDD in the 14 Inuit communities for the 2041–2070 and 2071–2100 horizons under the two selected scenarios.

Table 8 — **Number of growing degree-days above 5°C in Nunavik**

COMMUNITIES		SSP2-4.5 SCENARIO		SSP3-7.0 SCENARIO	
	HISTORICAL DATA 1991-2020	PROJECTION 2041-2070	PROJECTION 2071-2100	PROJECTION 2041-2070	PROJECTION 2071-2100
Kuujjuaraapik	690	948	1 080	1 020	1 293
Umiujaq	533	765	873	804	1 041
Inukjuak	496	685	792	743	1 007
Puvirnituq	437	609	690	653	840
Akulivik	336	494	555	520	703
Ivujivik	316	457	525	475	655
Salluit	265	378	450	403	559
Kangiqsujuaq	255	387	418	393	537
Quaqtaq	190	317	384	333	501
Kangirsuk	366	527	587	541	723
Aupaluk	385	553	615	569	759
Tasiujaq	443	624	687	644	825
Kuujjuaq	527	715	798	744	943
Kangiqsualujjuaq	379	524	594	573	718
Nunavik	401.3	570.2	646.3	601.1	793.1

For comparison purposes, Fort Rupert in southern James Bay had 1,164 growing degree-days between 1976 and 2005, while the Lake Péribonka area, in the Saguenay–Lac-Saint-Jean region, had 1,016.

SUMMARY

Unfortunately, there is little historical data on wildfires in Nunavik and no projections available for this specific region, which is why maps covering the entirety of Canada were used. Although it remains difficult to predict the probability and intensity of wildfires within a territory like Nunavik in the coming decades, it is certain that communities will be increasingly affected by the resulting smoke. Wildfires will become more frequent across the country according to Natural Resources Canada, and their consequences will be felt across the entire Nunavik region.

ii. Blizzards

Blizzards are weather phenomena characterized by strong winds of at least 40 km/h, accompanied by blowing snow that limits visibility to 400 metres or less, with or without accompanying snow (ECCC, 2026). As northern phenomena, they have always influenced the social, cultural, and economic activities of Nunavimmiut. To establish the probability of future blizzard occurrences, three indicators were selected :

- Mean winter temperatures
- Solid winter precipitation
- Wind

MEAN WINTER TEMPERATURES

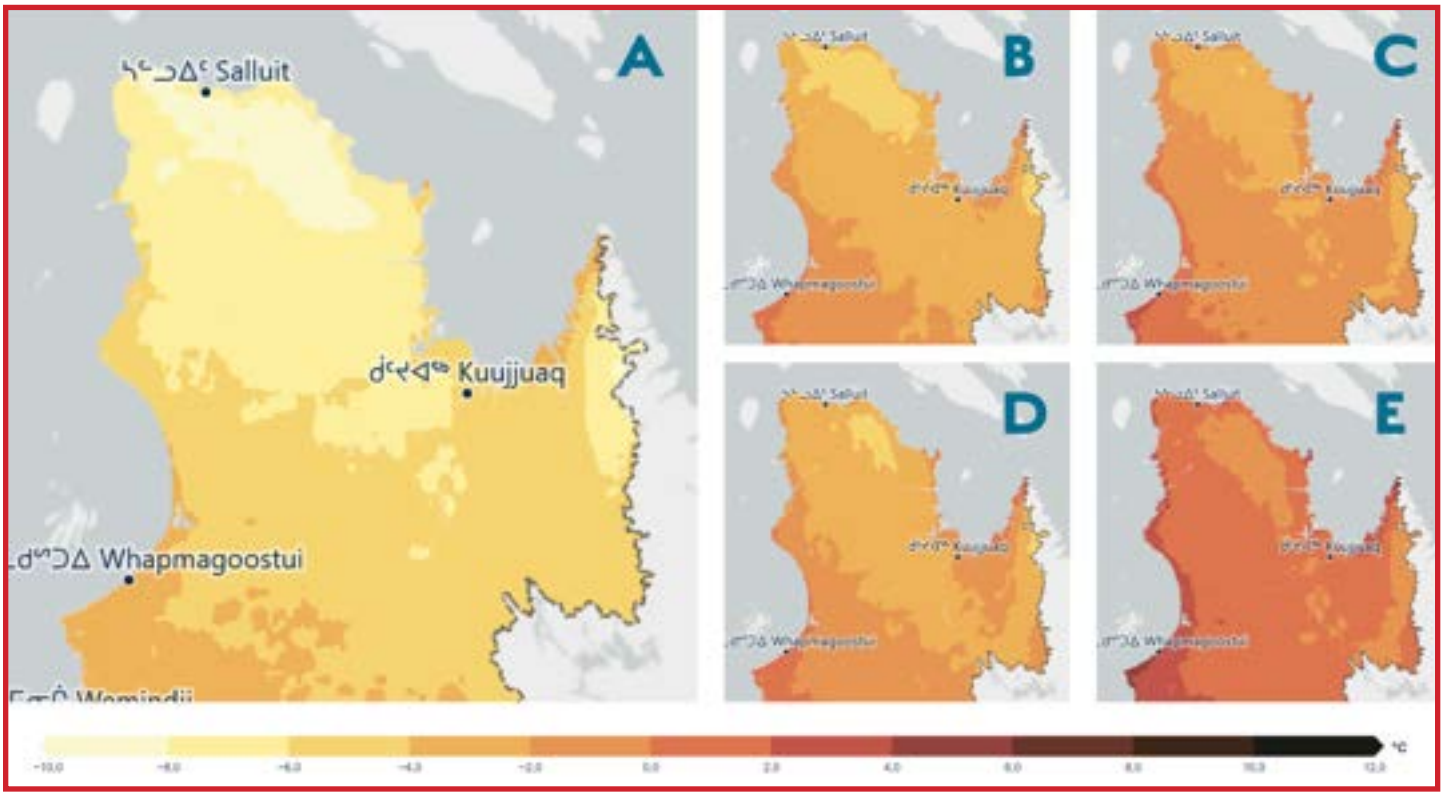


Figure 25 — **Mean winter temperatures based on historical data from 1991-2020 (A), the 2041-2070 horizon under scenario SSP2-4.5 (B), the 2071-2100 horizon under scenario SSP2-4.5 (C), the 2041-2070 horizon under scenario SSP3-7.0 (D), and the 2071-2100 horizon under scenario SSP3-7.0 (E) (Ouranos 2026d)**

As illustrated in the figure, depending on the climate scenario, the mean winter temperature will increase by 5 to 10°C in Nunavik by 2071–2100, while remaining below the freezing point.

SOLID WINTER PRECIPITATION

Blizzards can, by definition, be accompanied or not by snowfall, which increases the likelihood of reduced visibility on days with strong winds.

The following figure shows the projection of total solid winter precipitation across the 2041–2070 and 2071–2100 time horizons, and under the SSP2-4.5 and SSP3-7.0 climate scenarios. It shows that solid winter precipitation will tend to increase over the years, and that the increase in precipitation will be greater on the Hudson Bay coast than on the Ungava Bay coast.

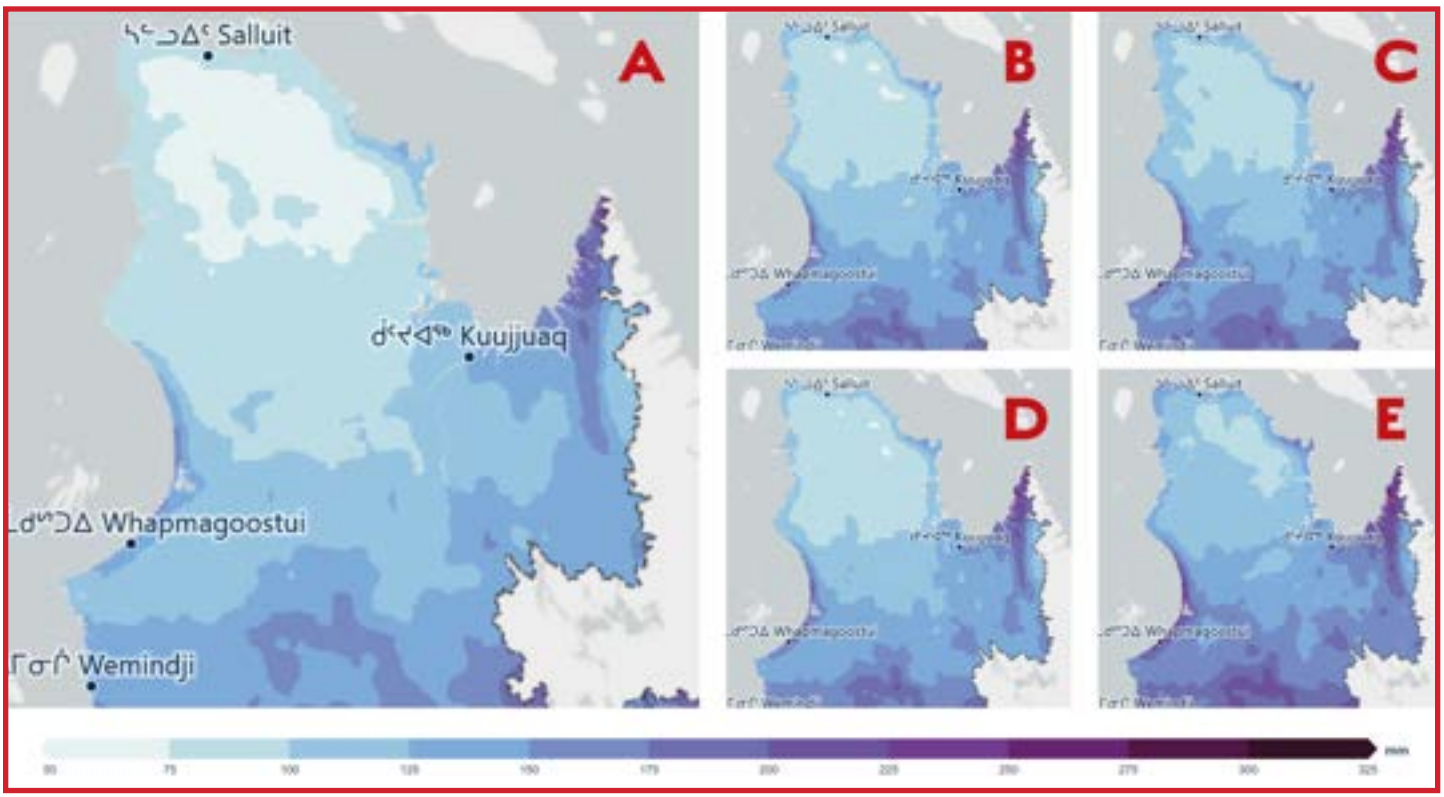


***Figure 26* — Total solid winter precipitation based on historical data from 1991–2020 (A), the 2041–2070 horizon under scenario SSP2-4.5 (B), the 2071–2100 horizon under scenario SSP2-4.5 (C), the 2041–2070 horizon under scenario SSP3-7.0 (D), and the 2071–2100 horizon under scenario SSP3-7.0 (E) (Ouranos, 2026d)**

WIND

Blizzards are characterized by strong winds exceeding 40 km/h. Nearly one in two Canadians reported that their daily routine was disrupted by a blizzard, winter storm, or ice storm in the past year (Statistics Canada, 2016).

Blizzards occur when a warm air system from the south collides with a cold air front coming from the north. These systems generally move from west to east and can last for up to a week (Maybank, 2015). Climate change could increase wind shear (the meeting of warm and cold air masses) at polar

latitudes, thereby encouraging the formation of storms and blizzards (ClimateData.ca, 2026). Furthermore, some models tend to show that jet stream winds will increase by 2% for every degree Celsius rise in mean temperature (UCAR, 2023).

Unfortunately, there is no wind modeling linked to climate scenarios, but studies tend to predict an increase in severe storms, including blizzards, worldwide. The wind roses for Nunavik communities, illustrated in Figure 27, provide an understanding of the region's wind patterns. Communities experiencing winds over 38 km/h will be more susceptible to blizzards.

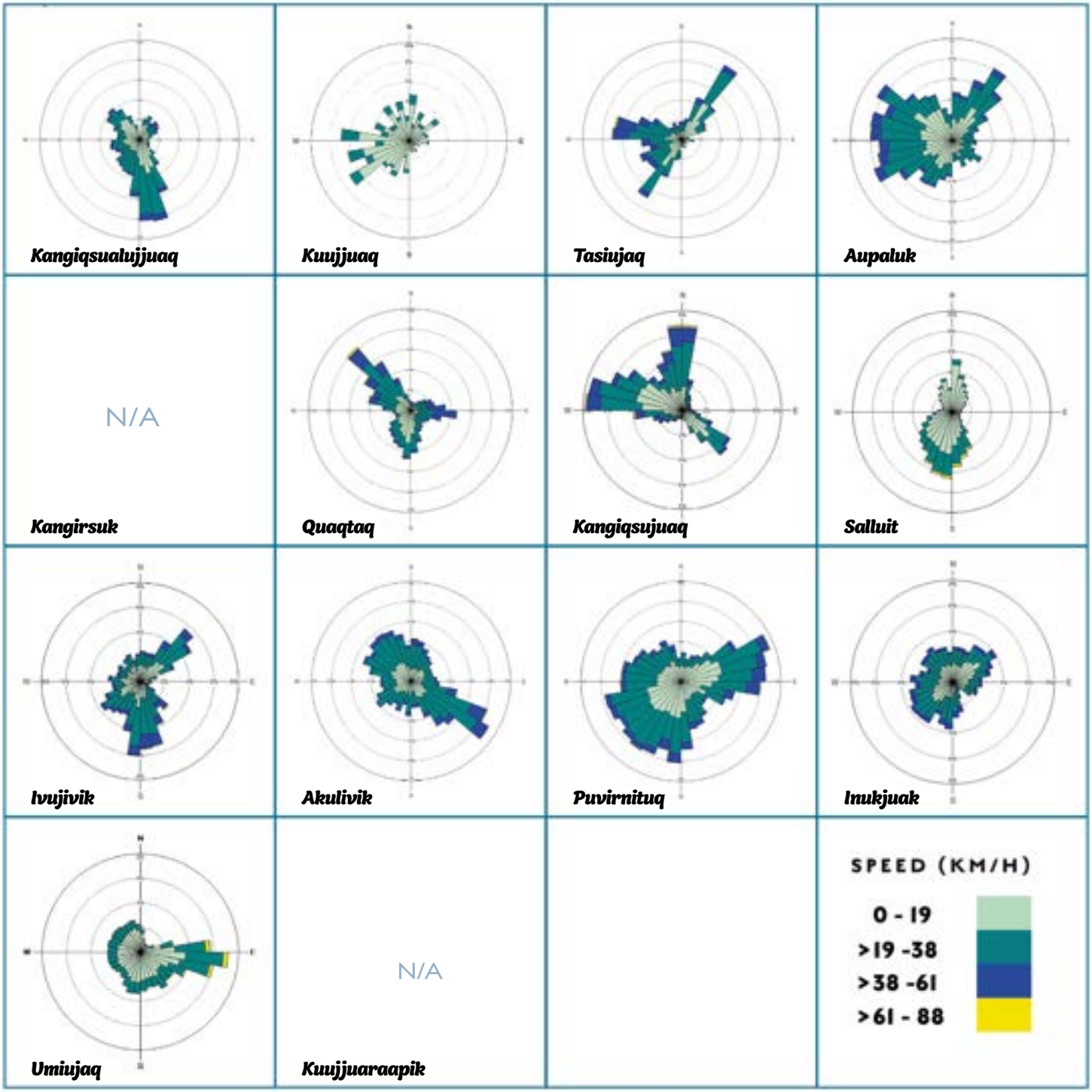


Figure 27 — **Mean wind speed and direction according to the Beaufort scale for the 1993–2015 period at Environment Canada stations in Kangiqsualujjuaq (A), Kuujjuaq (B), Tasiujaq (C), Aupaluk (D), Kangirsuk (E), Quaqtaq (F), Kangiqsujuaq (G), Salluit (H), Ivujivik (I), Akulivik (J), Puvirnituq (K), Inukjuak (L), Umiujaq (M), and Kuujjuaraapik (N) (Allard et al., 2020)**

SUMMARY

Without projections on wind evolution, it remains difficult to predict how blizzard events will manifest in the future, or which communities will suffer the greatest impacts. However, as the winter period shrinks, blizzards will be increasingly concentrated during the months when wind shear is most frequent and intense, namely the winter season, as well as the months preceding and following it.

iii. Temperature increase : Heat Waves

Climate change is driving Arctic amplification, characterized by warming at a rate significantly higher than the global average. Mean warming in Nunavik is an inevitable long-term trend; only the magnitude of this warming remains to be defined.

In addition to the rise in mean temperature, the number of days meeting extreme heat criteria will also increase. To compile a comprehensive portrait of temperature warming in Nunavik and to determine whether Nunavimmiut will be exposed to a greater number of high-temperature days, three indicators were selected :

- Mean annual temperature
- Summer and winter mean temperatures
- Number of days with a maximum temperature > 25°C

The number of days above 25°C will establish an average baseline to predict the number of days Nunavik will be considered to be experiencing a heat wave. Unfortunately, Ouranos and ClimateData.ca use temperatures above 30°C as indicators of extreme heat, which is not adapted to the reality of Nunavik. The extreme heat criteria determined in 2026 by Environment and Climate Change Canada for Nunavik communities are :

- 26°C during the day and 13°C at night for two consecutive days for the following villages : Kuujjuaraapik, Umiujaq, Inukjuak, Aupaluk, Tasiujaq, Kuujjuaq, and Kangiqsualujjuaq
- A maximum temperature of 22°C for two consecutive days, regardless of the time of day, for the villages of Puvirnituq, Akulivik, Ivujivik, Salluit, Kangiqsujuaq, Quaqtaq, and Kangirsuk

MEAN ANNUAL DAILY TEMPERATURES

This indicator establishes the projected warming trend in Nunavik and provides an overall portrait of climate change within the communities. The following table shows the mean annual temperatures across the 2041–2070 and 2071–2100 time horizons under the SSP2-4.5 and SSP3-7.0 climate scenarios. It reveals that, depending on the climate scenarios used, the mean annual temperature could cross the freezing threshold in several communities.

Table 9 **— Mean annual daily temperatures in Nunavik in °C (Ouranos, 2026d)**

COMMUNITIES		SSP2-4.5		SSP3-7.0	
	HISTORICAL DATA 1991-2020	PROJECTIONS 2041-2070	PROJECTIONS 2071-2100	PROJECTIONS 2041-2070	PROJECTIONS 2071-2100
Kuujjuaraapik	−3.1	−0.6	0.6	0.0	2.7
Umiujaq	−4.1	−1.7	−0.5	−1.1	1.6
Inukjuak	−5.6	−2.9	−1.6	−2.3	0.6
Puvirnituq	−6.5	−3.8	−2.7	−3.3	−0.5
Akulivik	−7.1	−4.4	−3.2	−3.9	−1.1
Ivujivik	−7.8	−5.2	−4.0	−4.7	−2.0
Salluit	−9.0	−6.1	−5.0	−5.7	−3.1
Kangiqsujuaq	−8.6	−5.9	−4.9	−5.3	−3.0
Quaqtaq	−6.6	−4.0	−3.0	−3.3	−1.0
Kangirsuk	−7.1	−4.5	−3.6	−4.0	−1.6
Aupaluk	−6.5	−4.0	−3.1	−3.5	−1.1
Tasiujaq	−6.0	−3.6	−3.0	−3.1	−0.8
Kuujjuaq	−5.2	−2.9	−2.0	−2.5	−0.1
Kangiqsualujjuaq	−5.1	−2.8	−1.8	−2.3	0.0
Nunavik	−6.3	−3.7	−2.7	−3.2	−0.7

SUMMER AND WINTER MEAN TEMPERATURES

Summer and winter mean temperatures serve to establish climate projections for these two seasons. It is during these periods that most activities take place on ancestral lands, and these activities depend heavily on weather conditions.

The first table shows the summer mean temperatures across the 2041–2070 and 2071–2100 time horizons, as well as under the SSP2-4.5 and SSP3-7.0 climate scenarios (Ouranos, 2026d).

***Table 10* — Summer mean temperatures in Nunavik in °C (Ouranos, 2026d)**

COMMUNITIES		SSP2-4.5		SSP3-7.0	
	HISTORICAL DATA 1991-2020	PROJECTIONS 2041-2070	PROJECTIONS 2071-2100	PROJECTIONS 2041-2070	PROJECTIONS 2071-2100
Kuujjuaraapik	10.7	12.7	13.6	13.2	15.3
Umiujaq	9.7	11.6	12.0	12.1	14.0
Inukjuak	9.2	11.0	11.7	11.4	13.4
Puvirnituq	8.5	10.1	10.8	10.6	12.1
Akulivik	7.2	8.8	9.4	9.4	10.9
Ivujivik	6.9	8.2	9.1	8.6	10.4
Salluit	6.2	7.7	8.4	8.1	9.6
Kangiqsujuaq	6.2	7.8	8.4	8.2	9.8
Quaqtaq	5.4	7.0	7.6	7.3	9.2
Kangirsuk	7.8	9.4	10.0	9.8	11.5
Aupaluk	8.1	9.7	10.2	10.0	11.7
Tasiujaq	8.9	10.5	10.9	11.0	12.2
Kuujjuaq	9.8	11.4	12.0	11.7	13.1
Kangiqsualujjuaq	8.0	9.5	10.1	9.9	11.2
Nunavik	8.0	9.7	10.3	10.1	11.7

The second table details the winter mean temperatures across the 2041–2070 and 2071–2100 time horizons under the SSP2-4.5 and SSP3-7.0 climate scenarios (Ouranos, 2026d).

***Table 11* — Mean daily temperatures in winter in Nunavik in °C (Ouranos, 2026d)**

COMMUNITIES		SSP2-4.5		SSP3-7.0	
	HISTORICAL DATA 1991-2020	PROJECTIONS 2041-2070	PROJECTIONS 2071-2100	PROJECTIONS 2041-2070	PROJECTIONS 2071-2100
Kuujjuaraapik	–18.2	–14.2	–12.4	–13.5	–9.9
Umiujaq	–18.7	–14.7	–12.2	–14.0	–10.0
Inukjuak	–21.0	–16.0	–14.0	–15.4	–11.2
Puvirnituq	–22.2	–17.6	–15.6	–16.7	–12.0
Akulivik	–22.4	–17.3	–15.2	–16.5	–11.8
Ivujivik	–23.0	–17.7	–15.4	–17.0	–12.2
Salluit	–24.8	–19.8	–17.6	–18.7	–14.0
Kangiqsujuaq	–24.3	–19.5	–17.6	–18.5	–13.7
Quaqtaq	–19.6	–14.8	–12.9	–14.0	–9.6
Kangirsuk	–22.9	–18.5	–16.5	–17.7	–13.4
Aupaluk	–22.1	–18.0	–16.1	–17.2	–13.2
Tasiujaq	–21.8	–17.9	–16.3	–17.1	–13.3
Kuujjuaq	–21.2	–17.4	–15.9	–16.7	–13.1
Kangiqsualujjuaq	–19.0	–15.1	–13.4	–14.2	–10.8
Nunavik	–21.5	–17.0	–15.1	–16.2	–12.0

Projections for summer and winter mean temperatures show that they will tend to increase much more rapidly during the winter season, thereby making winters milder.

NUMBER OF DAYS WITH A MAXIMUM TEMPERATURE > 25°C

Depending on the geographic location of each northern village, the maximum temperature that defines an extreme heat event varies between 22 and 26°C. However, there is no data for these thresholds on the various climate modeling and projection sites of the Canadian and Québec governments. A maximum temperature of 25°C serves to establish a realistic trend for all Nunavik communities.

Table 12 — **Number of days with a maximum temperature > 25°C (ClimateData.ca, 2026)**

COMMUNITIES		SSP2-4.5		SSP3-7.0	
	HISTORICAL DATA 1991-2020	PROJECTIONS 2041-2070	PROJECTIONS 2071-2100	PROJECTIONS 2041-2070	PROJECTIONS 2071-2100
Kuujjuaraapik	8	15	20	15	26
Umiujaq	1	3	5	3	8
Inukjuak	1	3	5	4	8
Puvirnituq	0	1	2	1	3
Akulivik	0	1	1	1	3
Ivujivik	0	0	0	0	1
Salluit	0	0	0	0	1
Kangiqsujuaq	0	0	0	1	1
Quaqtaq	0	1	1	1	2
Kangirsuk	0	0	0	1	1
Aupaluk	1	3	4	3	8
Tasiujaq	1	4	7	5	11
Kuujjuaq	5	9	11	10	18
Kangiqsualujjuaq	1	2	4	2	6
Nunavik	1.3	3.0	4.3	3.4	6.9

SUMMARY

The warming of Nunavik will continue at an accelerated pace over the coming decades, and extreme heat events will become more frequent in all communities. While these events will become more routine and intense for some, for others, they will constitute a completely new weather phenomenon.

d. Limitations of the climate profile

There is a scientific consensus that the Arctic, and by extension Nunavik, is warming faster than the global average, and that the impacts of climate change will be more significant there. However, numerous gaps remain, both in terms of climate and environmental knowledge and data collection.

One of the primary limitations of the climate portrait is the lack of empirical field data to complement the models. For example, there are few river monitoring or air quality stations beyond the 55th parallel. Although the Nunavik Regional Board of Health and Social Services has deployed PurpleAir quality sensors in recent years, their use remains limited; the data collected does not allow for a precise characterization of ambient air quality, nor does it cover the entire territory. Much of the available data focuses solely on developed areas, leaving the vast subsistence land outside the communities, namely hunting and fishing grounds, without scientific coverage. This is notably the case for data on permafrost and coastal erosion.

Furthermore, the absence of predictive models for certain phenomena, such as permafrost thaw, blizzards, and winds, complicates risk analysis, as estimating their probability of occurrence and intensity within Nunavik communities remains uncertain. Ongoing research projects provide some answers, but the lack of centralized data limits their scope.

2. Health Impacts

Each of the selected hazards, namely extreme heat, blizzards, heavy precipitation, wildfires and their smoke, coastal erosion, as well as permafrost thaw, causes numerous direct and indirect effects on health and its determinants. Rising food insecurity, compromised access to services and adequate housing, and the exacerbation of certain physical and mental health issues are just a few examples of the health impacts that Nunavimmiut will face.

a. IQI Model and Inuit Determinants of Health

The IQI model refers to three key concepts of health defined by Inuit during the community component of the Qanuilirpitaa? 2017 health survey : the state of being healthy in one's body (Ilusirsusiarniq : physical health), the state of not feeling unwell or not being disturbed by negative forces (Qanuinngisiarniq : being in a state of well-being/mental health), and living harmoniously and well together as a community (Inuuqatigiitsianiq : social health) (Fletcher et al., 2021).

Figure 28 illustrates these three dimensions alongside eight interconnected social determinants that foster holistic health : community, family, identity, food, land, knowledge, economy, and services. Most of these determinants contain sub-themes; for example, housing is found under the community theme, and issues regarding the accessibility of hunting, fishing, and gathering activities are included under land. During the interviews conducted as part of the Qanuilirpitaa? 2017 survey, language (uqausiq) and culture (iluqiutiq/piusiq) were identified as the foundation, the roots, of Inuit health, as they are present within each of the determinants of health.

The IQI model was used in the following analysis to examine the impacts of climate change on health, as it allows the repercussions of various hazards to be considered through a holistic and comprehensive vision of well-being, without separating the physical, social, and psychosocial dimensions. Using a model developed by Nunavimmiut, for Nunavimmiut, supports the self-determination of the population.

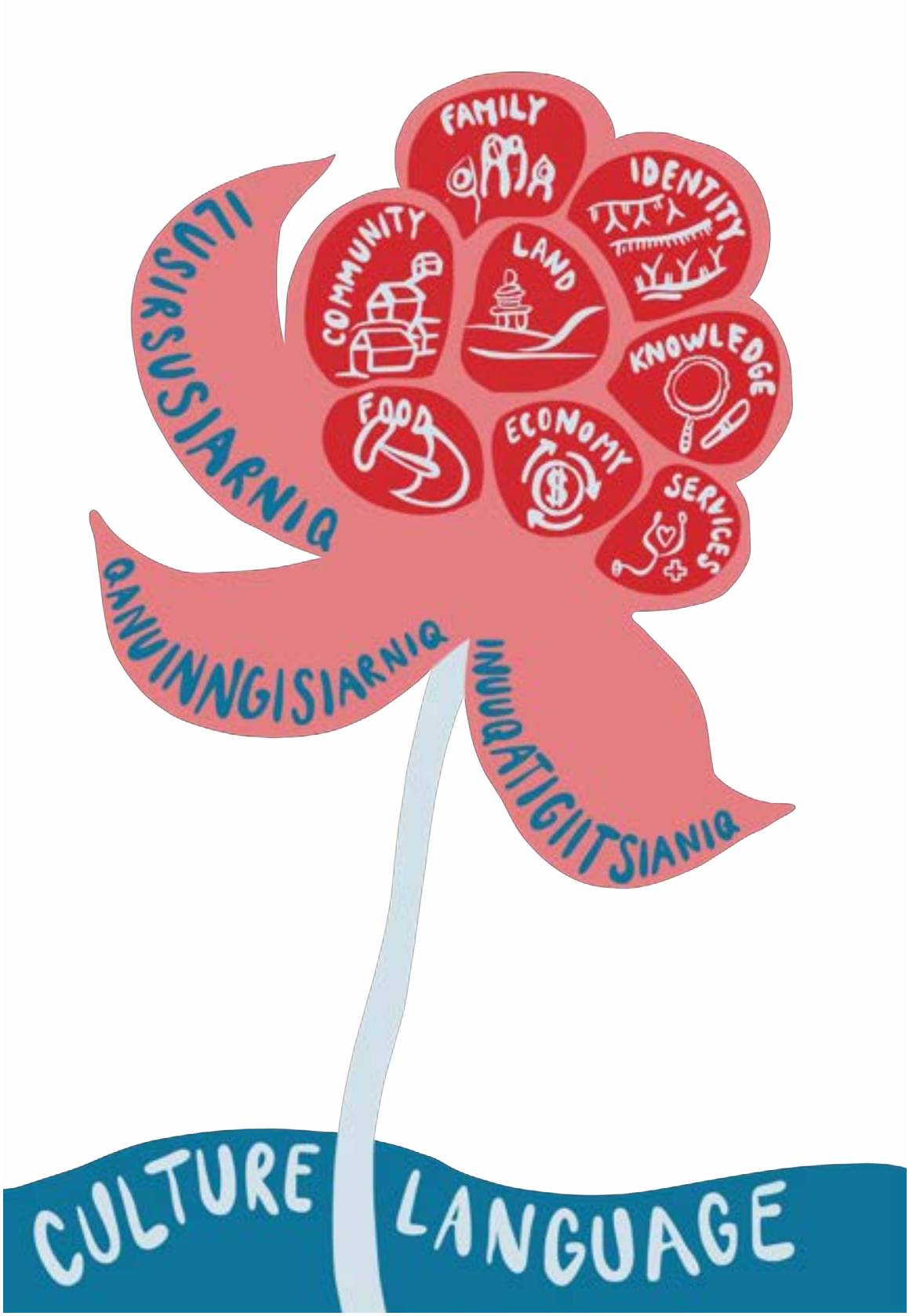


Figure 28 — **Nunavik's IQI model and its determinants of health (Fletcher et al., 2021).**

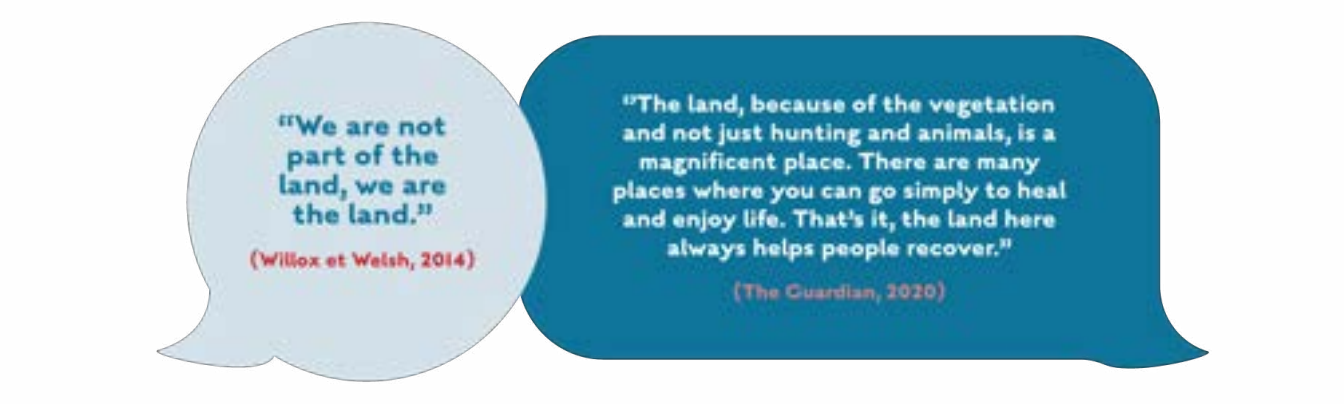
b. Effects of Climate Change on the Determinants of Health : Community Health

In addition to the thematic reports of the Qanuilirpitaa? 2017 health survey and the synthesis of knowledge produced by the INSPQ (Demers-Bouffard, 2021), the Nunavik Climate Change Adaptation Strategy presented by Makivvik in 2024 and the National Inuit Climate Change Strategy published by Inuit Tapiriit Kanatami (ITK) in 2019 were consulted to assess the climate change impacts considered to be priorities. Repercussions on the land, food, services, and community particularly stand out in these last two reports; despite the explicit absence of the themes of family, identity, knowledge, and economy, these topics remain intertwined within the other determinants of health addressed. For example, during the identification of impacts on the land, mention is made of the loss of traditional knowledge. It was also noted during the community tour that climate change adds economic stress to populations by making access to hunting and fishing grounds more difficult.

IPCC experts have highlighted the scale of climate change repercussions on Inuit and Arctic populations : “Climate change is increasingly threatening means of subsistence, culture, identity, health and safety in the Arctic and, in particular, for its Indigenous peoples. Climate change has a negative impact on mental health, the risk of unintentional injury, food insecurity, and food- and waterborne illnesses; it amplifies the health risks for those who depend on the environment for their subsistence” (Constable et al., 2022).

i. Land

Access to the land, the safety of outings across it, as well as its preservation and conservation, are part of the foundation of health, well-being, and healing for the Inuit people (Fletcher et al., 2021). Historically, the survival of Inuit communities depended solely on the land and its resources, and their identity was deeply tied to it. With colonization and sedentarization, Inuit no longer depend on the land to survive, but the traditional knowledge and spiritual well-being tied to their ancestral home remain essential elements for maintaining meaning in their lives (Lebel et al., 2022). Climate change, specifically variations in precipitation, rising temperatures, the melting of secondary ice, blizzards, coastal erosion, and wildfires, is disrupting all elements associated with the land.



Due to the close connection of Inuit with the land, ecosystems, animals, and flora, any change to the environment profoundly disrupts their lifestyles, culture, and well-being (Lebel et al., 2022). The impact of climate change on the natural environment, the land, and biodiversity has been documented in various studies, but also through observations shared by the local population during consultations held in 2025. Access routes to the land are transforming over the years due to an increasingly delayed ice formation and ice that remains fragile in several places throughout much of the winter. Furthermore, it is becoming difficult to rely on the traditional knowledge of Elders, as ice cover and its thickness now vary constantly from one year to the next. The topography of the land and watersheds is also changing with permafrost thaw and shifting precipitation patterns. These upheavals lead to uncertainty during outings due to increased hazards associated, on the one hand, with hunting, gathering, fishing, and trapping activities, and on the other hand, with visits to other communities, whether for social, family, or cultural purposes (Shah & King, 2017). During meetings and interviews conducted as part of the community tour, several community members mentioned having difficulty knowing which paths to take to reach hunting grounds. A good number of communities report that there is almost no “good” snow left for making igloos, which contributes to the loss of traditional knowledge and craftsmanship from generation to generation; young Inuit, for example, do not all know how to build shelters if they find themselves stranded on the land in winter (Gérin-Lajoie, Cuerrier & Siegwart, 2024).

Moreover, accessing the land is becoming more expensive. The expenses incurred to repair snowmobiles are increasing, and the cost of communication tools used to call for help in an emergency outside inhabited areas (e.g., Garmin InReach) is high. Search and rescue operations are becoming more frequent due to the multiplication of extreme weather events, topography alterations caused by permafrost thaw, and ice cover disruptions. In fact, they represent a significant financial burden for communities.

ii. Food, Traditional Food and Food Security

Food, as a determinant of health, holds a significant social, cultural, and economic dimension for Inuit communities that extends far beyond the concept of food security alone (Fletcher et al., 2021).

Disruptions to the land are intimately linked to the multiple dimensions that food embodies for the population. Several scientific studies and Inuit testimonies report that the overall rise in temperature and variations in precipitation are altering the distribution of certain traditional foods. Changes are notably highlighted during the migration periods or in the paths taken by certain harvested species (such as Arctic char, goose, and caribou). The presence of species uncommon to the land or previously unknown, such as beaver, killer whale, black bear, bat, and dragonfly, has also been increasingly observed.

The changing climate allows new plant species to grow on the land and compete with native flora. For example, the distribution of wild berries appears uneven or shifting : some regions once abundant in cloudberries now harvest blueberries, and both are now reported to be smaller and less abundant in certain localities.

The following figure illustrates the distribution of the small fruits most commonly consumed by Inuit.

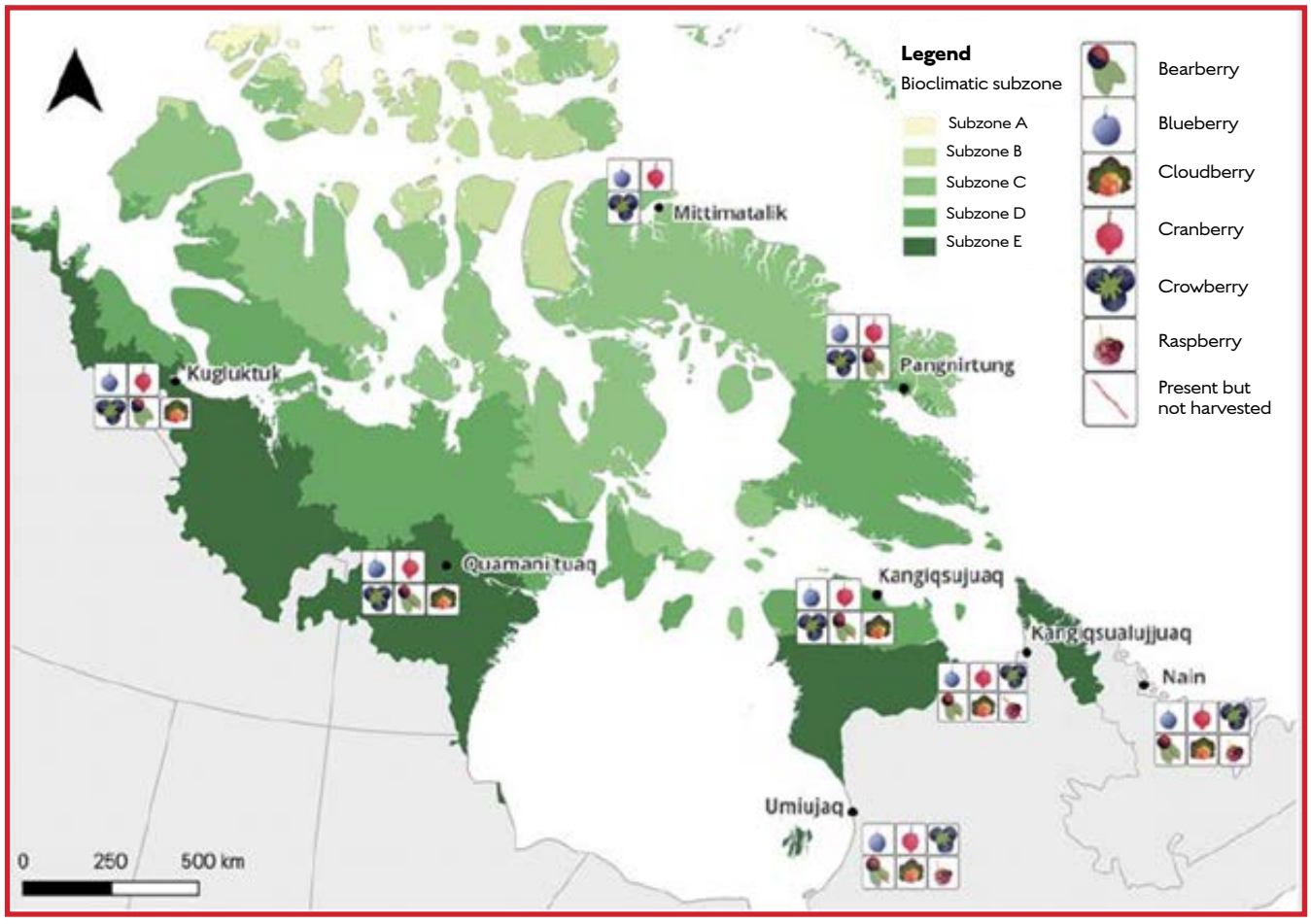


Figure 29 — **Distribution of small fruits by bioclimatic subzone (Gérin-Lajoie, Cuerrier and Siegwart, 2024)**

Climate change influences not only the distribution and accessibility of traditional foods, but also the supply and delivery of store-bought groceries. Episodic weather events, such as blizzards and wildfires, already undermine food accessibility by disrupting road transport to the Eeyou Istchee James Bay region, which then delays cargo flight connections. Conversely, the extension of the ice-free season and the reduction of ice thickness in Hudson and Ungava Bays could facilitate the maritime shipping of essential goods.

During the Qanuilirpitaa? 2017 health survey, it was reported that 78% of Nunavimmiut experienced food insecurity, compared to 13% of the Canadian population (Furgal et al., 2021). Access to traditional foods is therefore crucial to mitigate this burden. In this regard, the sharing of traditional food, a practice deeply rooted in the communities, compensates for difficult hunting periods while reinforcing social cohesion.

Foodborne and waterborne diseases are likely to increase in the Arctic, as rising temperatures elevate the risks of microbial and chemical contamination of food, while imposing new technical challenges on traditional food preparation (Constable et al., 2022). In this regard, permafrost thaw compromises the safety of traditional ice cellars used for meat preservation. Climate upheavals, including permafrost thaw, alter both the quality and quantity of drinking water reserves and promote the emergence of new pathogens (Constable et al., 2022). Lakes serving as water supply sources are exposed to drying out or to contamination from runoff water originating from dumpsites or wastewater retention lagoons, which were previously stabilized by permafrost. Furthermore, Nunavimmiut express deep concerns over the lack of information regarding these new diseases and their actual health impacts.

iii. Access to Essential Services : Healthcare

Access to healthcare is not spared by the indirect impacts of climate change; yet, it constitutes one of the major determinants of health, as the quality, quantity, and relevance of services heavily influence the health status of populations.

Blizzards, for instance, limit access to critical care, notably emergency consultations and medical evacuations (medevacs), while permafrost thaw destabilizes physical infrastructure such as Local Community Service Centres (CLSCs). Following consultations surrounding its Climate Change Adaptation Strategy, Makivvik Corporation identified the protection of health, well-being, and culture, as well as improving access to essential services, as two of the foundational pillars of its strategy (Makivvik, 2024). This direction was reaffirmed during a climate change workshop conducted with partners and community stakeholders in 2024, where health was designated as a priority indicator.

Several objectives of this strategy aim for better preparedness for extreme weather events, notably by strengthening the emergency response capacity of CLSCs, optimizing wildfire preparedness through the development of evacuation plans, and enhancing the training of social workers within communities (Makivvik, 2024). Furthermore, all workers in the health and social services network in Nunavik would benefit from training grounded in Inuit knowledge to mitigate the impacts of climate change.

Extreme weather events will exert increased pressure on the health and social services system. Optimal preparedness for these hazards will foster population resilience; indeed, facilitated access to healthcare directly strengthens the adaptive capacity of communities. Although the scientific community agrees that Arctic health systems will be severely strained and that the impacts of climate change on physical health are already visible, few studies examine climate projections related to health or the effectiveness of adaptation measures with respect to the determinants of health (Constable et al., 2022).

Access to healthcare is already precarious, and climate change threatens to exacerbate this structural vulnerability. For example, drinking water supply remains problematic within several communities due to multifactorial reasons. The recurrence and intensification of blizzards, among other things, pose significant operational challenges for tank truck delivery logistics. Major humanitarian and health crises, like the one caused by the freezing of the water main in Puvirnituq in the spring of 2025, are likely to multiply (Lacoursière, 2025).

iv. Community : Housing

The concept of community constitutes one of the central determinants of health in Nunavik. It encompasses both social dimensions, defined by ways of living together, and the physical characteristics of the territory, such as built environments, infrastructure, housing, and essential or municipal services (Fletcher et al., 2021). The knowledge transfer and social interactions arising from visits between communities, which are pillars of social cohesion, were discussed previously in relation to the impacts of climate change on the land.

While permafrost thaw threatens all northern infrastructure, the increase in extreme heat episodes also overwhelms Nunavik's residential environments. As housing is a central component of the community and one of the determinants with the most pronounced impact on public health, the following analysis will focus exclusively on this element. Consequently, the risk assessment presented in this report will exclude municipal infrastructure and transportation networks.

The Qanuilirpitaa? 2017 health survey highlighted the precariousness of housing conditions in the region. Its results reveal that approximately one-third of the population resides in overcrowded housing, a situation characterized by the presence of more than one person per room (Fletcher et al., 2020). Furthermore, nearly 20% of Nunavimmiut reported that their home required major repairs. Both indicators vastly exceed Canadian averages. However, building construction and property refurbishment in Nunavik face major logistical constraints, as they require rigorous planning and the exclusive transport of materials by sea during the short summer season. Climate change thus threatens to exacerbate the housing crisis and the degradation of the housing stock, particularly because permafrost subsidence causes structural cracks and major damage in building foundations.

This deterioration of physical structures contributes to water infiltration and the proliferation of mold, which degrade indoor air quality. Moreover, the majority of current homes are not adapted to cope with extreme heat episodes or smog waves caused by wildfires, which will increase in frequency and severity; this situation threatens to worsen the residents' precarious state of health.

v. Community : Water Accessibility

Climate change will destabilize the water cycle and its balance, potentially altering both the quality and quantity of resources available to communities (Leveque, Burnet, Dorner, and Bichai, 2021). Variations in precipitation, permafrost thaw, coastal erosion, heat waves, and wildfire smoke will directly influence water supply sources; in parallel, blizzards will disrupt water distribution logistics.

Permafrost degradation, heavy precipitation, and rising temperatures threaten to modify the physicochemical composition of drinking water sources, making the treatment of this water more complex or even ineffective. Several studies report that permafrost thaw could release tons of mercury into aquatic systems (Ouranos, 2026a; Schuster et al., 2018). As for recurring torrential rains, which lead to an increased load of suspended solids, they will contribute, along with rising waters, to increasing the turbidity of watercourses as well as phosphorus concentrations. This phenomenon promotes the proliferation of cyanobacteria, bacteria, and biotoxins (Ouranos, 2026e).

Furthermore, rising temperatures, which increase evapotranspiration, combined with permafrost thaw, will accelerate the drying out of certain lakes and rivers (Evengard et al., 2011). Although few studies have succeeded in quantifying the decline in water availability in Nunavik or the Canadian North, numerous testimonies from the communities report major changes in the hydrology of surrounding watercourses. Given that 13 of the 14 Nunavik communities are supplied by surface water and do not have any water supply system, they remain particularly vulnerable to variations in water availability as well as to environmental contamination risks (Evengard et al., 2011).

SUMMARY

Although certain determinants of health were not addressed previously, it remains undeniable that climate change will influence all of them, in accordance with the definition of health in the IQI model. The following figure synthesizes the various impacts of climate change on health.



Figure 30 — **Summary of climate change impacts on the determinants of health according to the IQI model**

C. Physical and Mental Health

The impact of climate hazards on physical and mental health encompasses chronic diseases and their respective symptoms, acute physical conditions, morbidity and mortality rates, as well as psychosocial disorders. Since the repercussions on physical health vary considerably from one phenomenon to another, the six identified hazards will be analyzed individually in this section. Finally, complementing these specific effects, an analysis of climate change as a global phenomenon will allow for a deeper consideration of its impacts on mental health.

i. Effect of Rising Temperatures and Heat Waves on Health

Temperatures above seasonal averages and heat waves directly affect the health of the population. On a physical health level, heat exerts immediate physiological effects : it increases blood flow to the skin at the expense of internal organs, limits the elimination of toxins in favor of sweating, and increases blood viscosity by promoting dehydration (Demers-Bouffard, 2021). Furthermore, extreme heat episodes are associated with a rise in mortality as well as an increased risk of hospitalization for cardiovascular and respiratory diseases.

The following table presents the population subgroups and the risk factors that make them more vulnerable to extreme heat.

Table 13 — **Vulnerable populations and risk factors related to extreme heat (Demers-Bouffard, 2021)**

POPULATION	RISK FACTORS
Children	• Limited physical acclimatization capacity • Restricted ability to respond adequately to stress
Older adults	• Limited physical acclimatization capacity • Low adoption of preventive behaviours • Higher dependence on the community (risk of isolation) • High prevalence of chronic diseases
Individuals with one or more chronic diseases	• Exacerbation of symptoms or onset of complications in the presence of preexisting comorbidities
Individuals taking medications or with substance use disorders	• Dehydration vulnerability • Susceptibility to hyperthermia secondary to certain medications • Increased sensitivity to the effects of heat and reduced adaptive capacity (drug or alcohol use)
Low-income individuals	• Housing often poorly adapted (poor insulation, ventilation and air conditioning)
Outdoor workers	• Prolonged exposure • Increased risk of injuries, heat-related illnesses or diseases

Rising temperatures also alter the psychological and social health of individuals and communities. Heat waves exacerbate stress, increase the propensity for aggressive behavior, and lead to a degradation of sleep quality. Furthermore, some studies show that heat prompts people to stay indoors, which weakens social support networks. For Inuit communities, this withdrawal can result in a decrease in outings on the land and a decline in traditional activities.

ii. Effects of Permafrost Thaw and Decreasing Ice Cover on Health

The progressive thaw of permafrost and the decrease in ice cover constitute two major consequences of climate change in Nunavik. Although current climate projections do not allow for a perfectly linear portrait of their future evolution, these phenomena are already altering the health of Nunavimmiut.

Permafrost degradation and thinning ice cover are already altering the traditional routes and access points used during outings outside the villages (Shah & King, 2017), introducing ground instability as well as deep uncertainty regarding the predictability of the environment on ancestral lands. The shortening of the ice season significantly disrupts hunting conditions, which directly compromises food security in the communities. In this regard, the Qanuilirpitaa? 2017 health survey reveals that, compared to the Canadian average, Inuit populations experience markedly higher rates of mortality and disability due to unintentional injuries, such as falls or snowmobile and all-terrain vehicle (ATV or quad) accidents (Beaulieu et al., 2020).

Furthermore, permafrost thaw threatens the integrity of the housing stock and restricts the housing supply within the communities. In a context of chronic residential overcrowding, the structural deterioration of homes exacerbates stress and anxiety among residents, in addition to degrading indoor air quality. Beyond the damage caused to community infrastructure, this thaw increases the risks of structural subsidence and landslides (Ouranos, 2015). Such geological disturbances jeopardize the physical safety of populations, while undermining their mental and social well-being through the introduction of new stressors and the potential destruction of sites of high cultural value.

The following table presents the population subgroups and the risk factors that make them more vulnerable to these changes.

Table 14 —
Vulnerable populations and risk factors related to permafrost thaw and decreasing ice cover (Demers-Bouffard, 2021)

POPULATION	RISK FACTORS
Older adults	• Loss of cultural reference points and disruption of traditional knowledge transmis-sion
Men	• Significant exposure during outings on the ice (hunting, fishing, and trapping)
Women	• Significant exposure during gathering activities • Vulnerability to developing post-traumatic stress symptoms following a major landslide (linked to lack of social support and lower income)
Geographically isolated com-munities	• Significant exposure during travel between com-munities • Limited access to essential resources • Fragility of infrastructure
Individuals living in over-crowded housing and/ or homes requiring major repairs	• Preexisting respiratory conditions such as asthma or chronic obstructive pulmona-ry disease (COPD) • Unhealthy and/or precarious housing conditions • Stress or mental disorders linked to overcrowding and interpersonal tensions
Individuals whose home are located on clay soils or thaw-unstable deposits	• Significant exposure to the physical and psychological consequences of structural residential damage
Workers : first responders	• Significant exposure to search and rescue operations and drowning victims

iii. Effects of Coastal Erosion on Health

The consequences of coastal erosion on health remain less documented than those of other climate hazards. Nevertheless, coastal submersions, which accelerate long-term erosion, can cause serious physical trauma, including drownings, road accidents, electrocutions, and various other injuries (Demers-Bouffard, 2021). Furthermore, populations are exposed to major psychosocial impacts linked to material losses, property destruction, and forced evacuations, as well as the resulting stress and anxiety. Coastal erosion also alters the psychosocial fabric of communities by deteriorating local infrastructure, generating significant economic losses, and degrading Inuit cultural and archaeological sites. The following table presents the population subgroups most vulnerable to this hazard; however, this synthesis remains open to improvement due to the lack of empirical data on the subject.

Table 15 — **Vulnerable populations and risk factors related to coastal submersion and erosion (Demers-Bouffard, 2021)**

POPULATION	RISK FACTORS
Older adults	• Loss of cultural reference points and feelings of helplessness following the disappearance of culturally significant sites • Decline in autonomy, safe behaviours and mobility (increased risk of falls and injuries) • Limited adaptive capacity
Children and adolescents	• Vulnerability to developing post-traumatic stress symptoms, especially in the absence of social support (a condition associated with, among other things, substance use issues, and learning, sleep and behavioural disorders)
Low-income individuals	• Limited financial resources • Increased vulnerability to financial losses (e.g., lack of home insurance)

iv. Effects of Heavy Precipitation on Health

Floods that cause changes to rivers and the topography of the land can also impact the health, safety, and well-being of Nunavimmiut : they represent a risk of unintentional injuries and also have repercussions on mental health, which are addressed later.

The impacts of flooding on physical and mental health are increasingly documented in urban and rural environments located south of the 55th parallel. However, although the lifestyle of Nunavimmiut lead them to frequently travel across the land, the health repercussions of heavy precipitation capable of causing flash floods remain very poorly documented in Northern Québec.

On a physical health level, the risks of trauma and unintentional injuries are clearly identified, as is the increased probability of contracting waterborne, vector-borne, or infectious diseases (Demers-Bouffard, 2021). As for the impacts on mental health, these include a profound alteration of quality of life and well-being, an increased prevalence of post-traumatic stress disorder (PTSD), depression, and anxiety, as well as a rise in alcohol and drug consumption.

Finally, floods occurring on the land modify the hydrology of watercourses and disrupt the topography. These geomorphological disturbances directly threaten the safety and well-being of Nunavimmiut by increasing the risk of unintentional injuries, in addition to generating psychological repercussions.

Table 16 —
Vulnerable populations and risk factors related to flooding and heavy precipitation (Demers-Bouffard, 2021)

POPULATION	RISK FACTORS
Men	• Significant exposure during outings on the land (hunting, fishing and trapping)
Women	• Significant exposure during gathering activities • Vulnerability to developing post-traumatic stress symptoms following an extreme weather event (linked to lack of social support and lower income)
Older adults	• Loss of cultural reference points and feelings of helplessness following the disappearance of culturally significant sites • Decline in autonomy, safe behaviours and mobility, combined with bone fragility (increased risk of falls and injuries)
Children	• Vulnerability to developing post-traumatic stress symptoms, especially in the presence of preexisting anxiety or depressive symptoms • Precarious balance and bone fragility
Workers : first responders	• Significant exposure to search and rescue operations and drowning victims • Lack of personnel and material resources

v. Effects of Wildfires and Their Smoke on Health

The health repercussions of wildfires in Nunavik stem primarily from emissions of air pollutants, notably fine particulate matter suspended in smoke. These harmful substances can travel thousands of kilometres, thereby altering the health of populations living far beyond the active fire zone (Demers-Bouffard, 2021). On a physiological level, wildfire smoke causes systemic inflammation and oxidative stress in the respiratory tract, while weakening the body's immune response.

Many deaths in North America are attributed to wildfires, particularly due to repeated or prolonged exposure to microparticles. In fact, epidemiological data reviews have shown that chronic exposure to these emissions significantly increases the risk of all-cause mortality (Health Canada, 2024) and also increases the risk of developing acute or chronic respiratory conditions, such as asthma and bronchitis, as well as cardiovascular diseases (Demers-Bouffard, 2021).

Beyond these physical conditions, fires generate significant psychosocial impacts linked to the loss of material property, forced evacuations, and the ecological degradation of familiar landscapes. This psychological distress, fueled by the loss of one's home, eco-anxiety, fear, and uncertainty, often manifests as severe anxiety or depressive disorders, which disproportionately affect the most vulnerable population subgroups (see the following table).

Table 17 — **Vulnerable populations and risk factors related to wildfires and their smoke (Demers-Bouffard, 2021)**

POPULATION	RISKS FACTORS
Older adults	• Natural decline in pulmonary and cardiac functions • Increased prevalence of chronic (asthma, COPD) and acute (lung infections) respiratory comorbidities • Sensitivity to oxidative stress and inflammation
Low-income individuals	• Limited financial resources • Increased vulnerability to financial losses (e.g., lack of home insurance) • Housing often poorly adapted (poor insulation and ventilation)
Geographically isolated communities	• Psychosocial sensitivity to upheavals on the land and disruptions to traditional activities • Food insecurity and high cultural importance of traditional food • Breakdown of telecommunications rendering individuals and families unreachable once they venture outside the community • Complexity of airlift evacuation logistics from the communities • Absence of smoke-free shelters
Outdoor workers	• Prolonged exposure of fire safety workers • Vulnerability to developing post-traumatic stress symptoms among first responders and volunteer firefighters, especially in the presence of preexisting anxiety or depressive symptoms
Individuals with chronic conditions, including respiratory and cardiovascular diseases	• Impairment of pulmonary, cardiac and vascular functions • Systemic vulnerability to fine particulate matter in smoke • Increased sensitivity to oxidative stress and inflammation • Exacerbation of symptoms or onset of complications in the presence of preexisting comorbidities

vi. Effects of Blizzards on Health

The combination of strong winds, extreme cold, snowfall, and reduced visibility characteristic of blizzards creates multifactorial health impacts. Historically, these winter storms have caused severe injuries and fatalities among Nunavimmiut, in addition to paralyzing certain communities for several days (Beers, 2023; Gallant, 2024; Nunatsiaq News, 2023). Power outages and the loss of visibility caused by high winds represent the two most critical risk factors, surpassing the strict impact of snow accumulation (Fox, 2023). Blizzards completely interrupt community life when shelter-in-place advisories are issued; residential fuel delivery by tank trucks and restocking by cargo flights then become impossible. Populations are thus exposed to food and fuel shortages, which compromise local transportation and residential heating, the latter often depending on heating oil. Furthermore, the risk of carbon monoxide poisoning increases due to the heightened use of auxiliary heaters or propane burners, combined with snow accumulation that can block building air intakes and exhaust vents.

Moreover, impassable roadways complicate transit for police, first responders, and individuals requiring critical care, rendering travel dangerous or even impossible. Because drinking water delivery and wastewater sewage pump-out services by tank trucks are suspended, numerous households find themselves deprived of water for several days for drinking and maintaining basic hygiene (Fox, 2023). Although the entire community suffers the repercussions of these events, certain population subgroups remain more vulnerable to the impacts of blizzards (see the following table).

***Table 18* — Vulnerable populations and risk factors related to blizzards**

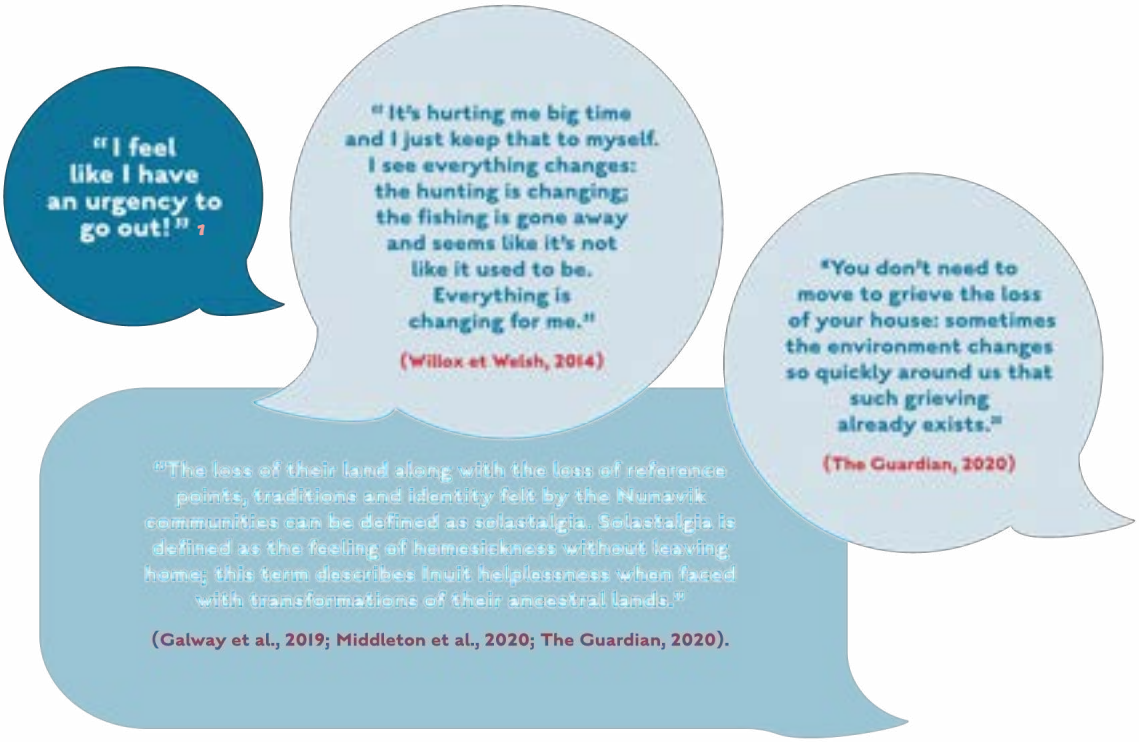
POPULATION	RISK FACTORS
Older adults	• Increased risk of contracting a waterborne disease or suffering serious consequences thereof second-ary to impaired immune function • Physiological susceptibility to dehydration • High prevalence of chronic diseases and subse-quent medication use (supply difficulties) • Higher dependence on the community (risk of isolation)
Children	• Increased risk of contracting a waterborne disease or suffering serious consequences thereof due to immature immune system • Physiological susceptibility to dehydration
Pregnant women	• Increased risk of contracting a waterborne disease or suffering serious consequences thereof, including impacts on the fetus, due to selective immunosuppression of immune system during pregnancy • Physiological susceptibility to dehydration
Geographically isolated communities	• Limited access to essential resources • Dependence of food supply on air transport • Vulnerability of drinking water supply linked to the distribution system
Low-income individuals	• Limited financial resources (to cover emergency preparedness costs)
Workers : first responders and police officers	• Significant exposure to risks of unintentional injury during rescue or community support operations (community inreach) • Lack of personnel and material resources

vii. Effects of Climate Change on Mental Health

Mental health was defined by Nunavik communities not only as the absence of mental illness, but also as a profound state of well-being, free from being tormented by dark or troubling thoughts (Fletcher et al., 2021). Multiple studies and consultations conducted with local partners confirm that the intimate connection with the land constitutes a foundational pillar of the populations' mental health and well-being (Lebel et al., 2022). By restricting Inuit mobility across the land, limiting their subsistence activities, and hindering their access to traditional foods, environmental upheavals directly alter their culture and identity. Since culture is recognized as one of the very foundations of Inuit health (Fletcher et al., 2021), any alteration to it inevitably compromises holistic health.

Furthermore, climate change revives major historical traumas linked to recent transformations experienced by the communities. Processes such as colonization, forced assimilation, resource exploitation, transboundary environmental pollution, and the mass arrival of non-Indigenous people have heavily affected Inuit mental health, wounds that the current climate crisis is bringing back to the surface today (Young et al., 2012). In this regard, several studies show that practicing traditional activities on the land provides Inuit with temporary relief from the burden of colonial influence and systemic racism present within institutions (Durkalec, Furgal, Skinner, & Sheldon, 2015). Similarly, anxiety tied to the possibility of forced displacements due to environmental hazards echoes the intergenerational trauma caused by relocations imposed by government authorities during the 1950s (Middleton et al., 2020). Beyond these psychosocial wounds and the population's raw emotional reactions, the impacts of climate change also encompass a rise in alcohol and drug substance use issues, an exacerbation of family stress, and an increase in domestic violence (Constable et al., 2022).

Abrupt changes in precipitation and temperatures, which complicate the predictability of travel, increase storm intensity, and cause the lengthening of shoulder seasons, alter mental health and the community fabric. Some research highlights an increase in seasonal depression during these transitional periods; in fact, Inuit, who are deeply connected to the land, are the most affected by the stretching of these shoulder seasons and changes to the landscape (Lebel et al., 2022). During community consultations, many residents shared the emotional distress they felt, evoking in particular the sadness of losing access to a traditional site or the anxiety linked to outings on the land that are now unpredictable. These eco-emotions, reported by Nunavimmiut, echo those documented among other Inuit populations in the literature.



SUMMARY OF HEALTH EFFECTS AND VULNERABLE POPULATIONS

The effects of climate change and its various hazards on health are numerous and diverse. Beyond the impacts related to phenomena deemed to be priorities by the communities, other climate hazards, such as drought, flooding, or rising concentrations of allergenic pollen, also cause notable health repercussions. The following table synthesizes the main health effects associated with the hazards identified in Nunavik.

1 Testimony from the 2025 community tour conducted by the environmental health team of the Public Health Department of the NRBHSS (summarized in Appendix 5).

***Table 19* — Summary of the health consequences of climate change and identified hazards**

HAZARDS	VULNERABLE POPULATIONS	PHYSICAL HEALTH IMPACTS	MENTAL HEALTH IMPACTS	IMPACTS ON HEALTH DETERMINANTS Land, Food, Identity, Knowledge, Family, Community, Economy, Services
TOTAL	• Children • Seniors • Low-income individuals • Outdoor workers		• Stress • Anxiety • Depression • Solastalgia	• Shifts in wildlife migration patterns • Disrupted access to the land • Loss of traditions • Shrubification
Heat	• Individuals with one or more chronic diseases • Individuals taking medications or with substance use disorders	• Dehydration • Rise in cardiovascular and pulmonary diseases • Increased mortality	• Increased likelihood of aggressive behaviour • Reduced sleep quality	• Shorter ice cover season • Increase in zoonotic illnesses
Permafrost thaw	• Hunters • Fishers • Gatherers • Individuals living in overcrowded housing and/or homes requiring major repairs	• Unintentional injuries • Trauma	• Loss of traditional landmarks and cultural reference points • Increased post-traumatic stress symptoms	• Infrastructure degradation • Topographic alterations
Coastal erosion	• Hunters • Fishers • Gatherers	• Unintentional injuries • Trauma	• Loss of traditional landmarks and cultural reference points • Increased post-traumatic stress symptoms	• Loss of traditional sites • Economic losses
Heavy precipitation	• Hunters • Fishers • Gatherers • Workers : first responders	• Drownings • Unintentional injuries • Waterborne diseases	• Reduced qual-ity of life and well-being • Increased post-traumatic stress symptoms • Increased alcohol and drug use	• Degradation of indoor air quality (IAQ) • Changes in the water cycle (drinking water accessibility)
Wildfires	• Isolated communities • First responders	• Respiratory diseases	• Degradationof quality of life and well-being	• Limited access to healthcare services
Blizzard	• Isolated communities • First responders	• Trauma • Unintentional injuries • Carbon monoxide (CO) poisoning	• Degradation of quality of life and well-being	• Compromised air transport (supply deliveries and medical evacuations) • Power outages

d. Impact Chains of Climate Hazards

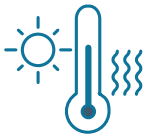
Impact chains offer a comprehensive and holistic vision of the repercussions of climate change. They link the primary hazards to their intermediate and health effects, while highlighting the interconnections between different environmental phenomena. Furthermore, they provide a visual, accessible, and synthesized representation of these dynamics. The impact chains associated with the six hazards are presented in Appendix 1.













COMMUNITY PROFILES

Population vulnerability is defined by the convergence between the sensitivity of priority subgroups and the response of environments to climate change, with the latter reflected in their adaptive capacity (see Figure 4). The following section presents a profile of the sensitivity of Nunavik communities, their adaptive capacity, and their exposure to various hazards.

1. Nunavimmiut Profile

The interconnections between climate disruptions and health effects have been demonstrated previously, as have the populations most vulnerable to the selected hazards and climatological trends. Due to its geographical exposure to climate change, its socioeconomic characteristics, and its territorial isolation, the entire population of Nunavik is considered at risk from a national perspective. Nevertheless, to compile a more specific assessment of regional sensitivity and adaptive capacity, particular attention will be given to certain factors, including age, socioeconomic status, general health status, and occupation type.

a. Methodology

The primary data used are drawn from official sources, notably Statistics Canada, and include the 2021 update of the 2016 census as well as the Qanuilirpitaa? 2017 health survey. Unfortunately, some demographic and health surveys do not allow for the breakdown of results by locality. Due to the small population size of certain villages, extracting data related to health indicators at a local scale would compromise participant confidentiality or prove statistically insignificant. Thus, for some indicators, only global data for the Nunavik region or for the territories served by each of the health centres were available.



Figure 31 — **Territories served by each Nunavik CLSCs (Hudson : Inuulitsivik Health Centre; Ungava : Ungava Tulattavik Health Centre) (NRBHSS, 2026).**

Table 20 summarizes these various sensitivity factors and explains the reasons for their selection. It is nevertheless important to remember that Inuit communities remain structurally more vulnerable to climate change due to their geographical isolation and their frequent practice of traditional activities. This systemic vulnerability is rooted in several key factors :

- Increased exposure during travel between communities
- Limited access to essential resources due to geographic isolation
- Restricted availability of specialized healthcare services, particularly in mental health and treatment of addiction
- Loss of reference points tied to traditional climate knowledge, which complicates outings on the land and food access
- Disruptions of traditional and subsistence activities stemming from the multiplication of extreme weather events, such as wildfires
- Complexity of communications to contact or rescue residents engaging in activities outside villages
- Major logistical challenges during emergency evacuations, which rely exclusively on air transport

***Table 20* — Factors increasing the vulnerability of the Nunavik population to climate change**

SENSITIVITY FACTORS	INDICATORS	RISK FACTORS
Age	**Proportion of individuals aged 65 years and older**	• Higher prevalence of preexisting chronic conditions, particu-larly respiratory and cardiovascular diseases • Limited capacity for physical acclimatization • Low rate of adoption of preventive behaviours • Impacts on mental health due to the loss of cultural refer-ence points and ruptured transmission of tradi-tional knowledge • Greater dependency on the community • Decline in autonomy, safe behaviours and mobility (risk of falls and injuries)
	Proportion of children under 5 years of age	• Limited capacity for physical acclimatization • Limited capacity to react appropriately to stress
	Fertility rate	• Increased vulnerability to infectious, foodborne or waterborne diseases, with potential for serious consequences for the fetus

SENSITIVITY FACTORS	INDICATORS	RISK FACTORS
State of health	**Hypertension**	• Exacerbation of symptoms or onset of complications in the presence of preexisting comorbidities
	Type 2 diabetes	
	Excessive alcohol or drug use (CAGE 2+)	• Increased risk of dehydration • Heightened sensitivity to the effects of heat and reduced adaptive capacity • Post-traumatic stress symptoms associated with alcohol and drug use issues
	Use of drugs other than alco-hol, cannabis and prescription medication in the past 12 months	
	Individuals with suicidal thoughts in the past 12 months	• Post-traumatic stress symptoms associated with learning, sleep and behavioural disorders • Risk of hyperthermia secondary to the use of certain mental health medications • Difficulties with adaptation and resilience
Socioeconomic status	**Proportion of low-income households**	• Housing often unsuited to climate impacts • Limited financial resources • Increased vulnerability to financial loss (associated with the loss of property due to climate events)
	Proportion of individuals living in overcrowded housing	• Unhealthy and/or precarious housing conditions • Stress or mental health disorders linked to overcrowding and interpersonal tensions
	Individuals living in housing requiring major repairs	• Anxiety or mental health disorders linked to housing conditions and uncertainty • Housing often unsuited to climate impacts
	Individuals experiencing food insecurity	• Increased vulnerability to underlying economic insecurity • Increased risk of developing anxiety or a mental health disorder • Greater sensitivity to biodiversity loss

SENSITIVITY FACTORS	INDICATORS	RISK FACTORS
Occupation	**Hunters, trappers**	• Predominantly men • Greater sensitivity to biodiversity loss • Particularly exposed during outings on ice and the land • Elevated risk of falls and injuries
	Fishers	
	Gatherers	• Predominantly women • Particularly exposed during harvesting activities • Elevated risk of falls and injuries • Greater sensitivity to biodiversity loss
	Outdoor workers	• Particularly exposed to climate hazards • Risk of injuries, illnesses or medical emergencies during hazards events

The second table categorizes based on whether they represent exposure, sensitivity or adaptive capacity factors for all hazards selected in the risk assessment. This classification is essential for structuring the subsequent phase of the analysis.

Data for each indicator will be presented by coast, by health centre territory, and for Nunavik as a whole, allowing for interregional comparative analyses where applicable. Data for the province of Québec will also be integrated to highlight disparities between Nunavik and the rest of the province.

Table 21 — **Classification of climate change exposure and vulnerability indicators**

INDICATORS	FACTOR TYPE FOR THE SIX SELECTED HAZARDS (extreme heat, permafrost thaw, coastal erosion, heavy precipitation, wildfires, blizzard)	POPULATIONS AT RISK
SOCIODEMOGRAPHIC FACTORS		
Age	Sensitivity – Adaptive capacity	• Children aged 0 to 5 years • Individuals aged 65 years and older
Biological sex	Sensitivity – Exposure	• Men • Women
Pregnancy (fertility rate)	Sensitivity	• Pregnant individuals
SOCIOECONOMIC FACTORS		
Poverty	Adaptive capacity	• Individuals experiencing food insecurity • Low-income households
Access to climate-resilient housing	Sensitivity – Adaptive capacity	• Individuals living in overcrowded housing • Individuals living in housing requiring major repairs
HEALTH STATUS		
Mental health disorders	Sensitivity – Adaptive capacity	• Individuals who have experienced suicidal ideation within the past 12 months
Physical health disorders	Sensitivity	• Individuals living with hypertension • Individuals living with type 2 diabetes
Medication use and alcohol, tobacco or drug consumption	Sensitivity – Adaptive capacity	• Individuals with heavy alcohol or drug consumption (CAGE 2+) • Individuals who have used drugs other than alcohol, cannabis and prescription medications within the past 12 months
OCCUPATION		
Land-based activities	Exposure	• Hunters and trappers • Fishers • Gatherers
Outdoor workers	Exposure	• Construction workers and first responders

b. Community Demographic Profile

This section aims to outline the demographic profile of Nunavik communities by age. As previously noted, children under 5 years of age and adults aged 65 and older are more susceptible to developing health problems related to climate change and extreme weather events. Table 22 presents this demographic profile by community.

Table 22 — **Demographic data and fertility rates by community (Statistics Canada, 2021)**

	 COMMUNITIES	TOTAL POPULATION (2021)	CHILDREN UNDER 5 YEARS OF AGE (%)	ADULTS AGED 65 AND OLDER (%)	FERTILITY RATE (PER 1 000) (INFOCENTRE DE SANTÉ PUBLIQUE, 2026)				
					15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	35-39 YEARS
Hudson Bay coast	Kuujjuaraapik	792	11.9	4.4	125	197	180	140	83
	Umiujaq	541	15.7	2.8					
	Inukjuak	1 821	13.2	3.3					
	Puvirnituq	2 129	13.4	5.2					
	Akulivik	642	12.4	4.7					
	Ivujivik	412	13.3	4.8					
	Salluit	1 580	15.5	3.5					

	COMMUNITIES	TOTAL POPULATION (2021)	CHILDREN UNDER 5 YEARS OF AGE (%)	ADULTS AGED 65 AND OLDER (%)	FERTILITY RATE (PER 1 000) (INFOCENTRE DE SANTÉ PUBLIQUE, 2026)				
					15-19 YEARS	20-24 YEARS	25-29 YEARS	30-34 YEARS	35-39 YEARS
Ungava Bay coast	Kangiqsujuaq	837	13.1	4.8	84	162	135	102	48
	Quaqtaq	453	15.4	4.4					
	Kangirsuk	561	11.6	5.2					
	Aupaluk	233	10.6	2.1					
	Tasiujaq	420	13.1	4.8					
	Kuujjuaq	2 668	10.1	5.2					
	Kangiqsualujjuaq	956	12	4.2					
	Nunavik	**14 050**	**12.8**	**4.5**	**108**	**180**	**159**	**121**	**67**
	Québec	8 501 833	5	20.6	5	35	96	109	53

The higher proportion of children and pregnant individuals highlights a demographic segment that is particularly sensitive to climate change in Nunavik compared to the rest of Québec. Furthermore, given the pivotal role that Elders hold within families and communities, the impacts of climate change on them must not be underestimated, despite their smaller demographic weight.

C. Health Status

Physical and mental health directly influence an individual's vulnerability to climate disruptions. Indeed, certain pathologies or their associated pharmacological treatments exacerbate sensitivity to environmental stressors. Individuals with chronic conditions, such as diabetes, cardiovascular diseases, and asthma, are particularly at risk for medical complications during episodes of extreme heat, extreme cold, or deteriorating air quality. For instance, exacerbations in individuals with asthma are frequently triggered or amplified by environmental stressors such as cold temperatures, allergens, and air pollutants.

The psychosocial component is inherently linked to overall health. Mental health disorders can alter thinking, mood, or behavior, thereby disrupting daily functioning and causing profound distress (Gouvernement du Québec, 2026b). Depression, anxiety disorders, and post-traumatic stress disorder are among the most prevalent pathologies. Clinical and behavioral manifestations frequently include social withdrawal, problematic substance use (alcohol or drugs), and difficulties fulfilling family, professional, and social obligations. Furthermore, individuals with substance use disorders prove to be highly vulnerable during extreme weather events.

Table 23 profiles the indicators selected to characterize health-status-related sensitivity. The data, broken down by health centre territory, specifically the Hudson and Ungava coasts, concern beneficiaries of the James Bay and Northern Québec Agreement aged 16 and older residing in Nunavik.

***Table 23* — Population health status indicators**

	INDIVIDUALS WITH HYPERTENSION (%)	INDIVIDUALS WITH TYPE 2 DIABETES (%)	INDIVIDUALS WITH HEAVY ALCOHOL AND DRUG USE (AT LEAST ONCE A MONTH) (%)	INDIVIDUALS WHO USED DRUGS WITHIN THE PAST 12 MONTHS (OTHER THAN ALCOHOL, CANNABIS AND PRESCRIPTION MEDICATIONS) (%)	INDIVIDUALS WHO EXPERIENCED SUICIDAL IDEATION WITHIN THE PAST 12 MONTHS (%)
Nunavik	23.5	4.7	68.5	14.5	13
Hudson Bay coast	N/A	N/A	65.6	9.4	10.4
Ungava Bay coast	N/A	N/A	72.3	20.9	16.3
Québec	20.3	N/A	23.6	4.3	4.2

From Bélanger, Muckle, Courtemanche and Poliakova, 2020.

The high prevalence of substance use disorders and mental health challenges within the population increases its vulnerability to climate change and extreme weather events compared to the rest of Québec.

d. Socioeconomic Status

Socioeconomic status constitutes a major indicator of sensitivity to climate change while also reflecting, from certain angles, the adaptive capacity of communities. Low-income households, the proportion of individuals living in overcrowded housing or housing requiring major repairs, and the prevalence of self-reported food insecurity were selected as key socioeconomic indicators for the Nunavik population.

Low-income households prove to be particularly vulnerable to the repercussions of climate disruptions affecting their community. For instance, their mental health is susceptible to deteriorating following wildfires or floods, as the material losses incurred are often disproportionate to their financial resources (Demers-Bouffard, 2021). Furthermore, financial precariousness limits the replacement of destroyed property, a situation frequently aggravated by a lack of insurance coverage.

Moreover, living in housing requiring major repairs increases sensitivity to weather hazards. These infrastructures often present structural deficiencies, inadequate insulation, and faulty ventilation systems that compromise indoor air quality (Demers-Bouffard, 2021). In parallel, the overcrowding linked to residential proximity constitutes a major chronic stressor, undermining the psychosocial health of occupants and exacerbating the risk of developing mental health disorders.

Table 24 — **Socioeconomic status indicators by coast and for Nunavik (Fletcher et al., 2020; Furgal et al., 2021)**

	INDIVIDUALS REPORTING FOOD INSECURITY (%)	LOW-INCOME HOUSEHOLDS (%) (UNDER $60,000 AFTER TAX) (STATISTICS CANADA, 2021)	INDIVIDUALS LIVING IN OVERCROWDED HOUSING (%)	INDIVIDUALS LIVING IN HOUSING REQUIRING MAJOR REPAIRS (%)
Nunavik	80.5	34.4	32.8	19.1
Hudson Bay coast	84.7	35.8	34.7	20
Ungava Bay coast	75	28.2	29.3	17.9
Québec	6.6	47.3	3.8	6.3

The socioeconomic indicators used to characterize the situation in Nunavik highlight the population's heightened vulnerability to climate disruptions and underscore the need to address these structural levers to strengthen community resilience. Indeed, due to a more pronounced exposure to environmental hazards and an adaptive capacity that falls below the Québec average, these communities face a challenge of systemic inequity.

e. Occupation

The repercussions of climate disruptions and extreme weather events are particularly pronounced among outdoor workers (notably first responders and construction workers), as well as among outdoor enthusiasts and athletes (Demers-Bouffard, 2021). The prolonged exposure of these individuals significantly increases their sensitivity to certain hazards compared to the general population.

Furthermore, hunting, fishing, trapping, and gathering hold a foundational place in Inuit identity and culture. Community members who engage in these subsistence activities display heightened sensitivity to climate change due to their direct immersion in the environment and continuous exposure to hazards. Traditionally, men participate more frequently in hunting, fishing, and trapping, while women primarily dedicate themselves to gathering; nevertheless, the entire population actively takes part in outdoor activities on the land.

Table 25 — **Occupation indicators by coast and for Nunavik (Furgal et al., 2022)**

	HUNTERS AND TRAPPERS (%)	FISHERS (%)	GATHERERS (%)	OUTDOOR AND CONSTRUCTION WORKERS (%) (STATISTICS CANADA, 2021)
Nunavik	83.5	86	85	7.5
Hudson Bay coast	79.4	81.2	82.1	6.7
Ungava Bay coast	88.9	92.3	88.8	6.7
Québec (Données des permis - Gouvernement du Québec, 2026a)	3.5 *	8.2	N/A	9.7

* Includes people who hunt and trap

Hunting, fishing, and trapping hold a prominent place in Nunavimmiut ways of life, as evidenced by the high proportion of the population engaging in these activities. By regularly traveling out on the land to practice these subsistence activities, residents are structurally exposed to climate hazards.

f. Methodological Limitations of the Community Profile

Several analytical constraints affect the accuracy of the Nunavik community profile. First, disaggregating data at the local scale is impossible for most indicators; due to the small population sizes of several villages, extracting data by locality would compromise participant confidentiality. Furthermore, many health surveys collect data by health centre territory (CLSC territory) rather than by individual community.

Second, certain indicators are inaccessible because Nunavik data is not compiled for provincial databases. For example, the number of asthma cases is sourced from the Système d'information de surveillance des maladies chroniques au Québec (SISMACQ) and relies on the fee-for-service medical services file (Canuel et al., 2019); however, since medical staff practicing in Nunavik are not compensated under this model, the regional data recorded in the SISMACQ remains incomplete.

Finally, although the Qanuilirpitaa? health survey constitutes one of the most comprehensive sources of health data for the region, its findings date back to 2017. Additionally, some indicators were custom-designed for Nunavik; their conceptual definitions differ from the standards used in other Québec health surveys, making comparative analyses more complex.

2. Community Responses

In its 2022 report, the IPCC emphasized that all sectors of activity and all levels of government must participate in the fight against climate change and implement adaptation measures to strengthen the resilience of polar communities (Constable et al., 2022). Adaptation strategies must combine institutional, community, and individual measures to increase the adaptive capacity of Inuit. Furthermore, this population's profound connection to the land requires the deployment of interventions aimed at maintaining ecological connectivity and preserving ecosystems. As the authors state : "Timing, direction and scale of polar climate change impacts differ sub-regionally and will require adaptation strategies that are flexible, equitable, inclusive and integrated across sectors and governance arrangements to effectively reduce risks" (Constable et al., 2022).

Community adaptation must involve the systematic inclusion of stakeholders and the leadership of local representatives, while mobilizing diverse sources of knowledge, such as scientific literature, grey literature, and Inuit traditional knowledge. Self-determination and the ownership of adaptation strategies by Inuit organizations will sustainably reinforce the adaptive capacity of

populations (Constable et al., 2022). As the report highlights : “Vulnerability of Arctic Indigenous Peoples to climate change is often rooted in historical and ongoing colonialism, which has led to land dispossession, unequal recognition of Indigenous rights, fragmentation of landscapes, and the social and environmental impacts of industrial development.” Consequently, “supporting Indigenous self-determination, recognizing Indigenous Peoples’ rights, and supporting Indigenous knowledge-based adaptation are critical to reducing climate change risks and effective adaptation” (Constable et al., 2022). The adaptive capacity of Inuit communities must rely on their self-determination, traditional knowledge, and the interconnectivity uniting individuals, communities, biodiversity, and the land (Constable et al., 2022). Local communities must be involved in decisions; the active engagement of populations remains the essential foundation of any decision-making process.

Several initiatives have been deployed at both local and regional scales to respond to climate disruptions. Regionally, a collaborative committee was mobilized to structure local adaptation, and a second committee was established to coordinate emergency preparedness and response, particularly during extreme weather events. At the local scale, actions vary significantly from one village to another depending on stakeholder mobilization. Interventions focus primarily on food security and access to country foods (community freezers, local greenhouses, subsidies for hunting and fishing expeditions), as well as securing outings on the land (trail marking, ice mapping, distribution of life-saving equipment).

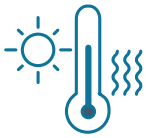
Nevertheless, preliminary analysis of these measures reveals that the current community response has very little influence on the determinants of health. Due to the high disparity of local initiatives, the lack of documentation regarding their impacts on health and well-being, and their recent implementation, it proved impossible to quantitatively measure their actual outcomes. Consequently, the community response will not be factored in when calculating the consequence score in the risk assessment.













RISK ASSESSMENT

Climate risk to health and well-being occurs at the convergence of hazard likelihood and the severity of their potential consequences. These consequences intrinsically depend on population exposure, vulnerability, and the direct health impacts induced by the hazards. Collectively, these variables modulate the overall level of climate change risk faced by Nunavimmiut.

1. Hazard Likelihood

The hazard profile serves as the foundation for defining climate projections in Nunavik. However, given the vastness of the territory, the actual manifestation of climate disruptions and hazards can vary significantly from one locality to another. This section is dedicated to analyzing hazard likelihood for the 2071–2100 time horizon under the SSP3-7.0 scenario. For comparative purposes, the scores associated with intermediate horizons (2041–2070) and the SSP2-4.5 scenario are recorded in Appendix 4.

The main analysis focuses on the 2071–2100 horizon under the SSP3-7.0 scenario, as this combination provides the most robust and representative analytical framework. Indeed, for the majority of the hazards studied, climate models indicate no significant differences between intermediate configurations (such as 2041–2070 under SSP3-7.0 or 2071–2100 under SSP2-4.5) and reveal only a minimal variance compared to the end-of-century horizon under SSP3-7.0. Moreover, projection data regarding coastal erosion is exclusively available under the SSP3-7.0 scenario.

In accordance with the reference framework developed by the INSPQ, the likelihood of climate hazards (whether episodic or trend-based) corresponds to their probability of occurrence (Leclerc, Landaverde, Demers-Bouffard, & Sankara, 2025). This likelihood score is assigned based on scientific literature and risk assessments conducted by partners, notably Makivvik and the Kativik Regional Government. Likelihood scores are assigned by hazard, by community, and at the regional scale for Nunavik as a whole. The following table explains the interpretation grids for these likelihood ratings.

Table 26 — **Likelihood assessment (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025)**

LIKELIHOOD LEVEL	VERY UNLIKELY	UNLIKELY	LIKELY	VERY LIKELY	NEARLY CERTAIN
	1	2	3	4	5
Scale A (Episodic hazards)	Will rarely occur, every 20 years	Will occur less frequently, eve-ry 5-15 years	May occur fre-quently, every 2-5 years	Will occur once a year or very frequently	Will occur multiple times a year or frequently
Scale B (Trend-based hazards)	Will be well below the threshold	Will be below the threshold	Will have reached the threshold	Will slightly exceed the threshold	Will significantly exceed the threshold

To determine hazard likelihood, an internal working committee was formed within the Public Health Department of the Nunavik Regional Board of Health and Social Services. This committee brings together professionals, an Inuk advisor, and physicians from the environmental health team. Their deep knowledge of Nunavik and the realities experienced by Nunavimmiut proved essential for defining the appropriate indicators and occurrence thresholds. These methodological parameters are recorded in the following table :

Table 27 — **Indicators and thresholds used to identify likelihood**

	HAZARDS	INDICATORS	THRESHOLDS	REASONS
TREND-BASED	Permafrost Thaw	Duration of frost-free season	100 days	Established based on the historical average across the 14 communities
		Percentage of buildings located in high-risk zones	5 %	Low threshold selected due to the ongoing housing crisis gripping the region
	Coastal Erosion	100-year return period storm surge level	Between 100 and 110 cm	Established based on the historical average across the 14 communities
	Heavy Precipitation	Maximum precipitation over a 24-hour period	20 mm	Established based on the average historical maxima across the 14 communities

	HAZARDS	INDICATORS	THRESHOLDS	REASONS
EPISODIC	Wildfires	Projection of land area burned by large fires in Canada	4% increase in land area burned across Canada	Probability of experiencing more $PM_{2.5}$ episodes above 60 ppm
		Growing season	670-700 growing degree-days (based on white spruce)	Climate zone at higher risk of experiencing a wildfire within the year
	Blizzards	Winds of at least 40 km/h causing reduced visibility for at least 6 hours	5 episodes of 3 consecutive days of blizzards	Significant impacts begin occurring starting from the third consecutive day of a blizzard
	Extreme Heat	Number of days with a maximum temperature exceeding 25°C	2 episodes lasting more than 2 days above 25°C	Definition of heat wave adapted to the baseline of the majority of Nunavik communities

The following table synthesizes the empirical evidence derived from the work of the Centre d'études nordiques (CEN) (Allard et al., 2020), data records from Environment and Climate Change Canada (ClimateData.ca, 2026), as well as climate projections from Ouranos, Natural Resources Canada, and the consulting firm WSP developed for the Makivvik Corporation (Climate change risk and resilience assessment for Nunavik, 2024). Integrating these diverse sources enabled the modeling of each hazard's likelihood, with the ratings formally validated by the working committee of the Nunavik Public Health Department based on consensus-defined occurrence thresholds.

Table 28 — **Hazard likelihood in Nunavik for the 2071-2100 time horizon under the SSP3-7.0 scenario**

 COMMUNITIES	EXTREME HEAT	PERMAFROST THAW	COASTAL EROSION	HEAVY PRECIPITATION	WILDFIRES	BLIZZARDS
Kuujjuaraapik	5	2	3	5	5	4
Umiujaq	5	3	3	4	5	5
Inukjuak	4	5	3	5	3	5
Puvirnituq	3	5	3	3	2	5
Akulivik	2	5	3	3	2	5
Ivujivik	2	5	2	3	1	5
Salluit	2	5	2	3	1	5
Kangiqsujuaq	2	3	2	2	1	5
Quaqtaq	2	4	2	4	1	5
Kangirsuk	2	5	2	3	2	5
Aupaluk	4	3	1	3	3	5
Tasiujaq	4	5	2	3	4	5
Kuujjuaq	5	3	1	5	5	3
Kangiqsualujjuaq	4	4	2	3	4	5

2. Potential Consequences

To establish the potential consequence score for the hazards, a weighted calculation aggregating the scores for health consequences, population exposure, population sensitivity, and adaptive capacity will be performed.

a. Health Consequences

Climate disruptions generate a wide range of repercussions on health and well-being. To assess the severity of the potential consequences of these hazards, it is essential to characterize the nature of their health impacts. To this end, the Nunavik Department of Public Health drew inspiration from the evaluation grid proposed by the INSPQ, adapting it to regional realities.

Specifically, the dimensions “Access to the land, country foods, and food security” and “Impacts on traditional knowledge, culture, and language” were separated from the generic category of “Social disruptions.” This conceptual restructuring stems directly from community consultation tours conducted across Nunavik. During these exchanges, residents overwhelmingly emphasized the centrality of culture, language, traditional knowledge, and access to country foods and the land. These testimonies align with the findings of the 2017 Qanuilirpitaa? health survey. By establishing these dimensions as distinct categories, the Nunavik Department of Public Health reaffirms their role as structural determinants of health essential to the well-being and fulfillment of Nunavimmiut.

The eight categories of health impacts selected to establish the consequence score are :

1. Mortality
2. Chronic physical disorders (e.g., cardiovascular diseases, respiratory diseases, cancers)
3. Acute physical disorders (e.g., poisonings, infections, injuries)
4. Psychological disorders (e.g., anxiety, depression, stress, ecoanxiety)
5. Consequences for traditional knowledge, culture and language
6. Consequences for food security and land access
7. Social disruptions (e.g., social isolation, loss of a sense of belonging, relocation, violence and crime, disruption of the living environment, housing issues)
8. Consequences for public health resources and the healthcare system (indirect consequence)

To establish the weighting for these eight categories, a committee composed of representatives from various departments within the Nunavik Department of Public Health and a collaborator from the Department of Planning and Programming of the Nunavik Regional Board of Health and Social Services prioritized them in order of importance. This classification was then validated and adjusted by Inuit collaborators to ensure alignment with their holistic vision of health. The following table presents the final distribution of the eight categories and their respective weightings.

Table 29 — **Weighting of health consequences categories**

RANK	1	2	3	4
WEIGHTING	0.190	0.143	0.095	0.048
Consequence categories / types	• Consequences for food security and land access • Psychological disorders	• Consequences for traditional knowledge, culture and language • Consequences for the healthcare system • Social disruptions	• Chronic physical disorders	• Acute physical disorders • Mortality

Subsequently, the committee assigned a score from 1 to 5 for each category, broken down by hazard and by community. The evaluation grid used to define these five levels is presented in Appendix 2 and draws inspiration from the INSPQ reference framework. Certain definitions were adjusted to accurately reflect the realities of Inuit communities. The scores were established by consensus, keeping the 2071–2100 time horizon and the SSP3-7.0 emissions scenario at the core of the discussion. Nevertheless, most committee members noted similar indicators of health impacts across both climate scenarios and both time horizons. Furthermore, the committee emphasizes that Inuit are already experiencing tangible health repercussions linked to climate disruptions and that these effects will inevitably intensify in the future. The following table presents the consequence scores selected for the 2071–2100 horizon under the SSP3-7.0 scenario.

Table 30 — **Weighted health consequences scores**

 COMMUNITIES	EXTREME HEAT	PERMAFROST THAW	COASTAL EROSION	HEAVY PRECIPITATION	WILDFIRES	BLIZZARDS
Kuujjuaraapik	4	3	2	2	4	2
Umiujaq	4	3	2	2	4	3
Inukjuak	4	3	2	2	3	3
Puvirnituq	4	3	2	2	3	4
Akulivik	3	3	2	2	3	4
Ivujivik	3	3	2	2	3	4
Salluit	3	3	3	2	3	4
Kangiqsujuaq	3	3	2	2	3	4
Quaqtaq	3	3	2	2	3	4
Kangirsuk	4	3	2	2	3	4
Aupaluk	4	3	2	2	3	3
Tasiujaq	4	3	2	2	3	3
Kuujjuaq	4	3	2	2	4	2
Kangiqsualujjuaq	4	3	2	2	4	3

Establishing scores by consensus resulted in a high degree of homogeneity in the results from one locality to another. Indeed, the working committee highlighted that hazards generally affect all Nunavimmiut uniformly, regardless of their village of residence, and that local specificities only marginally influence the severity of health impacts. This finding aligns with the regional health profile, which reveals low disparities among communities regarding the selected health indicators. Finally, the committee ruled that these consequence scores would remain stable across all considered scenarios and time horizons.

b. Community Exposure

Exposure to climate hazards can vary from one village to another depending on infrastructure layout, geographical characteristics, and local environmental conditions. To characterize this exposure, the environmental health team analyzed hazard mapping derived from climate projections and scientific literature, alongside reports from consultations conducted with the Nunavik population (available in Appendix 5). These exposure profiles were validated by the internal climate change committee of the Nunavik Regional Board of Health and Social Services. Exposure to hazards was defined using several key indicators :



I. EXTREME HEAT

To accurately measure heat exposure at the local scale, community-level residential data, specifically regarding overcrowding or indoor temperature profiles, would be required. Unfortunately, this information is not available for all villages. Furthermore, because the physical layout and design of infrastructure remain similar from one village to another and the concept of urban heat islands does not apply to the realities of Nunavik, mapping mineralized surfaces does not constitute a suitable indicator for the region. Consequently, to assess the exposure of Nunavimmiut to extreme heat episodes, the annual number of days where the maximum temperature exceeds 25°C was selected as the indicator. This climatological approach enables differentiation among the 14 communities across the territory.

2. PERMAFROST THAW

The percentage of buildings located in unstable zones due to permafrost thaw and the permafrost ice content were each weighted at 0.4, as they constitute critical determinants of current exposure risk. Additionally, permafrost thickness was weighted at 0.2. Combining these three indicators allows for an estimation of the structural exposure of communities to this hazard. Nevertheless, the prospective characterization of permafrost conditions is complex due to uncertainties surrounding deep permafrost and the compounding effects of warming, such as tundra shrubification, snow accumulation, or increased rainfall during freezing periods (Ouranos, 2026a). Furthermore, current climate models do not integrate soil properties and under-evaluate the direct impact of temperature variations on them. Consequently, only the current exposure index was selected to establish the community exposure scores.

3. COASTAL EROSION

Community exposure to this risk was defined by considering the probability of storm surge occurrence and, primarily, the number of infrastructures located below the high-water mark during storm tides.

4. HEAVY PRECIPITATION

The exposure index for this hazard was calculated using the average percentage increase in total precipitation at the community scale, the delineation of flood-vulnerable zones, and watershed discharge modification modeling.

5. WILDFIRES

The exposure index associated with wildfires was modeled based on previously characterized environmental indicators. To achieve this, map data on forest cover (marking the northern tree line) and scientific studies on the shrubification of the tundra surrounding the communities were combined.

6. BLIZZARDS

The exposure index was established based on the average number of blizzard warnings issued by Environment and Climate Change Canada for each community.

A score from 1 to 5 was assigned to each community based on its level of exposure to the various hazards.

Table 31 — **Interpretation of exposure level scores**

SCORE	EXPOSURE LEVEL	RISK FACTORS
1	NULL	The community under study is **less exposed** than the region as a whole
2	MINOR	The community under study is **as exposed** as the region as a whole
3	MODERATE	The community under study is **slightly more exposed** than the region as a whole
4	MAJOR	The community under study is **moderately more exposed** than the region as a whole
5	SEVERE	The community under study is **significantly more exposed** than the region as a whole

Mapping analysis reveals high heterogeneity in exposure risk, which proves negligible within certain localities but is particularly severe for others. The following table aggregates the distribution of exposure ratings by community across the different hazards. Specifically, climate models confirm that villages built on fine-textured deposits rich in ground ice are highly vulnerable to permafrost thaw over the coming decades; the most critical hotspots of vulnerability are concentrated in Inukjuak, Puvirnituq, Akulivik, Ivujivik, Tasiujaq, and Salluit. In parallel, the data integrates findings from the Centre d'études nordiques (CEN), which emphasize that a portion of the housing stock in certain communities is now located below the high-water mark during coastal storm surges. According to CEN projections, Umiujaq is susceptible to experiencing accelerated coastal erosion due to the increased frequency of storm tides; these direct marine submersions also threaten several residential infrastructures in Akulivik, Inukjuak, and Salluit (Allard et al., 2020).

Table 32 — **Summary of community exposure levels to the different hazards**



COMMUNITIES	EXTREME HEAT	PERMAFROST THAW	COASTAL EROSION	HEAVY PRECIPITATION	WILDFIRES	BLIZZARDS
Kuujjuaraapik	5	1	2	2	5	4
Umiujaq	4	1	3	2	4	5
Inukjuak	2	4	3	2	3	3
Puvirnituq	1	4	2	2	2	4
Akulivik	1	4	3	2	1	4
Ivujivik	1	4	2	2	1	4
Salluit	1	5	3	2	1	4
Kangiqsujuaq	1	3	2	2	1	3
Quaqtaq	1	3	2	2	1	3
Kangirsuk	2	3	2	3	2	3
Aupaluk	3	2	2	2	2	2
Tasiujaq	3	4	2	2	3	2
Kuujjuaq	4	1	2	2	4	2
Kangiqsualujjuaq	3	2	2	2	3	3

It should be noted that the modeling of population exposure relies exclusively on the integration of climate indicators, the physical layout of local infrastructure, and currently mapped risk zones. Including variables related to employment profiles or the proportion of residents engaging in hunting, fishing, or gathering would have allowed for a more detailed characterization of the active population's exposure outside the villages. However, these land-mobility indicators are unavailable at the community scale; the available data is either highly fragmented or aggregated solely at the regional level for Nunavik or by coastal side, preventing accurate local statistical representation.

For indicative purposes, the following table compares these indicators with the provincial average. Due to the extensive practice of subsistence activities out on the land, Inuit generally display a level of exposure to climate hazards that is significantly higher than that observed within the overall Québec population. Furthermore, numerous reports indicating that housing is poorly adapted to environmental stressors reveal that this increased exposure also affects Nunavimmiut at the very heart of their communities.

***Table 33* — Proportion of the population regularly engaging in hunting, fishing and gathering activities (Furgal et al. 2022; Gouvernement du Québec 2026a) and proportion of outdoor workers in Nunavik and Québec**

	HUNTERS AND TRAPPERS (%)	FISHERS (%)	GATHERERS (%)	OUTDOOR/ CONSTRUCTION WORKERS (%) (STATISTICS CANADA, 2021)
Nunavik	83.5	86	85	7.5
Hudson Bay coast	79.4	81.2	82.1	6.7
Ungava Bay coast	88.9	92.3	88.8	6.7
Québec	3.5 *	8.2	N/A	9.7

* Includes hunters and trappers.

Comparative analyses for the communities reveal a geographical bias that can mask realities specific to certain localities. For instance, the blizzard exposure of certain villages is assigned an artificially low rating, a methodological distortion resulting from the fact that the data is adjusted relative to the Nunavik regional average. If the comparison baseline for these same winter hazards were calibrated according to the Québec provincial average, the exposure scores for all these communities would be significantly higher.

C. Population Sensitivity Assessment

The population sensitivity assessment could not be carried out at the community scale due to data accessibility constraints. Instead, sensitivity scores were assigned by coast (Hudson Bay and Ungava Bay) when possible, to identify which coast has the more vulnerable population. The following table presents the definitions associated with each score level.

Table 34 — Description of population sensitivity scores (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025)

SCORE	RISK FACTORS
1	The coastal side under study (or region) is **less sensitive** than the region as a whole (or province)
2	The coastal side under study (or region) is **as sensitive** as the region as a whole (or province)
3	The coastal side under study (or region) is **slightly more sensitive** than the region as a whole (or province)
4	The coastal side under study (or region) is **moderately more sensitive** than the region as a whole (or province)
5	The coastal side under study (or region) is **significantly more sensitive** than the region as a whole (or province)

The sensitivity scores were assigned by the working committee by comparing data from each health centre territory (Hudson and Ungava) against the Nunavik regional baseline or, in the absence of coast-specific data, by comparing regional data against provincial figures (see Table 35). Because data is only available for a single indicator at the coastal-side level, strictly applying the scale derived from the INSPQ framework results in relatively low sensitivity scores, with **both the Hudson and Ungava coasts posting an average rating of 2.**

Nevertheless, comparative analysis demonstrates that the Nunavik population exhibits heightened vulnerability across certain factors compared to the Québec average. This reality justifies prioritizing the region within provincial adaptation plans, as **benchmarking against the provincial scale elevates Nunavik's average sensitivity index to 4.**

Table 35 — **Sensitivity indicators presented in the community profile and sensitivity scores**

INDICATORS	Nunavik	Hudson Bay coast	Ungava Bay coast	Québec	Sensitivity score (Hudson vs Nunavik)	Sensitivity score (Ungava vs Nunavik)	Sensitivity score (Nunavik vs Québec)
Proportion of children aged 5 and under (%)	12.8	N/A	N/A	5	N/A	N/A	5
Proportion of adults 65 and older (%)	4.5	N/A	N/A	20.6	N/A	N/A	1
Fertility rate (age 25-29, per 1, 000)	159	N/A	N/A	96	N/A	N/A	4
Individuals living with hypertension (%)	23.5	N/A	N/A	20.3	N/A	N/A	4
Individuals who experienced suicidal ideation in the past 12 months (%)	13	10.4	16.3	4.2	2	2	5
Average	N/A	N/A	N/A	N/A	2	2	4

d. Adaptive Capacity

Adaptation is defined as a set of initiatives and actions deployed to mitigate the actual or anticipated negative impacts of climate disruptions, while strengthening the resilience of ecosystems and communities (Ouranos, 2015). Adaptive capacity thus corresponds to the ability of an individual, an ecosystem, or a community to mitigate these deleterious effects or to take advantage of the opportunities generated by these disruptions. In the same manner as sensitivity, the assessment of the population's adaptive capacity could not be carried out at the community scale due to a lack of local data. Instead, scores were assigned by health centre territory (Hudson and Ungava) to identify the sub-region requiring priority interventions. The following table presents the definitions associated with each score level.

Table 36 —
Description of population adaptive capacity scores (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025)

LEVEL	DESCRIPTION
1	The coastal side under study (or region) has a **higher** adaptive capacity than the region as a whole (or province)
2	The coastal side under study (or region) has an adaptive capacity **equal** to the region as a whole (or province)
3	The coastal side under study (or region) has a **moderately lower** adaptive capacity than the region as a whole (or province)
4	The coastal side under study (or region) has a **lower** adaptive capacity than the region as a whole (or province)
5	The coastal side under study (or region) has a **significantly lower** adaptive capacity than the region as a whole (or province)

The methodology deployed to characterize adaptive capacity is identical to that selected for the sensitivity index, with the added advantage of coast-specific data availability. Generally, the values observed on both coastal sides remain within the same order of magnitude; consequently, the regional assessment results in uniform indices, with **both the Hudson and Ungava coasts posting an adaptive capacity score of 2.**

Nevertheless, the provincial comparative analysis highlights a significant investment deficit in resilience within Nunavik. This systemic disparity justifies prioritizing the region within provincial adaptation plans, as **benchmarking against the Québec baseline raises Nunavik's adaptive capacity score to 4, thereby underscoring the imperative for public funding.**

Table 37 — **Indicators used to measure adaptive capacity in the community profile and adaptability scores**

INDICATORS	Nunavik	Hudson Bay coast	Ungava Bay coast	Québec	Sensitivity score (Hudson vs Nunavik)	Sensitivity score (Ungava vs Nunavik)	Sensitivity score (Nunavik vs Québec)
Proportion of individuals with heavy alcohol or drug consumption (%) (CAGE 2+)	68.5	65.5	72.3	23.6	2	2	5
Proportion of individuals who used drugs in the past 12 months (other than alcohol, cannabis and prescription medications) (%)	14.5	9.4	20.9	4.3	1	3	5
Proportion of individuals who reported experiencing food insecurity (%)	80.5	84.7	75	6.6	2	2	5
Proportion of low-income households (under $60, 000 per year after tax) (%)	34.4	35.8	28.2	47.3	2	1	1
Proportion of individuals living in overcrowded housing (%)	32.8	34.7	29.3	3.8	2	2	5
Proportion of individuals living in housing requiring major repairs (%)	19.1	20	17.9	6.3	2	2	4
Average	N/A	N/A	N/A	N/A	2	2	4

e. Potential Consequence Score

Establishing the potential consequence score relies on a weighted calculation aggregating the indices for health impacts, exposure, population sensitivity, and adaptive capacity. Given the homogeneity of the sensitivity and adaptive capacity scores from one coast to the other, the internal committee of the Nunavik Regional Board of Health and Social Services assigned greater weight to health consequences and exposure levels to preserve the sensitivity of the model.

The distribution of the weighting coefficients for these four factors is broken down as follows :

POTENTIAL CONSEQUENCE SCORE	=	HEALTH CONSEQUENCE SCORE X 0.45	+	EXPOSURE SCORE X 0.45	+	SENSITIVITY SCORE X 0.05	+	ADAPTIVE CAPACITY SCORE X 0.05

The following table shows the potential consequence scores for the SSP3-7.0 scenario and the 2071–2100 time horizon by hazard and by community.

Table 38 — **Potential consequence scores under the SSP3-7.0 scenario for the 2071-2100 time horizon**

 COMMUNITIES	EXTREME HEAT	PERMAFROST THAW	COASTAL EROSION	HEAVY PRE-CIPITATION	WILDFIRES	BLIZZARDS
Kuujjuaraapik	5	2	2	2	4	3
Umiujaq	4	2	2	2	4	4
Inukjuak	3	4	2	2	3	3
Puvirnituq	2	3	2	2	2	4
Akulivik	2	3	3	2	2	4
Ivujivik	2	3	2	2	2	4
Salluit	2	4	3	2	2	4
Kangiqsujuaq	2	3	2	2	2	4
Quaqtaq	2	3	2	2	2	3
Kangirsuk	3	3	2	2	2	3
Aupaluk	4	3	2	2	3	3
Tasiujaq	4	3	2	2	3	3
Kuujjuaq	4	2	2	2	4	2
Kangiqsualujjuaq	3	2	2	2	4	3

Because the values of most independent variables (sensitivity, adaptive capacity, and exposure) remained stable across all climate scenarios and time horizons, no global consequence index was calculated for the other configurations. The minimal variations observed in the health consequence scores proved insufficient to create any significant difference in the total consequence scores.

3. Risk Level Assignment

Once the likelihood index (associated with the hazard's probability of occurrence) and the potential consequence score (characterizing the severity of possible health impacts) are established, multiplying these two variables determines the health risk level for each hazard. The higher the result, the greater the risk. For the Nunavik region, the projected risk levels under the SSP3-7.0 scenario for the 2071–2100 time horizon are mapped in the matrices below; these highlight the most vulnerable localities for each type of hazard. Furthermore, individualized matrices grouping all six hazards on a single grid for each community are available in Appendix 3. These two approaches offer complementary perspectives, enabling both regional and local analysis. Finally, the risk-based and community-based grids were formally validated by the internal committee of the Nunavik Regional Board of Health and Social Services to ensure alignment with field realities and established consensus.



Figure 32 —
Matrices representing hazard-related risks linked to climate hazards in Nunavik, SSP3-7.0 scenario, 2071-2100 time horizon

The four-level scale determines the required level of intervention, considering the identified climate hazards.

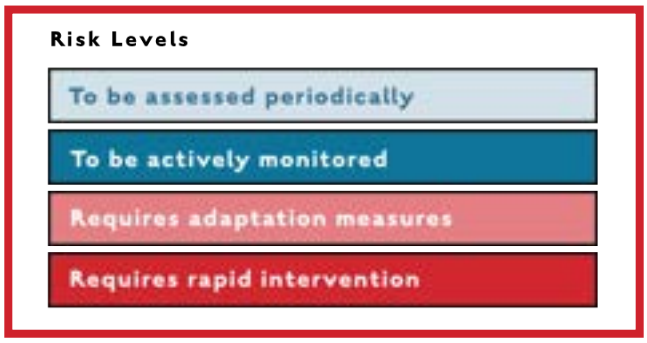


Figure 33 — **Risk matrix scale (Leclerc, Landaverde, Demers-Bouffard and Sankara, 2025)**

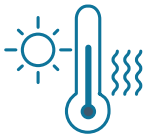
According to the resulting matrices, permafrost thaw and blizzards require the prioritized deployment of adaptation measures and immediate interventions across all communities. In parallel, extreme heat and wildfires represent more pronounced threats to localities situated in the southern part of the region (Kuujjuaraapik, Umiujaq, Kuujjuaq, and Kangiqsualujjuaq). Finally, coastal erosion and changes in precipitation regimes require ongoing monitoring and periodic reassessment to validate the stability of these risk indices.













E

INTERPRETATION OF RESULTS

An interpretation of the results obtained is essential to ensure that the findings accurately reflect the lived realities within the communities.

1. Risk Assessment

The risk matrices provide a tool to prioritize localities, hazards, and vulnerable populations facing climate change, with the ultimate goal of strengthening community resilience. To better understand the health impacts of climate change, as well as the risks experienced and perceived by the population, the public health team conducted a consultation tour across Nunavik communities (with testimonies recorded in Appendix 5). During these exchanges, residents frequently identified barriers to accessing the land and country foods as the most critical repercussions of climate disruptions. Consequently, hazards that alter these two foundational dimensions of holistic health are considered high priorities.

Participants also highlighted a pronounced shortening of the winter season across all communities in the region. Delayed freezing and premature thawing of the ice cover, across both the tundra and marine environments, severely complicate mobility out on the land and elevate the risk of accidents and physical trauma. This shifting reality complicates access to hunting grounds, leading to increased wear and tear or breakage of equipment, higher travel costs, and the cancellation of traditional activities at the beginning and end of the season.

In tandem with these field observations, the risk matrices reveal that blizzards and permafrost thaw constitute two prominent threats affecting most localities. Given the symbiotic relationship binding these communities to the winter season and its impact on their overall well-being, climate hazards that disrupt this season demand immediate intervention. Public health measures must therefore give priority to the determinants of health affected by permafrost degradation, winter storms, and changing precipitation regimes. These directions require the acquisition of local and regional data, alongside the deployment of tangible actions aimed at strengthening the resilience of Nunavimmiut.

The marked lengthening and warming of the summer season exacerbate the recurrence of major climate hazards, notably extreme heat waves and wildfires, including the deterioration of air quality. In line with the risk matrix models, these phenomena generate direct health repercussions for the communities, disproportionately affecting those in the southern part of the region. Given these emerging risks, which are less familiar to Nunavimmiut, it has become a priority to raise awareness about potential health impacts and to deploy adaptation strategies to mitigate their consequences.

Although data on sensitivity and adaptive capacity could not be fully integrated into the community-level risk analysis, as availability was restricted by health centre territory rather than individual community, the data nonetheless reveals that certain risk factors are much more pronounced among Nunavimmiut compared to the Québec population average. For instance, the region exhibits a higher proportion of children, as well as a larger number of individuals affected by food insecurity, anxiety, or depression. These vulnerabilities intersect closely with the concerns expressed by the population during community visits, and the upcoming action plan for the Department of Public Health must prioritize these higher-risk groups. It will be essential to focus efforts on initiatives that directly improve health indicators linked to psychological well-being and food security in Nunavik.

The results of the risk matrices accurately reflect the climate adaptation perceptions and needs expressed by the communities. Several local initiatives have already been deployed to reduce the impacts of certain hazards. For instance, some communities have implemented snow removal and water distribution plans following blizzards, while others conduct active monitoring of ice thickness. Regional organizations are also spearheading key projects, such as the Nunavik Housing Bureau (NHB), which analyzes building vulnerability to permafrost thaw, and the Kativik Regional Government (KRG), which provides a community support fund for climate action. Collectively, these local and regional initiatives will complement the efforts of the Department of Public Health to sustainably strengthen the resilience of Nunavimmiut.

2. Sensitivity Analysis of the Results

To address certain gaps in the quantitative data, qualitative insights from interviews with the population and regional partners were integrated to complement the analysis. Although this qualitative data is subject to participant perception, a sensitivity analysis was performed by modifying specific variables to guarantee the objectivity of the methodology and to prevent bias, prejudice, and stereotypes. Furthermore, a committee of experts external to the risk quantification process reviewed all final results.

In parallel, a multidisciplinary working committee established the weighting of health impacts and selected likelihood thresholds and exposure indicators. To evaluate the sensitivity of these three factors, despite any potential subjective perceptions among committee members, the consequence and likelihood calculations were retested by modifying certain thresholds and weights. These verifications demonstrate that changing one or two factors affects neither the risk level of a hazard for a community nor its prioritization ranking.

Thus, despite the degree of subjectivity inherent to the scores for consequences and likelihood assigned by experts, the analysis of sensitivity confirms the methodology's reliability. The risk matrices thus constitute a solid, admissible basis to guide the establishment of priorities for future measures for adapting to climate change.

3. Limitations of the Risk Assessment

In addition to the limitations inherent to the climate and population profiles, several constraints were identified within the risk assessment process :

HETEROGENEITY OF LIKELIHOOD DATA

The absence of modeled climate projections for certain hazards added complexity to the assessment. For these hazards, projections of indicators and thresholds across the time horizons rely on literature reviews and expert assumptions. Consequently, while some likelihood scores are backed by rigorous climate modeling at the Québec and Canadian scales, others had to be assigned by consensus within the working committee, introducing an inherent degree of subjectivity.

UNDERESTIMATION OF EXPOSURE

The exposure analysis was limited to the built perimeter of the communities. Maps of high-risk zones generally cover only municipal boundaries rather than Nunavik as a whole, thereby excluding hunting, fishing, and gathering grounds, as well as cultural sites outside inhabited areas. However, according to the 2017 Qanuilirpitaa? health survey, 87% of Nunavimmiut reported traveling out on the land regularly or occasionally (Furgal et al., 2022). The actual exposure of the population is therefore underestimated.

EXCLUSION OF CUMULATIVE AND SYSTEMIC EFFECTS

The risk assessment treats hazards in isolation without factoring in chain reactions or cumulative impacts (e.g., permafrost degradation triggering landslides). Yet, the synergy of multiple stressors multiplies the impacts on population health and well-being. Furthermore, this exercise does not account for systemic stressors already present within the communities, such as intergenerational trauma, colonialism, systemic racism, and North-South inequities, which nonetheless act as major determinants of overall vulnerability.

4. Key Findings and Strategic Priorities

The risk assessment highlights five major findings for the Nunavik region :

1. PERMAFROST THAW CONSTITUTES THE MOST CRITICAL AND IMMEDIATE THREAT FACING THE REGION

Already observed across several communities, permafrost thaw destabilizes infrastructure, buildings, and water supply networks. Consultations confirm that many residents are already noticing building shifting, water infiltration, and infrastructure damage.

2. RISING TEMPERATURES ALTER ICE CONDITIONS AND COMPROMISE ACCESS TO THE LAND

In nearly every community visited, participants report thinning ice, delayed freeze-up, and accelerated spring melt. These changes restrict access to hunting and fishing grounds, make outings hazardous, impose additional financial costs on families, and threaten traditional cultural practices essential to the well-being of Nunavimmiut.

3. BLIZZARDS EMERGE AS THE CLIMATE PHENOMENON DISRUPTING THE GREATEST NUMBER OF COMMUNITIES

The risk assessment demonstrates that blizzards present a very high risk level across the entire region. They paralyze travel, interrupt essential services, complicate medical evacuations, disrupt food and water supplies, and cause significant stress within the communities.

4. HEAT WAVES, WILDFIRES AND SMOKE CONSTITUTE RAPIDLY ESCALATING, EMERGING RISKS

Heat waves, wildfires, and resulting smoke are recent threats in Nunavik that are set to intensify in the coming years, already affecting communities in the southern part of the region.

5. IMPACTS ON PSYCHOLOGICAL WELL-BEING AND FOOD SECURITY ARE FELT UNIVERSALLY ACROSS THE REGION

Mental health and food security are cross-cutting issues that emerge most clearly from community consultations. Participants express profound anxiety regarding the changes observed on the land. These disruptions cause stress linked to outings that has become increasingly unpredictable, as well as difficulties accessing country foods.

Considering the process and findings of the risk assessment, four strategic priorities are recommended to guide future adaptation measures :

Priority 1 Optimize environmental and epidemiological surveillance in collaboration with partners

- Map infrastructure providing services to vulnerable populations within zones at risk for landslides, avalanches, or ground subsidence caused by permafrost thaw
- Support the deployment and consolidation of environmental monitoring tools (e.g., ice thickness and conditions, permafrost stability, outdoor air quality)
- Contribute to the development of public health surveillance indicators

Priority 2 Enhance land travel safety and preserve access to the land

- Support local initiatives to mitigate risks during outings on the land (e.g., ice thickness monitoring, mapping of local travel routes, emergency preparedness)
- Promote the preservation and sharing of local traditional knowledge across generations, particularly regarding the ancestral land

Priority 3 Foster psychological well-being and strengthen food security

- Promote expanded local mental health services tailored to cultural realities, and support community-level prevention and promotion measures for healthy mental well-being
- Encourage community initiatives aimed at facilitating access to country foods
- Integrate the psychosocial impacts of climate change into various adaptation plans

Priority 4 Guarantee the continuity of essential services during extreme weather events

- Assist local and regional authorities in securing drinking water supply networks
- Prepare local health services to handle patient surges during extreme weather events
- Participate in the development of public health emergency response plans
- Contribute to strengthening technical resilience (infrastructure and equipment robustness, system redundancy, and rapid recovery times) as well as community resilience against extreme weather phenomena

CONCLUSION

The climate risk assessment conducted for Nunavik confirms that climate change is already a tangible reality. Its repercussions directly affect the health and well-being of Nunavimmiut while undermining social determinants of health such as land access, food security, housing stability, drinking water supplies, infrastructure robustness, and the continuity of essential services. Projections indicate that several hazards will intensify over the coming decades, notably permafrost thaw, heat waves, wildfires and their resulting smoke, blizzards, and shifting precipitation regimes. However, consultations conducted in communities reveal that the heaviest impacts do not stem from a single, isolated hazard, but rather from the cumulative effect of these environmental disruptions on the land, infrastructure, and Inuit ways of life.

Among the climate threats facing Nunavik, permafrost thaw stands out as one of the most concerning for the future of its communities. It directly compromises the stability of buildings, critical infrastructure, and water supply sources (Ouranos, 2026a). Furthermore, the reduction in ice cover and thickness limits safe access to the land, thereby hindering hunting, fishing, and gathering activities, while disrupting the transmission of traditional knowledge. Blizzards, meanwhile, destabilize the already precarious balance of essential services and food and water supplies. While these three phenomena remain top priorities for Nunavik, emerging risks such as extreme heat episodes and wildfires must also be targeted to protect public health.

The risk assessment highlights several pre-existing vulnerabilities that amplify the consequences of the climate crisis, notably food insecurity, the housing crisis, and the geographical remoteness of the communities. It also underscores the critical importance of psychosocial impacts : in nearly every locality visited, participants expressed concerns related to stress, uncertainty, the loss of cultural reference points, and the rapid transformation of the land. These findings demonstrate that adaptation must not only aim to protect infrastructure and services, but also to maintain the cultural, social, and mental well-being of Nunavimmiut. Fortunately, these meetings highlighted the vital strengths within the communities, such as local knowledge, community solidarity, a profound attachment to the land, and a strong willingness to implement adaptation measures. Supporting psychological well-being, food security, and Inuit self-determination thus stands as an absolute priority for the future.

The culmination of this risk assessment paves the way for four strategic priorities : optimizing environmental and epidemiological surveillance in collaboration with partners; enhancing land travel safety and preserving access to the land; fostering psychological well-being and strengthening food security; and guaranteeing the continuity of essential services during extreme weather events. By placing local realities and traditional knowledge at the heart of the strategy, the results of this risk assessment provide a robust foundation to effectively guide the Department of Public Health's future regional adaptation plan. The resulting actions will protect the health, culture, and resilience of current and future generations, while reinforcing the autonomy of Nunavik communities.

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APPENDIX 1

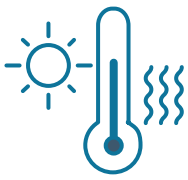
CLIMATE HAZARD IMPACT CHAINS





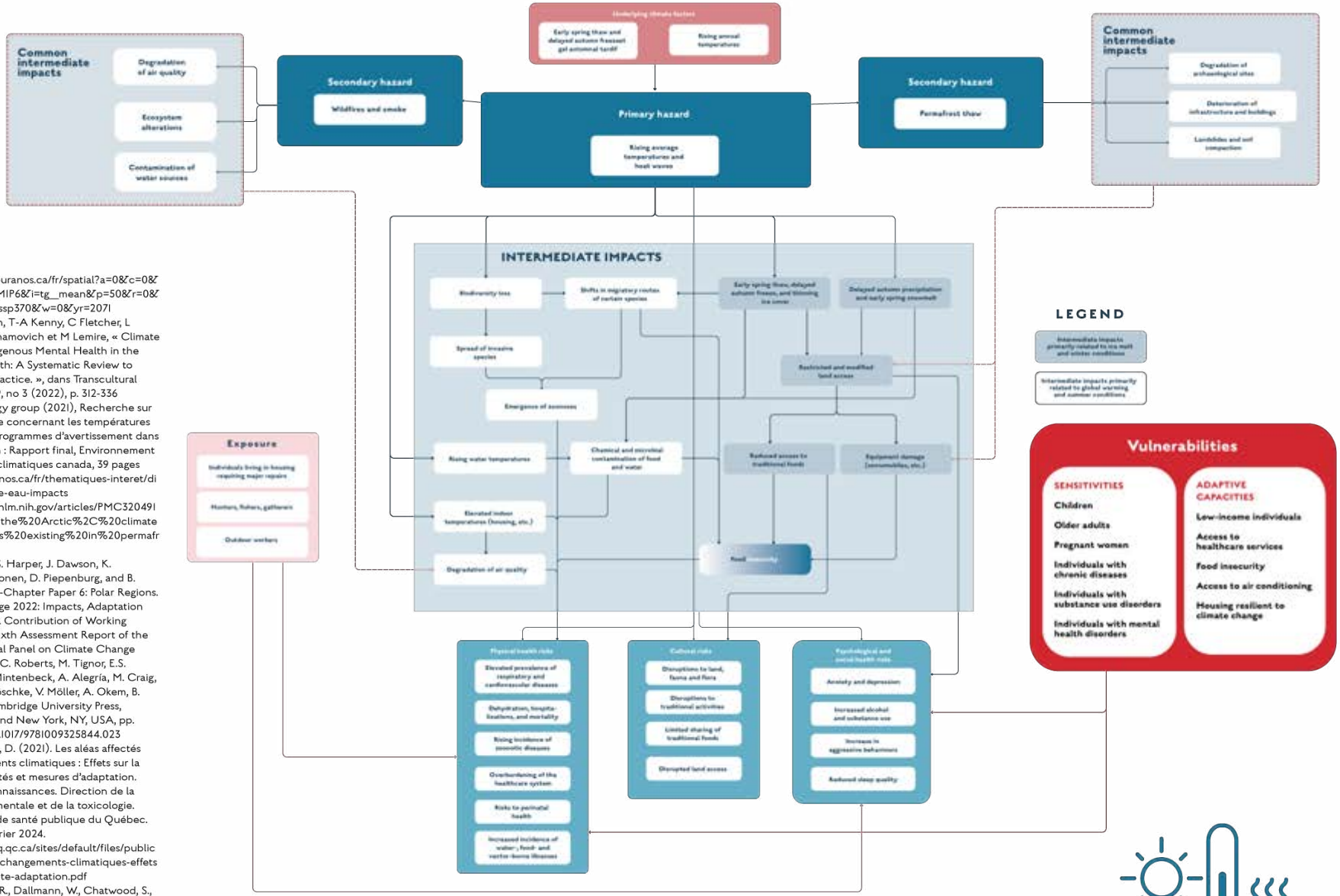








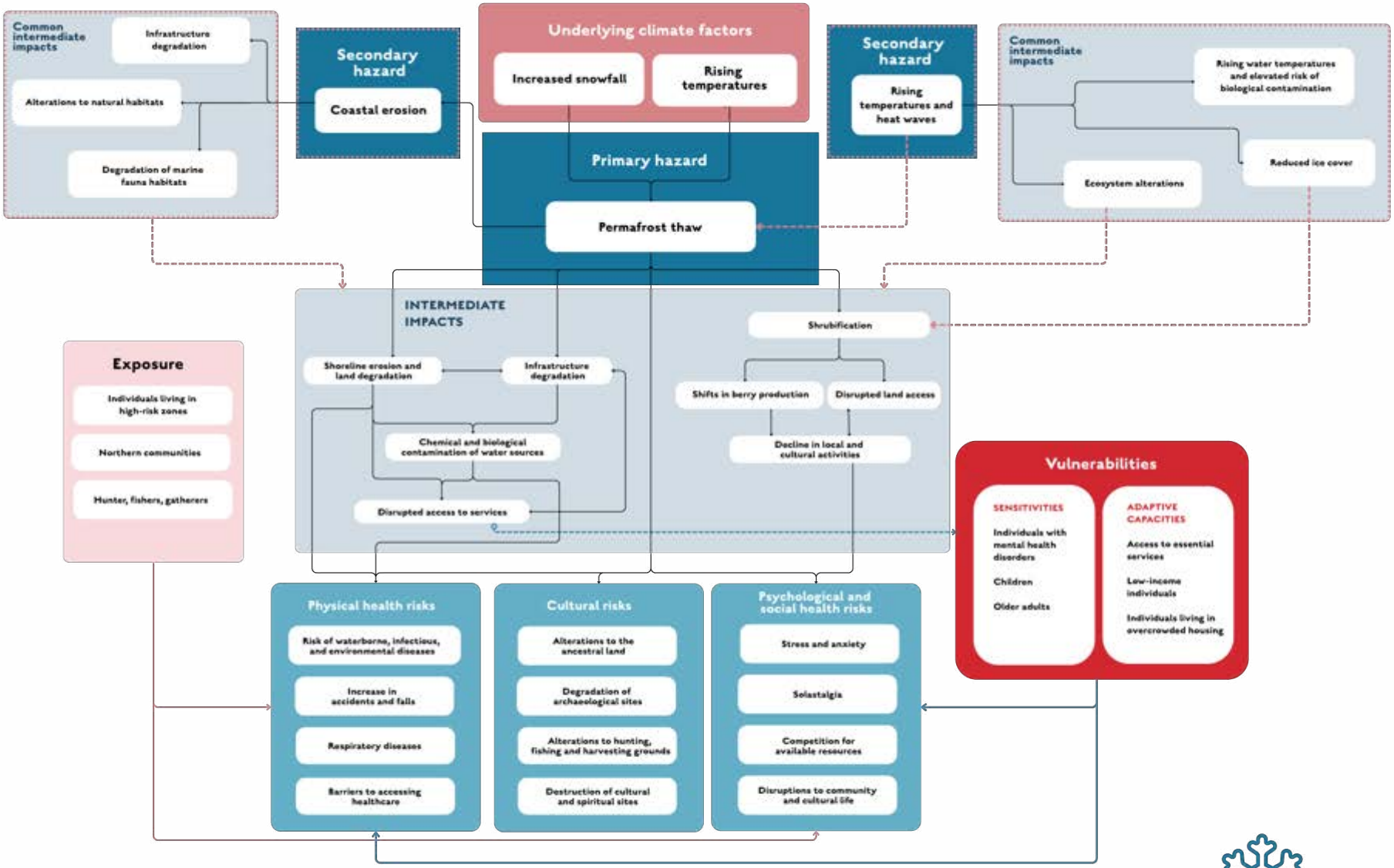
HEAT - NUNAVIK



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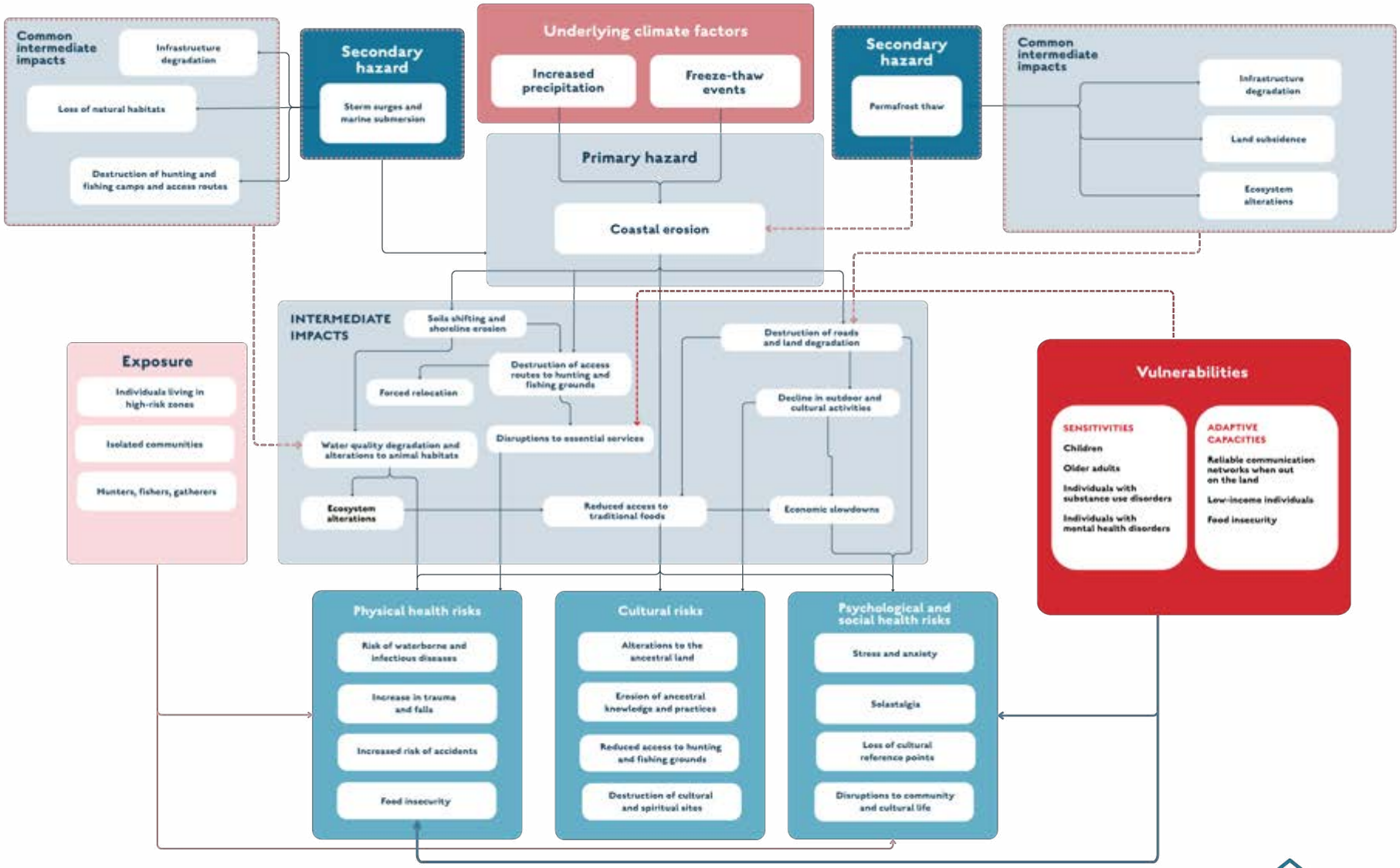
PERMAFROST THAW - NUNAVIK



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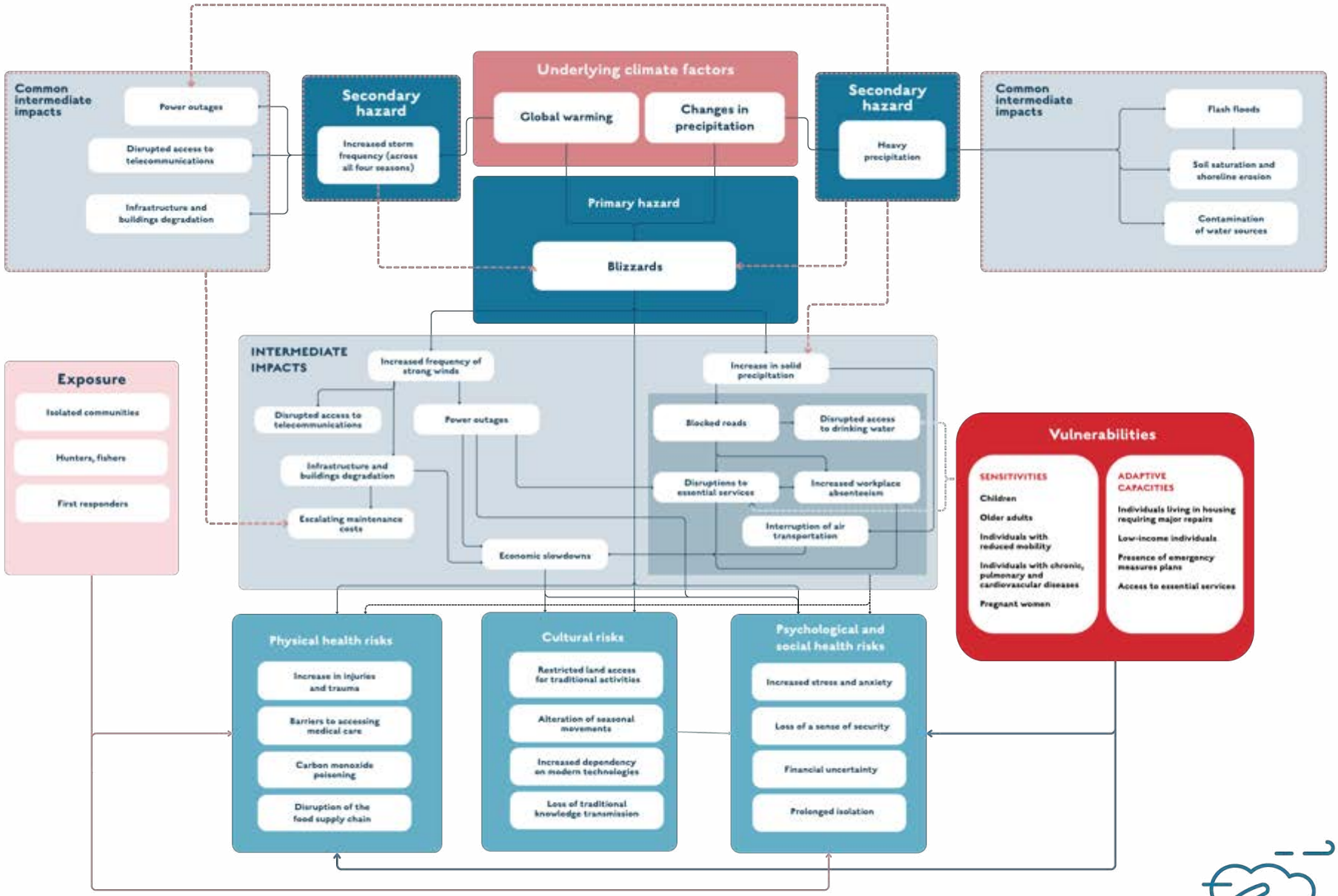
COASTAL EROSION - NUNAVIK



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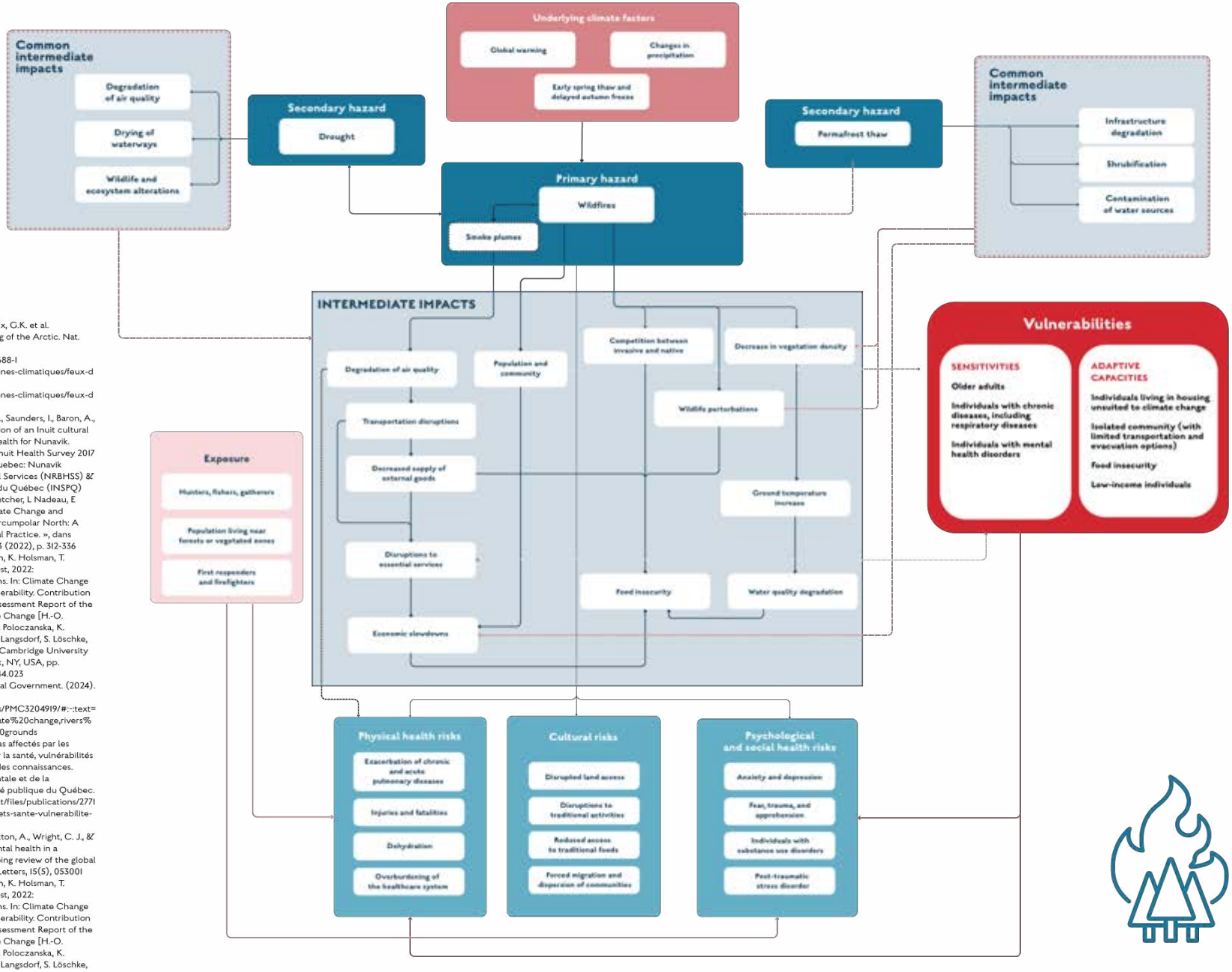
BLIZZARDS - NUNAVIK



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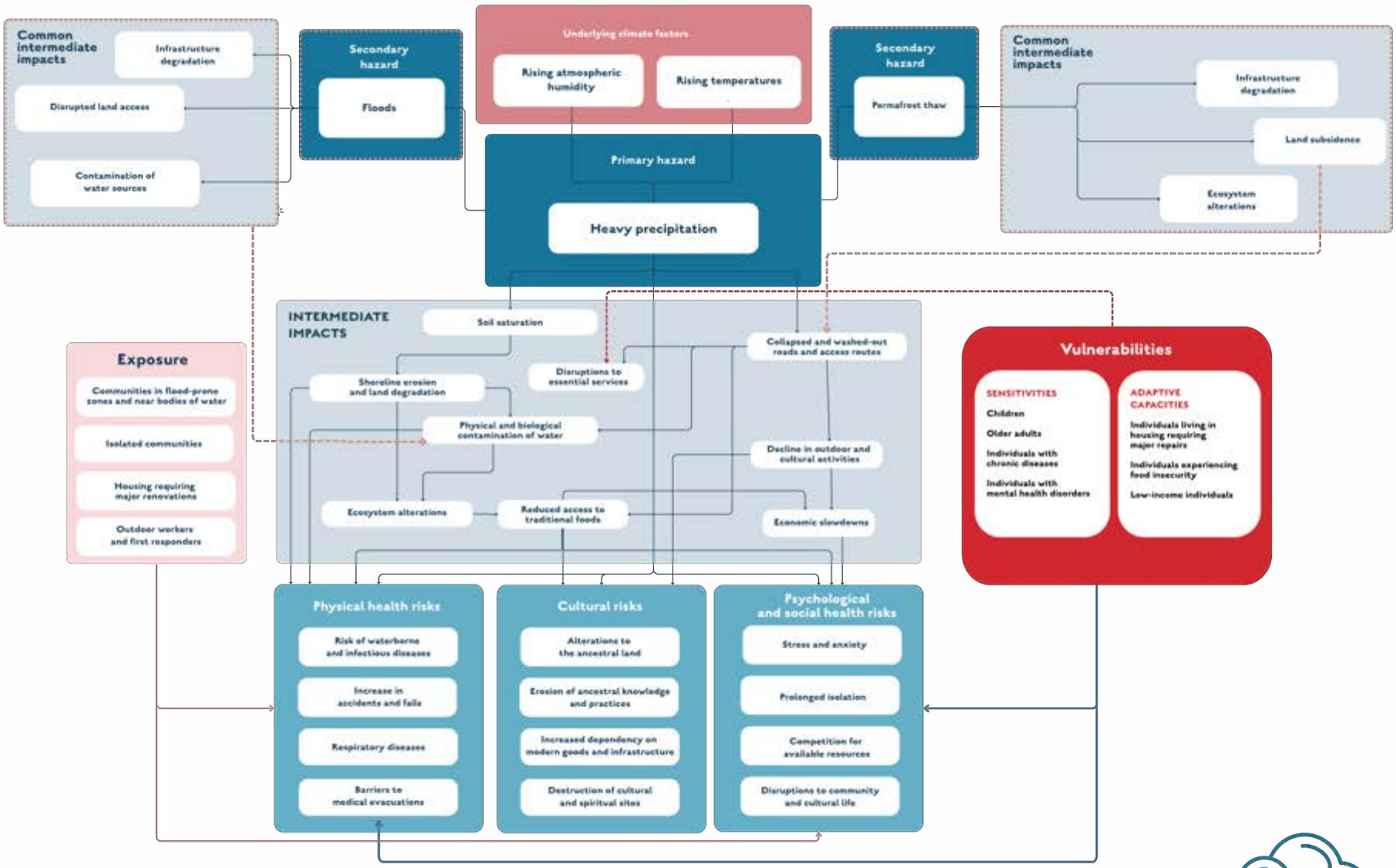
WILDFIRES- NUNAVIK



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HEAVY PRECIPITATION - NUNAVIK



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APPENDIX 2

HEALTH CONSEQUENCES SCORING SCALE

TYPE OF CONSEQUENCES	WEIGHTING	NULL / MINIMAL	MINOR	MODERATE	MAJOR	SEVERE
		1	2	3	4	5
Mortality	0,048	• No deaths attributable to the hazard or deaths occurring only in rare cases	• A few isolated deaths among populations with multiple risk factors	• Minor increase in deaths among populations with multiple risk factors	• Moderate increase in deaths among populations with multiple risk factors and/or minor increase in the general population	• Moderate to severe excess mortality in the general population
Chronic physical disorders (e.g. cardiovascular diseases, respiratory diseases, cancers)	0,095	• No new cases • No or very little exacerbation of symptoms for pre-existing conditions	• Very rare onset of new cases • Minor or temporary exacerbation of symptoms for pre-existing conditions	• Rare onset of new cases • Moderate exacerbation of pre-existing chronic diseases	• Occasional onset of new cases • Moderate to severe exacerbation of pre-existing chronic diseases	• Frequent onset of new cases • Rapid and irreversible progression of pre-existing chronic diseases
Acute physical disorders (e.g., poisonings, infections, injuries)	0,048	• No or very few cases observed • N/A	• Minor increase in cases • Minor acute physical disorders (e.g., allergies)	• Moderate increase in cases • Moderate acute physical disorders (e.g., injuries)	• Major increase in cases • Major acute physical disorders (e.g., infections)	• Severe increase in cases • Severe acute physical disorders (e.g., kidney failure or poisoning)

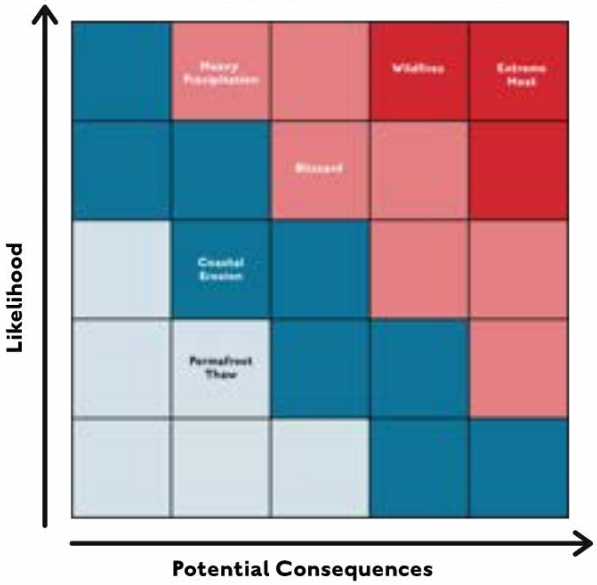
TYPE OF CONSEQUENCES	WEIGHTING	NULL / MINIMAL	MINOR	MODERATE	MAJOR	SEVERE
		1	2	3	4	5
Psychological disorders (e.g., anxiety, depression, stress, ecoanxiety)	0,19	• No mental health disorders or rare presence of concerns • N/A	• Temporary emotional reactions (e.g., worry, sadness, helplessness, confusion) lasting from a few hours to a few days that rarely affect the ability to carry out daily activities and maintain well-being • Minor or temporary exacerbation of pre-existing mental health disorders	• Short-term symptoms of mental health disorders (lasting a few days to a few weeks) that occasionally affect the ability to carry out daily activities and maintain well-being • Moderate exacerbation of pre-existing mental health disorders	• Medium-term symptoms of mental health disorders (lasting a few weeks to a few months) that frequently affect the ability to carry out daily activities and maintain well-being • Moderate to severe exacerbation of pre-existing mental health disorders	• Long-term psychological disorders (lasting a few months to a few years) that significantly affect the ability to carry out daily activities and maintain well-being • Rapid progression of pre-existing mental health disorders
Impacts on traditional knowledge, culture and language	0,143	• Little to no consequences on traditions, customs and ways of life	• Minor changes in social behaviours, without significantly altering cultural values or practices	• Moderate changes in social behaviours and local traditions • Changes are perceived by a portion of the population, but significant cultural practices remain intact	• Major changes in social behaviours, daily habits, and cultural values • Decline of certain traditions • Visible evolution affecting multiple aspects of society	• Fundamental changes to culture and ways of life • Considerable loss of local cultural identity • Leading to social tensions and significant fractures within the community
Impacts on food security and access to the land	0,19	• Most of the population has stable access to sufficient food	• A few individuals experience occasional difficulties accessing sufficient food	• Several individuals face occasional food shortages	• A large number of individuals experience frequent food shortages, with visible impacts on health and well-being	• Food insecurity is widespread, affecting a large portion of the population • Many individuals live with constant food shortages

TYPE OF CONSEQUENCES	WEIGHTING	NULL / MINIMAL	MINOR	MODERATE	MAJOR	SEVERE
		1	2	3	4	5
Social disruptions (e.g., social isolation, loss of a sense of belonging, relocation, violence and crime, disruption of the living environment, housing issues)	0,143	• No consequences on interpersonal relationships, and no new social dynamics emerge • No individuals are displaced, causing no erosion of the social fabric or loss of services	• Rare consequences on social relations and minor presence of social division • Effects remain largely unnoticeable at the overall community level • A small proportion of the community is displaced, but consequences for the local community remain minor, causing little erosion of the social fabric and rarely putting pressure on local services	• Social fracture and occasional polarization among certain groups • Adjustments are necessary to strengthen social cohesion • A moderate proportion of the community is displaced, occasionally causing an erosion of the social fabric and some tensions due to pressure on local services	• Frequent division among social groups, requiring considerable efforts to maintain social cohesion • A large proportion of the community is displaced, causing conflicts or imbal-ances in social life and moderate pressure on local services	• Crumbling of the social fabric, leading to serious conflicts and severe divisions between social groups • The majority of the community is displaced, generating significant tensions and open conflicts • Local infrastructure is overwhelmed and the integration of displaced individuals is virtually impossible, creating long-lasting divisions and severe erosion of the social fabric
Impacts on public health resources and the healthcare system (indirect effects)	0,143	• No impact on public health resources • No impact on the use of healthcare services	• Requires resources for monitoring purposes only, with no further intervention from public health teams • Minor increase in the use of healthcare services for conditions requiring minimal medical care	• Requires occasional interventions that mobilize few public health teams • Moderate increase in the use of healthcare services for conditions resulting in occasional medical consultations	• Requires frequent interventions mobilizing several public health teams • Major increase in the use of healthcare services for conditions resulting in frequent medical consultations or short-term hospitalizations	• Requires emergency interventions mobilizing several public health teams • Overloaded healthcare system due to frequent, prolonged hospitalizations

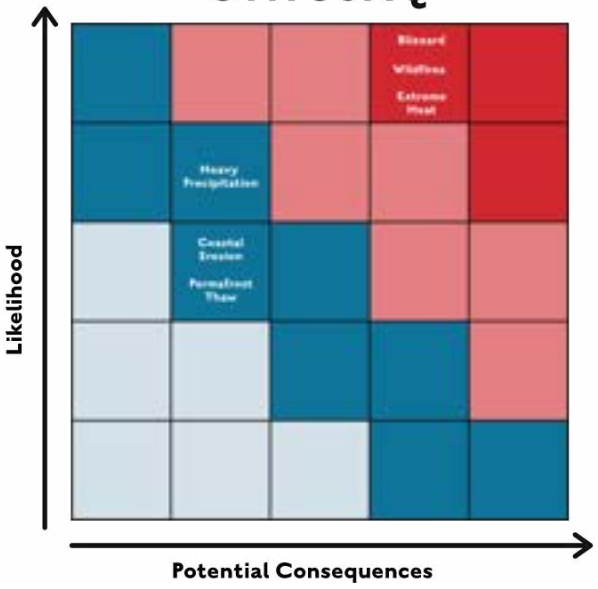
APPENDIX 3

COMMUNITY RISK MATRICES

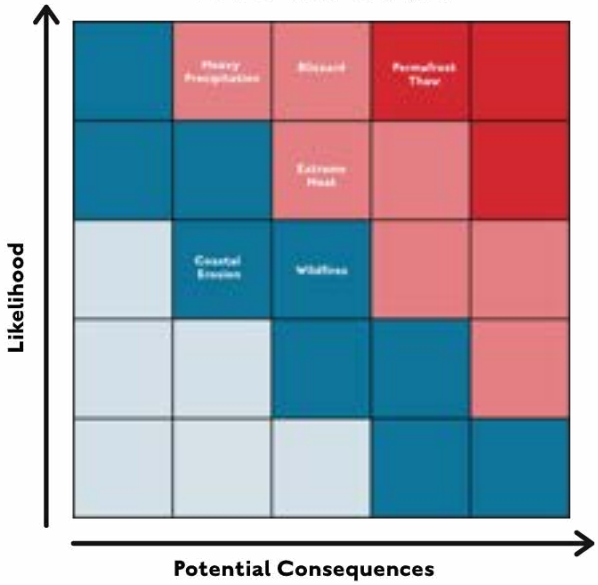
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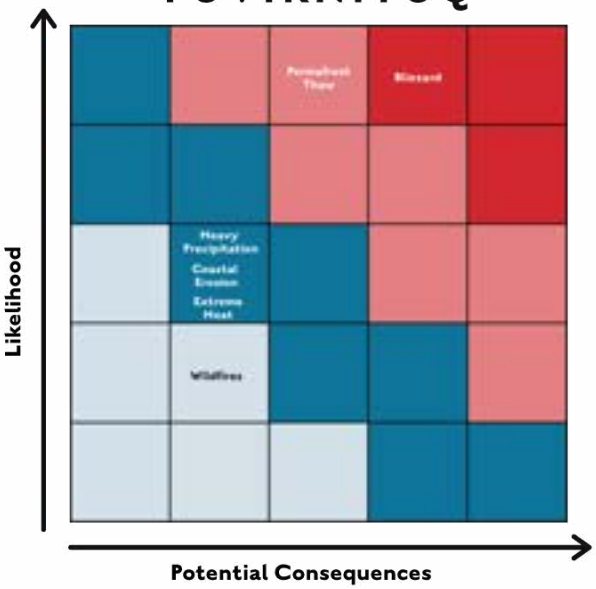
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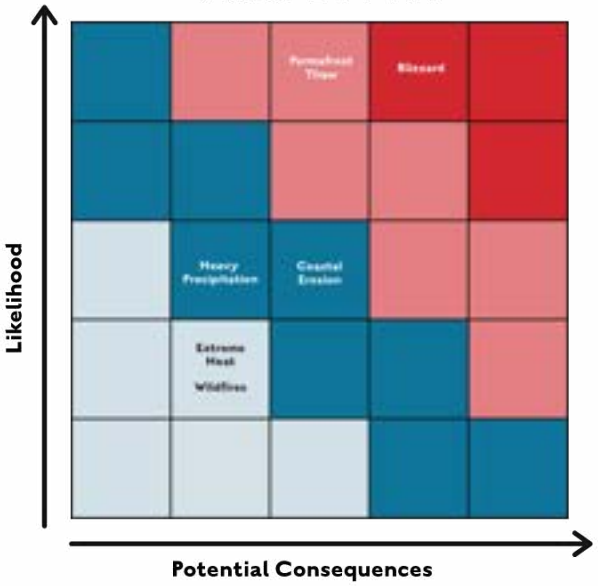
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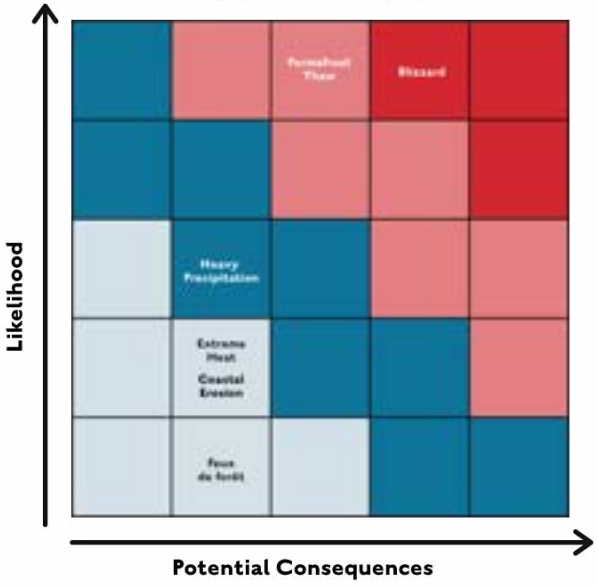
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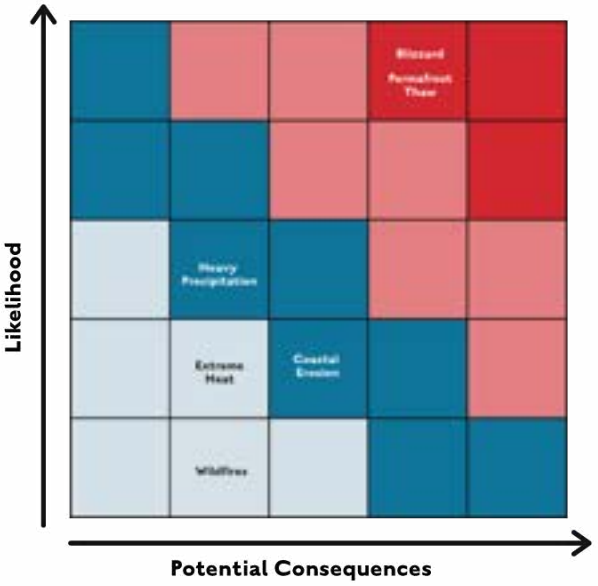
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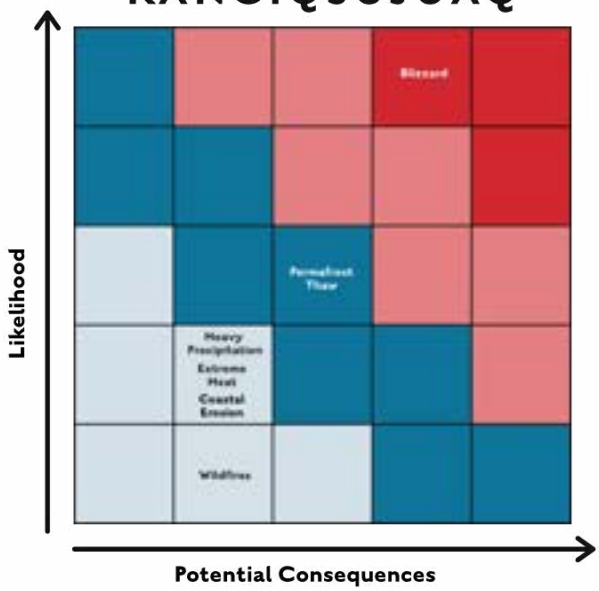
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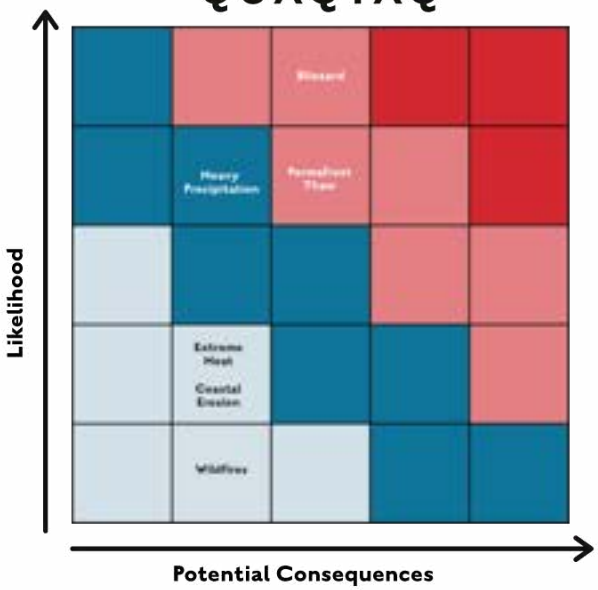
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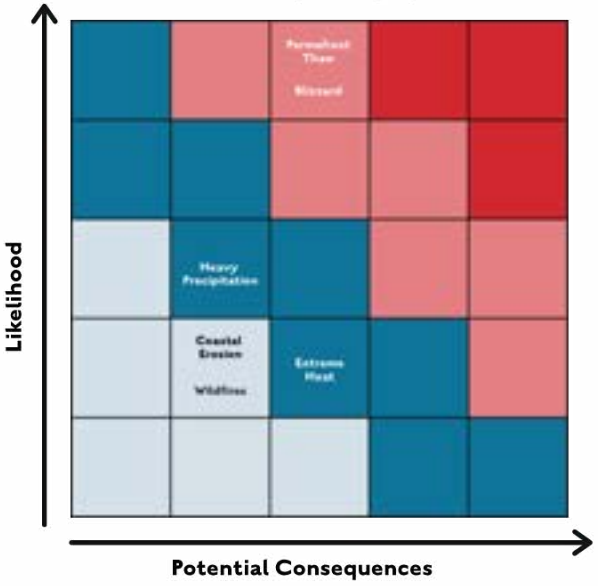
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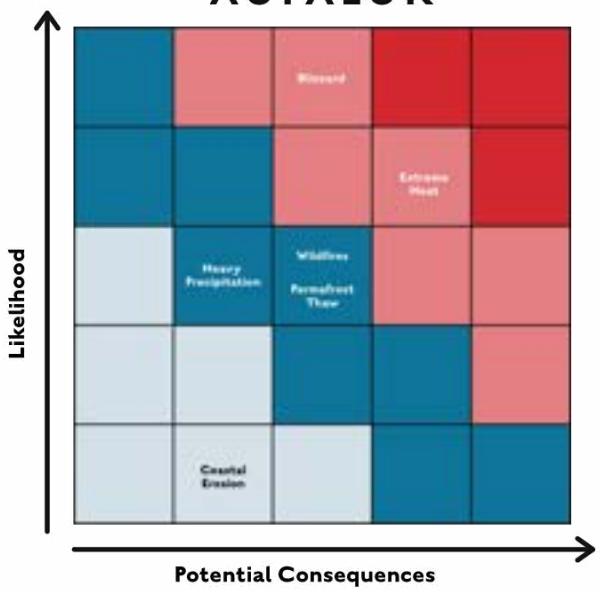
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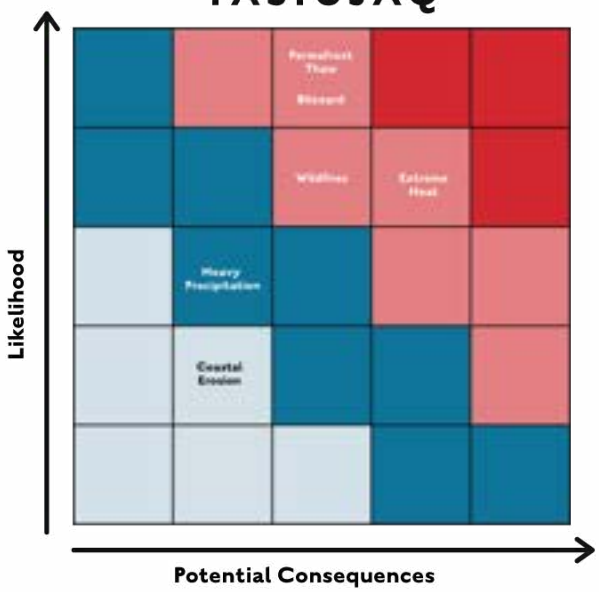
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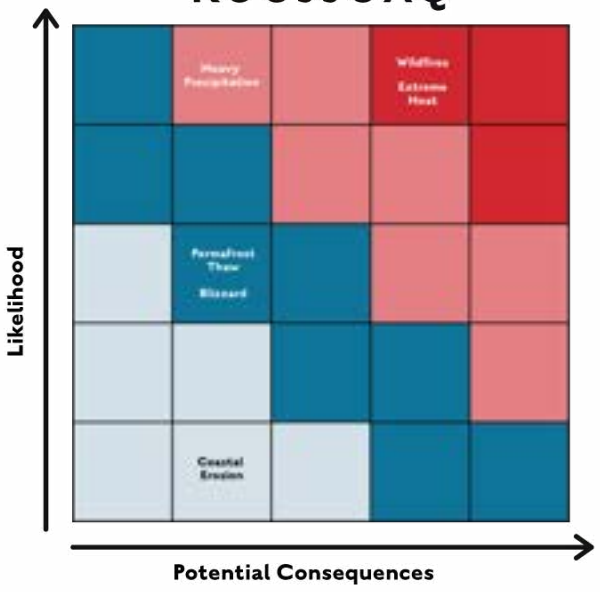
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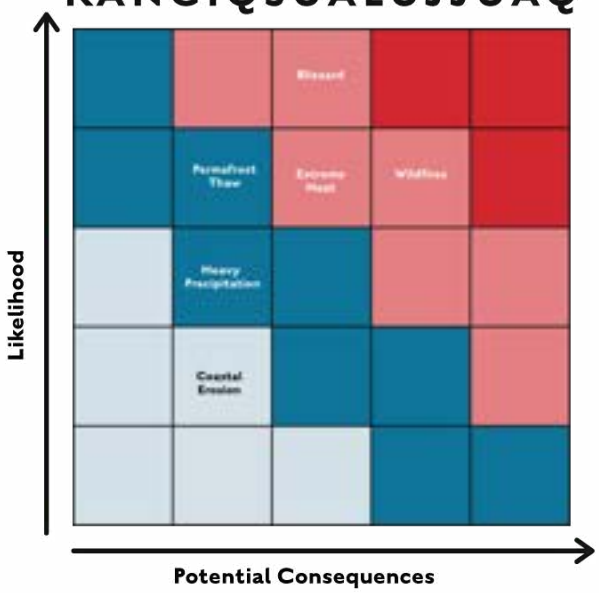
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APPENDIX 4

LIKELIHOOD SCORES UNDER THE SSP2-4.5 AND SSP3-7.0 CLIMATE SCENARIOS, AND THE 2041-2070 AND 2071-2100 TIME HORIZONS.

	HAZARDS	BLIZZARDS					EXTREME HEAT					COASTAL EROSION					WILDFIRES					PERMAFROST THAW					HEAVY PRECIPITATION				
	SCENARIOS		SSP2-4.5		SSP3-7.0			SSP2-4.5		SSP3-7.0			SSP2-4.5		SSP3-7.0			SSP2-4.5		SSP3-7.0			SSP2-4.5		SSP3-7.0			SSP2-4.5		SSP3-7.0	
	TIME HORIZONS	1991-2020	2041-2070	2071-2100	2041-2070	2071-2100	1991-2020	2041-2070	2071-2100	2041-2070	2071-2100	1991-2020	2041-2070	2071-2100	2041-2070	2071-2100	1991-2020	2041-2070	2071-2100	2041-2070	2071-2100	1991-2020	2041-2070	2071-2100	2041-2070	2071-2100	1991-2020	2041-2070	2071-2100	2041-2070	2071-2100
COMMUNITIES	Kuujjuaraapik	12.3					13.7	13.7	18.3	18.3	22.9				6.8	6.8	12.9	12.9	17.1	17.1	21.4	3.8					5.6	5.6	5.6	9.3	9.3
	Umiujaq	19.2					12.2	12.2	16.3	16.3	20.4				7.5	7.5	7.6	7.6	11.4	11.4	21.4	6.2					5.9	5.9	5.9	7.9	7.9
	Inukjuak	15					5.6	5.6	8.4	8.4	11.2				6.8	6.8	2.9	2.9	5.8	5.8	8.7	17.6					5.9	5.9	5.9	7.9	9.9
	Puvirnituq	18.1					2.3	2.3	2.3	2.3	6.9				6.1	6.1	2.4	2.4	2.4	2.4	4.9	16.7					5.6	5.6	5.6	5.6	5.6
	Akulivik	18.9					2	2	2	2	4				5	7.5	2.3	2.3	2.3	2.3	4.6	16					4	4	4	4	5.9
	Ivujivik	18.1					2	2	2	2	4				3.7	3.7	2.3	2.3	2.3	2.3	2.3	16.2					5.6	5.6	5.6	5.6	5.6
	Salluit	18.9					2	2	2	2	4				8.3	5.6	2.3	2.3	2.3	2.3	2.3	19.1					5.2	5.2	5.2	5.2	5.2
	Kangiqsujuaq	18.9					2	2	2	2	4				6.1	4.1	2.3	2.3	2.3	2.3	2.3	7.7					3.7	3.7	3.7	3.7	3.7
	Quaqtaq	15.6					2.2	2.2	2.2	2.2	4.5				6.2	4.2	2.3	2.3	2.3	2.3	2.3	12					5.2	5.2	5.2	5.2	6.9
	Kangirsuk	16.4					2.8	2.8	2.8	2.8	5.6				3.9	3.9	2.3	2.3	2.3	2.3	4.6	13.9					6.3	6.3	6.3	6.3	6.3
	Aupaluk	14.2					7.1	7.1	10.7	10.7	14.3				2.2	2.2	3.1	3.1	6.3	6.3	9.4	7.6					4.8	4.8	4.8	4.8	4.8
	Tasiujaq	14.2					7.1	7.1	10.7	10.7	14.3				3.4	3.4	6.3	6.3	9.4	9.4	12.5	16.5					5.9	5.9	5.9	5.9	5.9
	Kuujjuaq	6.7					12.2	12.2	16.3	16.3	20.4				1.7	1.7	11.4	11.4	15.2	15.2	18.9	5.6					5.9	5.9	5.9	9.9	9.9
	Kangiqsualujjuaq	14.2					6.6	6.6	9.9	9.9	13.2				3.7	3.7	7.6	7.6	11.4	11.4	15.2	9.3					5.9	5.9	5.9	5.9	5.9

APPENDIX 5

SUMMARY OF POPULATION TESTIMONIES BY COMMUNITY

Source : Community Consultation Tour, Environmental Health Team, Department of Public Health, Nunavik Regional Board of Health and Social Services, 2025.

Kangiqsujuaq

Community radio call-in show, town hall open house, meetings at the CLSC and municipal office
Approximate attendance : 30 participants

The community has been facing a major water supply issue since its main pipes froze in March, forcing residents to rely on chlorinated but unfiltered water drawn directly from the lake. Residents noted pronounced climate change impacts : permafrost thaw, a shorter ice season, coastal erosion, lowering water levels, and the arrival of new species such as black bears and unfamiliar birds. Public health concerns notably include childhood asthma, potential contamination of country foods, and emerging diseases. Multiple participants emphasized the mental health impacts caused by increasing difficulties accessing the land, hunting, and fishing (“I feel an urgency to go out”). Participants noted specific locations where snow is now melting where it never did before, alongside a loss of traditional Inuktitut place names. Incidents of snowmobiles breaking through spring ice are becoming increasingly frequent.

Quaqtaq

Community radio call-in, meetings at the school, CLSC and municipal office
Approximate attendance : 30 participants

The most pressing issues centre around water and mold. Water lines froze for the second consecutive year, and several buildings, including the municipal office, arena, and daycare, face severe mold issues that degrade indoor air quality and threaten respiratory health. Spring flooding and increasingly unpredictable weather patterns are damaging local infrastructure. Residents notably observed a surge in the fox population near the village, raising significant rabies concerns. Youth and educators highlighted the impacts of climate change on outdoor activities, mental health, and infrastructure affected by permafrost thaw. Hunters are observing shifts in hunting grounds and seasons, with harvesting now occurring earlier in June.

Kangirsuk

Meetings at the CLSC and municipal office, interviews at the hotel
(note : scheduled town hall meeting cancelled due to a blizzard)
Approximate attendance : 15 participants

More frequent, less predictable blizzards and thinning ice cover stand out as the primary challenges facing the community. These observed changes severely complicate outings out on the land and elevate safety risks for hunters, a concern heightened by recent fatalities during a major blizzard. Consultations also revealed deep concerns regarding mold, respiratory issues, mental health, and outdoor air quality during wildfire smoke events. Carbon monoxide issues and poor indoor air quality in certain public buildings were also highlighted.

Aupaluk

Meetings at the CLSC and municipal office,
(note : scheduled town hall meeting cancelled due to a blizzard)
Approximate attendance : 5 participants

Declining water resources constitute a significant concern. When the municipal reservoir runs empty, the community must draw water directly from the lake and boil it. Residents report more frequent blizzards, thinner ice sheets, lower water levels, and the appearance of new plant and animal species. Municipal representatives expressed a strong desire for more information regarding the health impacts of climate change and regional emergency preparedness measures.

Qavvivik — Montréal

Meetings at the health centre with Nunavimmiut living in or transiting through Montréal
Approximate attendance : 15 participants

Residents and frontline workers highlighted the challenges of being exposed to new environmental risks during stays in the South, notably allergens like pollen, air pollution, and ticks. Heat waves are perceived as particularly difficult to endure, both in the North and in Montréal (“There is no place to get relief from heat stress in the North”). Participants also stressed the repercussions of climate change on country food access and highlighted the fragility of northern supply chains, which triggers chronic stress and causes financial strain.

Salluit

Information booth at the Co-op, meetings at the CLSC, social services
Approximate attendance : 85 participants

Permafrost thaw is causing houses to shift and leading to water infiltration in multiple buildings. Residents also observe major shifts in ice conditions, animal migration routes, blizzard patterns, and the length of the wildfire season. Concerns were raised regarding zoonotic diseases, particularly ticks and mosquitoes, as well as the potential health impacts of mining activities and the legacy of the old Asbestos Hill site. The impacts on mental health and the forced adaptation of traditional activities were also widely discussed.

Ivujivik

Information booth at the Co-op, meetings at the CLSC and municipal office
Approximate attendance : 40 participants

The community is experiencing more rapid snow and ice melt, infrastructure compromised by permafrost thaw, and roads with inadequate drainage systems. Local environmental shifts include coastal erosion, a shorter ice season, fewer icebergs, and warming water temperatures. Several participants expressed a deep sense of sadness regarding the transformation of the land and the dwindling opportunities to transmit traditional knowledge to younger generations. Additional concerns centered around water chlorination, waste management, and toxic smoke originating from the local dump.

Akulivik

Information booth at the Co-op, meetings at the CLSC and municipal office
Approximate attendance : 20 participants

An overabundance of foxes, coupled with the risk of rabies transmission, is a primary local concern. Residents also raised questions regarding avian influenza and the effects of environmental changes on water quality, specifically potential increases in salinity or mineral concentrations. Freeze-thaw cycles, water infiltration into homes, and waste management problems are severely affecting local infrastructure. Healthcare workers requested more informative resources to reassure the population regarding drinking water quality and preventive measures.

Umiujaq

Information booth at the Co-op, meetings at the CLSC and municipal office
Approximate attendance : 40 participants

Water-related issues dominate local concerns. The community experiences frequent boil-water advisories and is worried about long-term water quality and potential impacts from climate change and nearby quarry projects. Residents observe delayed ice freeze-up, more severe spring flooding, and hazardous travel conditions that generate chronic stress. The health impacts of wildfire smoke on both physical and mental well-being were heavily emphasized, as was the critical need to consolidate mental health services and emergency preparedness measures. The community also experiences extreme heat episodes that are difficult to cope with and significantly overheat local housing.

Kuujjuaraapik

Information booth at the Co-op, meetings at the CLSC, municipal office, research centre and community freezer
Approximate attendance : 90 participants

Air quality is at the core of local concerns due to dust blowing from the airport, smoke from wildfires and the local dump, and high temperatures both outdoors and inside buildings. Inhabitants note a decrease in snow and ice cover, which complicates access to the land and country foods. This situation triggers tensions around hunting areas, reduces certain cultural activities, and generates a sense of sadness among several residents. The community is also working on various infrastructure projects, including a new well, relocating the dump, and a wind energy initiative. There is a strong local demand for better mapping of high-risk zones (e.g., landslides), emergency evacuation plans, and increased public health data regarding zoonotic diseases.

Inukjuak

Information booth at the Co-op, meetings at the CLSC and municipal office
Approximate attendance : 60 participants

Discussions focused on observed changes in water resources since the construction of the hydroelectric dam, notably a drop in river discharge and the presence of black residue in the water. Residents notice longer summers, a reduction in ice cover, and increasingly unpredictable weather conditions that complicate travel. Roads are becoming more hazardous due to freeze-thaw cycles, and smoke episodes raise serious concerns regarding respiratory health. The community also continues to explore the option of a piped water distribution network. For their part, hunters are observing notable shifts in harvesting seasons and hunting grounds.

Kangiqsualujjuaq

Information booth at the Co-op, meeting at the CLSC
Approximate attendance : 40 participants

Residents are observing rapid transformations across the land : rising temperatures, drought, a higher prevalence of insects, changes in biodiversity, lowering water levels in rivers and streams, and increased vegetation growth. Traveling out on the land is more difficult and unpredictable due to rapid ice melt and shifting weather patterns. Primary health concerns centre around mold, wildfire smoke, indoor heat in housing, and mosquito proliferation. Some participants also highlighted a loss of cultural reference points linked to landscape transformations, alongside an increase in certain social disruptions during periods of extreme heat or storms. It was also noted that the distribution and availability of wild berries have shifted.

Kuujjuaq

Meetings with regional partners and at the municipal office

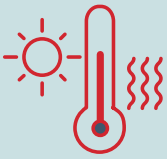
Discussions with partners and at the municipal office raised several critical issues related to climate change adaptation. Multiple participants mentioned that heat waves, wildfires, and resulting smoke are becoming increasingly frequent, degrading the quality of life for residents and worsening working conditions for certain occupations. Most partners noted that climate change represents a significant challenge to their operational planning and organizational workflows. Emergency planning for extreme weather events and access to country foods remain highly critical issues for the community.













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