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2 Overview of the Northwest Territories

The NWT is a vast, sparsely-populated, northern Canadian territory located north of the 60th parallel, above Saskatchewan, Alberta, and eastern British Columbia, between the Yukon to the west and Nunavut to the east. Approximately one quarter of its land mass and several large islands lie within the Arctic Circle.

2.1 Setting

With a land mass of 1,171,918 square kilometres, the NWT is the third-largest province or territory in Canada.

Key geographical features:

- Great Bear Lake, the largest lake entirely within Canada;
- Great Slave Lake, the deepest body of water in North America at 614 m (2,014 ft);
- Canadian Arctic Archipelago, including Banks Island, Borden Island, Prince Patrick Island, and parts of Victoria Island and Melville Island;
- Mackenzie mountain range near the border with Yukon;
- Highest point is Mount Nirvana at an elevation of 2,773 m (9,098 ft);
- Mackenzie River, which exceeds 4,000 kilometers in length, Canada's longest river, and a major transportation route;

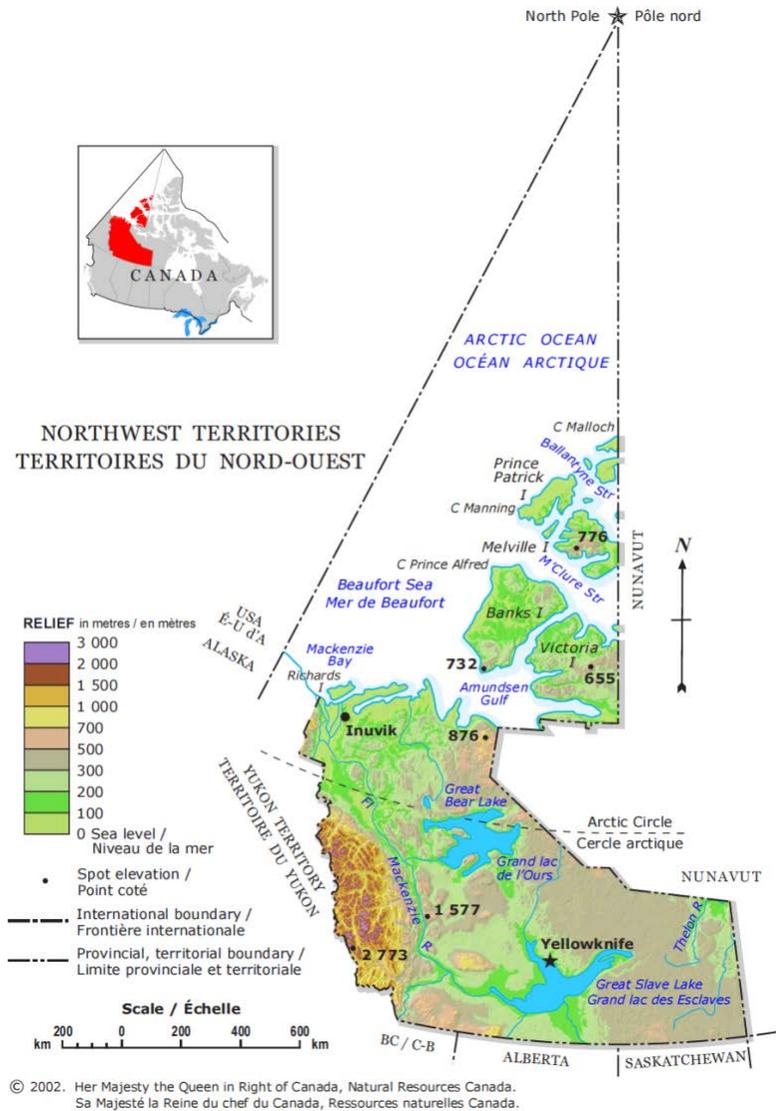


Figure 2: Relief Map of the NWT 2002 (Source: Natural Resources Canada)

- Mackenzie Valley, with rolling hills and boreal forest covering much of the land;
- Tundra in the north, where many of the most isolated communities are located; and
- Over 600,000 square kilometers (half of the NWT) is forested land. Of this, approximately 150,000 square kilometers are considered productive timberland.

2.2 Population

NWT Population (as of July 2013): 43,537

The NWT contains 33 communities, which break down as follows:

Cities:	1 (Yellowknife)
Villages:	1
Towns:	5
Hamlets:	11
Charter Communities:	3
First Nation:	12

Almost half of the population of the NWT lives in Yellowknife (19,800). Hay River (3,600), Inuvik (3,300), Fort Smith (2,450) and Behchokò (2,200) have the next largest populations. Ten of the communities have fewer than 200 residents. The vast majority (94%) of non-Aboriginal residents live in regional centres. By comparison, 52% of Aboriginal residents live in smaller, rural, communities. NWT population growth is closely associated with mineral investment.

The Government of the Northwest Territories (GNWT) is proactive in attracting and retaining new residents.

2.3 Economy

Mining, oil and gas are the key economic drivers in the NWT. However, the traditional economy, including harvesting and arts and crafts, still plays an important role in the smaller communities. About 40% of NWT residents over the age of 15 spend time participating in the traditional harvesting activities of trapping, fishing or hunting. Federal transfer payments currently account for 67% of the GNWT's operating budget.

2.4 Emerging Issues

A number of issues emerging in the NWT may have an impact on emergency response or alter the NWT's exposure and vulnerability to hazards over the next five years.

Future resource development and the related infrastructure growth and urban expansion may increase exposure to hazards related to permafrost thaw, flooding and coastal erosion (Ford and Smit, 2004 p. 389-400). Prospective mining development, a change in oil and gas extraction, or a shift in demand for natural resources could have an impact on the NWT's exposure to industrial accidents and other hazards. For example, there would be an increase in industrial accident hazard exposure if they move forward on the long-delayed Mackenzie Gas Project, a proposed 1,196-kilometre natural gas pipeline system along the Mackenzie Valley. Also, one diamond mine, two gold mines, one zinc mine and two lead-zinc mines are slated for development over the next ten years and there has been a major discovery of oil in shale deposits near Norman Wells.

Many of the industrial activities in the NWT have a high or moderate forest fire risk classification. Future development of these industries in forested areas could increase fire risks over the next ten years.

The present level of preparedness for oil spills response is limited. During community fuel resupply operations there is an initial near shore spill response capacity for land-based oil-handling facilities. The Canadian Coast Guard (CCG) has placed community packs of spill equipment in the region. Because of the low frequency of spills, it is difficult to maintain the training levels of responders. It is anticipated that a drilling program might not occur in the Canadian Beaufort Sea until at least 2018. When a drilling program is approved, increased spill response capacity will be required.

Large scale infrastructure projects have inherent risks in their construction. The GNWT is committed to the design, development, construction, and maintenance of a highway extending NWT Highway 1 (the Mackenzie Highway) from Wrigley to the Dempster Highway, and extending NWT Highway 8 (the Dempster Highway) from Inuvik to Tuktoyaktuk. The construction and maintenance of new highways could affect the hazard ranking presented in this document.

Changes in transportation infrastructure can also lead to new incident patterns. For example, the construction of the Dehcho Bridge has caused changes in driving patterns. Previously, drivers would be forced to rest after the final midnight run of the “Merv Hardie” Ferry. Now the bridge can be used at any time, increasing nighttime travel and the inherent risks that accompany it. Changes in transportation infrastructure could also have an effect on the hazard ranking presented in this document.

Weather and ice conditions are becoming harder to predict, leading to a greater vulnerability to weather and ice hazards in the future. Inexperienced hunters may not be as well equipped to cope with the risks of hunting, and changing climatic conditions may make it even more hazardous for them (Pearce et al, IPY 2007-2009). This could lead to an increased vulnerability to ice hazards and an increased need for search and rescue response.

The NWT Lands and Resources Devolution Agreement was signed on June 25, 2013. This agreement will see responsibility for public land, water and resource management in the NWT transfer from the federal department of Aboriginal Affairs and Northern Development Canada (AANDC) to the GNWT on April 1, 2014. Customization of regulations for the NWT could change the vulnerability to hazards discussed in this document.

2.5 Climate Change

As defined by the Intergovernmental Panel on Climate Change (IPCC), climate change “refers to a change in the state of the climate that can be identified (e.g. 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. It refers to any change in climate over time, whether due to natural variability or as a result of human activity” (IPCC, 2007).

Science-based evidence indicates that the climate system has been warming since the 1950s. Temperature increases in the north are projected to be greater in comparison with other locations globally, thus more pronounced effects are expected in NWT. Changes that have already been observed include warming oceans and rising sea levels, a reduction of sea ice cover, an increase in precipitation and permafrost degradation (IPCC, 2007).

In order to build resiliency and adequately inform the relevant decision-making processes, climate change implications are an important risk consideration. Climate change has had and will have minor to dramatic impacts on each of the hazards reviewed in this report.

This review has been informed by science and impacts observed at the local level. While climate change impacts are typically considered hydrometeorological in nature, in the NWT they could have wider-ranging implications due to the prevalence of permafrost in the area.

Reduction of sea ice has resulted in easier access to minerals and fossil fuel resources. Sea ice disappearance and the opening of the Northwest Passage to ocean vessel traffic could bring about changes with significant long-term consequences. As the climate warms and commercial activity increases, new opportunities will arise and, with them, new risks to the people, property, environment and economy of the NWT.