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Natural Hazards Mapping, Assessment, and Communication:

the case of Newfoundland & Labrador, Canada

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Although Newfoundland & Labrador (NL) is commonly perceived by both its residents and other Canadians to have relatively few natural hazards, the province is subject to hurricanes, storm surges, slope failures, avalanches, extremes of heat and cold, droughts, floods, tornadoes, blizzards, extreme snowfall, ice storms, and earthquakes, with the greatest death toll from a single seismic event in Canadian history. The impacts of different natural hazards are frequently linked, accentuating risk, increasing vulnerability, and augmenting damage and human cost. Ongoing climate change could intensify many of these natural hazards, further increasing risk, vulnerability, and impact.

Identification of natural hazards, assessment of their impacts, and suggestions for adaptation have proceeded in NL, but further work needs to be accomplished. Most natural hazard mapping and assessment has concentrated on a 'single hazard' approach, involving mapping only one type of hazard in each community (e.g. flood risk mapping, or coastal erosion, or slope stability), without considering the interplay between the hazards or the vulnerability of the community as a whole. As well, fragmentation of databases; loss of records, institutional, community, and individual memories; limited financial and personnel resources; and difficulties with effective dissemination of the available information have all hampered efforts to assist people understand and cope with risks in their community environments.

Comprehensive mapping and assessment of all natural hazards is not available for any community in NL. An integrated approach, encompassing risk and vulnerability assessment of all natural hazards in concert, together with consideration of socio-economic factors, is a vital aspect of reducing risk and effective emergency planning under both current and future climate conditions.

A comprehensive assessment of natural hazards was undertaken for three selected NL communities. The communities chosen represented a diverse suite in terms of the hazards to which they are exposed, the demographic and socio-economic conditions, and the amount and effectiveness of municipal planning and preparation for emergency response. Detailed mapping and investigation of all natural hazards related to terrain, extreme weather events, and climate was conducted. Effort was concentrated on the practical aspects of assessment of hazards; discussion of impacts, including impacts of previous events and potential future impacts; and suggestions for better adaptive and planning strategies. Consultation with communities and residents formed a major component of the research, intended to document previous events that may not have been recorded in writing, determine their perceptions of risks and hazards, and to better assist in municipal planning and development and emergency response.