When disaster strikes: Emergency management in the Arctic

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On March 8, Malaysian Airlines Flight MH370 en route from Kuala Lumpur to Beijing seemingly disappeared into thin air. "How?" those glued to their TV screens have asked, "can a plane carrying 239 people just vanish?" The disappearance — and subsequent search — has focused the world's attention on search and rescue in a dramatic and startling way. In an era of smart phones in everyone's pockets capable of GPS tracking, the general assumption is that there should be very little "search" in "search and rescue." It may shock many Canadians to learn that when it comes to Canada's North, the situation is much more complicated. While no one is suggesting that Canada might lose a passenger jet flying one of its polar routes, there have been many cases where lost individuals have disappeared with as little trace as Malaysian Airlines Flight MH370.

Search and rescue is only one type of emergency for which Northerners need to be prepared. Forest fires, avalanches, floods, blizzards, and earthquakes also challenge communities, as do what are considered to be more "regular" emergencies, as major power outages and communications blackouts. The families of the lost Chinese passengers onboard Flight 370 have accused Malaysian officials of being unprepared and uncoordinated in their search for the missing flight. Is Canada's North prepared for the emergencies that it is facing? Several studies have raised concerns that the answer is "less prepared than we need to be."

Why is this issue so important? While much has been written and discussed in the popular press about how Canada is going to be able to respond to plane crashes, shipping accidents, and oil spills, these analysis have tended to be future-oriented, focusing on what will happen. They have, as mentioned above, also tended to focus on the needs of visitors to the region: the shipping companies, adventure tourists, and the oil and gas industry.

Before these future challenges can be addressed, however, it is important to realize that the system as it currently exists is struggling to meet the day-to-day needs of the North's residents. Climate change is having a considerable impact on the ability to travel on the lands, creating an increased demand on search and rescue systems. It is also leading to increased incidents of emergencies like floods, forest fires and avalanches. These are not "what if" threats, but are daily realities in the North's communities that residents and local volunteers and officials must deal with. Not to be sensationalist, but this is truly an area of "life and death." In Spring 2013, the Office of the Auditor General of Canada released a report on federal search and rescue activities. The audit found that Canada's search and rescue system from coast-to-coast-to-coast is stretched: not enough trained personnel to man search and rescue aircrafts, the need for new investments in search and rescue assets, and a lack of coordination among the multitude of jurisdictional players involved. The Auditor General's report also noted that despite calls since the 1980s for a National Search and Rescue Strategy, one still does not exist.[1]

As a result of the report, then Minister of National Defence Peter MacKay announced that every four years there would be a review of search and rescue in Canada. The first, *Quadrennial Search and Rescue Review*, was released without much fanfare in December 2013. Some were disappointed that the review was not as comprehensive as anticipated, but helpfully for the North the report recognized that "increased commercial and tourist activity in the North will demand a deeper awareness of the requirements and responsibilities for successful SAR in the region," as well as the fact that "volunteer organizations [the main emergency responders in the North] must be supported and sustained by the NSP [National Search Program] partners." [2]

In May 2011, Arctic states, including Canada, signed the *Agreement on Cooperation on Aeronautical and Maritime Search and Rescue*. This Agreement is the first negotiated under the auspices of the Arctic Council. It divided the Arctic into pie-shaped sectors within which each state has primary responsibility for providing search and rescue services. Some have questioned whether Canada has the capacity to implement the provisions of this Agreement.[3]

While there is a fair amount of activity on search and rescue at the federal and international levels, a question remains about what effect inadequate search and rescue services is having on Northern communities on the frontline of these issues? This question

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provided the motivation for a two-year-long inquiry by the Munk-Gordon Arctic Security Program that resulted in regional roundtable discussions in each of the three territories on the subject of emergency preparedness in the fall of 2013.[4] These discussions culminated in the *National Roundtable on Arctic Emergency Preparedness* held in Ottawa, February 24-26, 2014.

During the discussions in Iqaluit, Yellowknife, and Whitehorse, participants expressed that the needs of Northern residents have often been overlooked in discussions about emergency management in the region. There was a strong desire among those who took part in the meetings to reorient the discussion towards the needs of those who live in the region.

In addition, while the dialogue at the federal and international level have tended to focus exclusively on search and rescue, which is considered by experts to be a sub-set of "emergency management," those in the North were interested in discussing emergency management in its fullest terms, including responding to natural disasters and infrastructure failure.

When asked if Canada is "ready" for emergencies in the North, the majority of respondents at the both the regional and national meetings indicated that unfortunately the answer was "no," despite the hard work and dedication of thousands of volunteers, military and coast guard personnel, and government officials at all levels. These findings match the results of a 2011 public opinion survey where only 40 percent of Northerners responded that they felt Canada was prepared for emergencies in the North.[5]

Two major barriers to adequately addressing the North's search and rescue needs were identified through the roundtables: 1) a complex jurisdictional landscape and 2) cost.

As Figure 1 demonstrates, there are a multitude of different departments and organizations involved in search and rescue in Canada. The jurisdictional landscape is equally complex for emergency management, but to illustrate this point the example of search and rescue will be used. Aeronautical and maritime search and rescue is the responsibility of the federal government, primarily the Canadian Forces through the Joint Rescue Coordination Centres located in Victoria, Trenton and Halifax (Department of National Defence) and the Coast Guard (Department of Fisheries and Oceans).

Ground search and rescue, which confusingly also includes searches on inland lakes and waterways, are the responsibility of the provinces and territories. Ground search and rescue is primarily provided by the RCMP through agreements with the territorial governments. However, there are also local volunteer organizations, such as the seven volunteer recue societies that operate in the Yukon communities of Beaver Creek, Carcross, Dawson City, Whitehorse, Carmacks, Faro, and Kluane. In addition, in these tight-knit communities family members and friends are often involved in the search for their lost loved ones, often without any specialized training at all. Municipalities also play a role in coordinating the response effort. Demonstrably, the number of different organizations involved, many of whom are geographically disperse and may not be familiar with one another on an organizational or interpersonal level before disaster strikes, makes overcoming some of the policy changes particularly difficult.

The relatively low population of the North is a clear and significant impediment for large infrastructure investments, especially considering the higher building costs compared to other locations in Canada. Many look at the price tag, along with the number of people that infrastructure will serve, and conclude that it is far too expensive to justify. In response to this criticism, one participant at the National Roundtable responded: "Northerners are asking — as Canadians — for services that are available in all other communities across the country."[6] While there is clearly consensus on the need for more infrastructure investments ranging from ports to icebreakers to communication systems to housing, the participants at all of the regional roundtables and the national roundtables also raised that there were many procedural, policy, and smaller expense items that could make a large impact on improving the system. The top recommendations of how this can be achieved are discussed below.

Delegates across the North participating in the regional roundtables put a great emphasis on training as the main means by which emergency response could be improved in their region. Increased training opportunities were viewed as necessary, not only for volunteers and community members, but also for government officials on the particularities of the local areas in which they were operating.

Consequently, it was recommended that territorial governments should make training available and encourage skill development among community members and volunteer responders. This should include the following:

- traditional and local knowledge instruction for newcomers;
- basic and wilderness first aid training;
- Cardiopulmonary resuscitation (CPR), including the use of automated external defibrillators (AEDs);
- radio operator training;
- use of the Incident Command System (ICS);

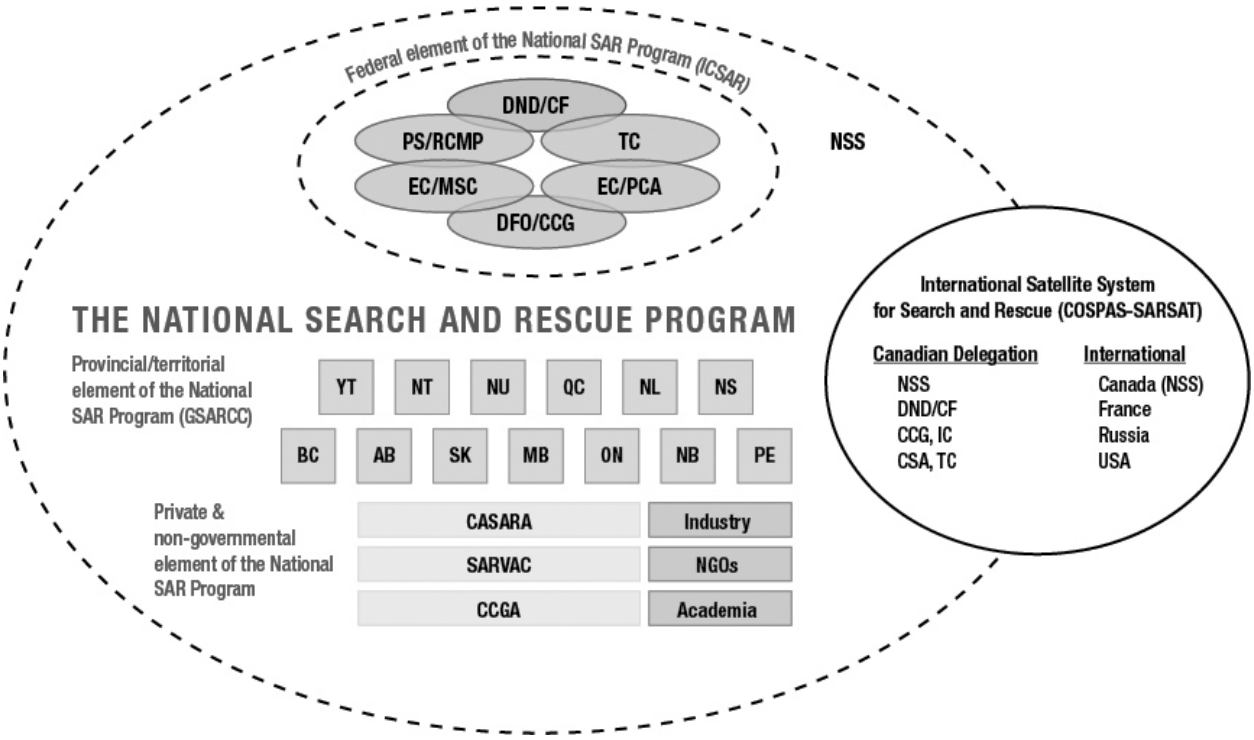

Figure 1: The National Search and Rescue Program (National Search Secretariat. "Quadrennial SAR Review," December 2013.

- Emergency Operating Centre (EOC) training;
- ground search and rescue (GSAR) training;
- use of the geographical positioning system (GPS), as well as how to use a map and compass;
- boat operator licensing;
- snowmobile operator training;
- ATV operator training;
- small engine mechanics;
- training in technical rescue skills, such as swift-water rescue, crevasse rescue, avalanche rescue; and
- environmental response training.[7]

The major barrier to making this training available was again funding. In 2013, the federal government cut the Joint Emergency Preparedness Program, which was the main financial support to training opportunities for emergency responders in the territories. In Nunavut, for example, this has reduced the budget by as much as 50 percent. To make training opportunities possible, it was recommended that the Joint Emergency Preparedness Program be reinstated to full capacity.

While it is never possible to be "fully prepared" for emergencies, across the North there was a consensus that more could be done to mitigate the potential impact of emergencies by having solid plans in place in advance. This led to a call for all communities to complete emergency plans and make these plans more than a "book on the shelf" by having the funding in place to provide for their regular review and updating, including training new personnel on how to use the plan.

As a result of the multitude of jurisdictional actors involved in emergency management, participants at both the regional and national roundtables felt that one of the crucial ways in which the system could be improved at little cost would be by placing a greater emphasis on relationship-building between these various organizations. One method of doing so was that, "training at all levels should follow a 'two-way knowledge exchange' model, where there is not just training provided by official organizations to community members and volunteers, but there are also opportunities for traditional and local knowledge holders to share their knowledge with territorial and federal level officials."[8]

Relationship-building should not stop at the Canada-US border. As discussed in this issue of *Northern Public Affairs* by Axworthy, bilateral initiatives between Canada and the United States were seen as a positive means through which to improve this policy area. It was therefore recommended that "cross-border initiatives between the Government of Canada and the Government of the United States of America should be considered and existing co-operative arrangements between sub-state actors, such as the State of Alaska and the Territory of Yukon, supported. To this end, Canada and the United States should fully explore setting up a Canada/US Coast Guard Forum for the Arctic."[9]

One of the major difficulties encountered by

those searching for Flight MH370 was the remoteness of the search locations. By the time that the search planes flew the four hours to the site where debris was believed to be spot by satellites, they only had two hours to search before needing to head back to Australia for refuelling. The *Canadian Forces Flight Safety Investigation Report* on the fatality of Search and Rescue technician Sgt. Janick Gilbert, who died trying to save two lost hunters outside of Igloolik, Nunavut in 2011, highlighted that the helicopter deployed to the scene had to stop three times for refuelling on its way to the site. Based on the estimated time of arrival of the helicopter, the search and rescue technicians decided to do a parachute jump in dangerous conditions to rescue the hunters that ultimately cost Sgt. Gilbert his life. In addition, the plane that was on scene had to fly an hour and a half to Iqaluit to refuel and after such time, it was not possible to return to the accident, because the crew's flight time would exceed the daily maximums.[10] Participants in the Northwest Territories roundtable felt strongly that, "some federal search and rescue assets in Yellowknife closer to the communities that they serve" and that "the federal government should also provide for adequate staffing for the aircraft already based in the territory."[11]

This past March, many of the people glued to their television screens were shocked by the amount of searching required to find the debris field of Flight MH370, as it took close to two weeks to identify a spot where the plane potentially went down. Similarly, participants in the national roundtable discussed how best to reduce the amount of "search" involved in "search and rescue," identifying that the sooner the person could be located, the sooner help could arrive, the better the chance of survival. While it is still unknown why the tracking systems on MH 370 were disabled, when it comes to people out on the land in the North, there was a consensus that technology could play a positive role in reducing search times. Devices that would send a GPS signal to responders with the lost person's location are a valuable tool that requires more widespread adoption. As a result, it was recommended that "Territorial governments, First Nation governments, and Aboriginal organizations should make SPOT [a GPS tracking device] or other devices readily available to community members." This would build on a program already underway in Nunavut in which hunters can borrow a SPOT device before going out. Ideally, these would be two-way devices that would allow not only for a signal to be sent to rescuers, but would allow rescuers to communicate back with the lost individual.

The above recommendations are the result of discussions held with experts, policymakers, and interested citizens across the North. It is meant to be reflective of their needs and priorities. It is important to remember that while this report might highlight some of the challenges of the existing systems, it is important to remember just have phenomenal a job the responders (the majority of whom are volunteers) do each and every day. As well, the resilience of Northern communities should be acknowledged. Even with few assets and resources, they manage to deal with local emergencies incredibly effectively. But, more can be done to give them the tools they need and hopefully the above recommendations provide guidance on how that can be achieved.◉

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Notes

1. Office of the Auditor General of Canada. "Chapter 7—Federal Search and Rescue Activities" in *2013 Spring Report of the Auditor General of Canada*. April 2013.
2. National Search and Rescue Secretariat. *Quadrennial Search and Rescue Review*, December 2013, p. 15.
3. House of Commons Standing Committee on Foreign Affairs (Canada). *Canada and the Arctic Council: An Agenda for Regional Leadership*, May 2013, p. 40-44.
4. The full reports from these meetings can be accessed at: http://www.gordonfoundation.ca/north/munk-gordon-arctic-security-program/emergency-management/roundtables.
5. Walter and Duncan Gordon Foundation. *Rethinking the Top of the World: Arctic Public Opinion Survey*, January 2011, p. 47.
6. Walter and Duncan Gordon Foundation. "National Roundtable on Arctic Emergency Preparedness: Report of Proceedings". March 2014.
7. Walter and Duncan Gordon Foundation, p. 37.
8. Walter and Duncan Gordon Foundation, p. 38.
9. Walter and Duncan Gordon Foundation, p. 38.
10. Government of Canada. *Canadian Forces Flight Safety Investigation Report: Final Report, 1010-CC130323 (DFS 2-2)*, November 2013.
11. Walter and Duncan Gordon Foundation, p. 38.