

## ENHANCING COMMUNITY-BASED SEARCH & RESCUE IN THE CANADIAN ARCTIC THROUGH RISK ANALYSIS

PETER KIKKERT<sup>1</sup>, JOHN QUIGLEY<sup>2</sup>, IAN BELTON<sup>2</sup>, ROBERT BROWN<sup>3</sup>, KERRI-ANN ENNIS<sup>3</sup>, FLORIS GOERLANDT<sup>4</sup>, SUSAN HOWICK<sup>2</sup>, P. WHITNEY LACKENBAUER<sup>5</sup>, LAWRENCE MAK<sup>6</sup>, CALVIN PEDERSEN<sup>7</sup>, RONALD PELOT<sup>4</sup>, DESAI SHAN<sup>3</sup>, LESLEY WALLS<sup>2</sup>, GEORGE WRIGHT<sup>2</sup>

<sup>1</sup> St. Francis Xavier University, Canada, <sup>2</sup> University of Strathclyde, Scotland, <sup>3</sup> Memorial University of Newfoundland, Canada, <sup>4</sup> Dalhousie University, Canada, <sup>5</sup> Trent University, Canada, <sup>6</sup> National Research Council Canada, <sup>7</sup> Kugluktuk / Kitikmeot Search and Rescue.  
E-mail:lesley.walls@strath.ac.uk

The Canadian territory of Nunavut's size, scarcity of government resources, and harsh environmental conditions, coupled with the depth of traditional skills and knowledge held within local communities, mean that volunteer community responders form a vital part of the region's search and rescue (SAR) capacity (Kikkert & Lackenbauer, 2021). Climate change has created many challenges for SAR, including unpredictable and dangerous ice conditions, later freeze up and earlier thaw times, and increased marine traffic within the Northwest Passage (Ford & Clark, 2019). These changes not only affect activities on land, ice, and sea, increasing the risk of SAR incidents, but also impede operations. Nunavut SAR is a complex socio-technical system involving a range of interdependent factors that affect outcomes. Climate change impacts potentially exacerbate many factors, including the erosion of traditional knowledge, volunteer burnout, training gaps, and technological limitations. The NSAR project is a collaborative partnership which aims to strengthen SAR prevention, preparedness, and response in the territory, leading to enhanced community resilience and support for traditional Inuit ways of life. Three roundtables held across Nunavut, allowed SAR responders to highlight challenges, share experiences and best practice. Using data from the roundtables, the project is creating a systems-based risk methodology informed by contemporary thinking (e.g., Aven, 2021) to understand and analyze potential uncertain events and their systemic impacts to inform strategic planning, asset deployment, and capital investment. A scenario-based approach is adopted to elucidate unknown futures and deep uncertainties (e.g., Bourgeois et al., 2017).

*Keywords: Arctic search and rescue, risk analysis, community resilience*

### References

1. P. Kikkert and P.W. Lackenbauer, "A great investment in our communities": Strengthening Nunavut's whole-of-society search and rescue capabilities', *Arctic*, **74(3)**, 258 (2021). DOI: 10.14430/arctic73099
2. J. Ford and D. Clark, Preparing for the impacts of climate change along Canada's Arctic coast: The importance of search and rescue, *Marine Policy*, **108**, 103662 (2019). DOI: 10.1016/j.marpol.2019.103662
3. T. Aven, On some foundational issues concerning the relationship between risk and resilience: *Risk Analysis*, 2021, DOI: 10.1111/risa.13848.
4. R. Bourgeois, E. Penunia, S. Bisht and D. Boruk, Foresight for all: Co-elaborative scenario building and empowerment, *Technological Forecasting & Social Change*, **124**, 178 (2017). DOI: 10.1016/j.techfore.2017.04.01