The Green Helmets Initiative (GHI): the National Dimensions
Technical Note (2) by Dr. Rémy-Claude Beaulieu

1. Introduction

This Technical Note intends to respond to some of the questions raised by the Concept Paper first written in 2021 and since reviewed.[1] The Green Helmets Initiative (GHI) has a national component related to the role of the Canadian Armed Forces (CAF), which would include "civil defence" in the context of natural disasters in Canada. The GHI also has an international component, suggesting putting in place a system, potentially at the United Nations, to assist vulnerable countries facing natural disasters. The current paper, Technical Note 2, addresses the national and domestic dimensions of the Green Helmets Initiative.

Here are some of the questions which appear in the conclusion of the Concept Paper that this Technical Note will try to address in more detail:

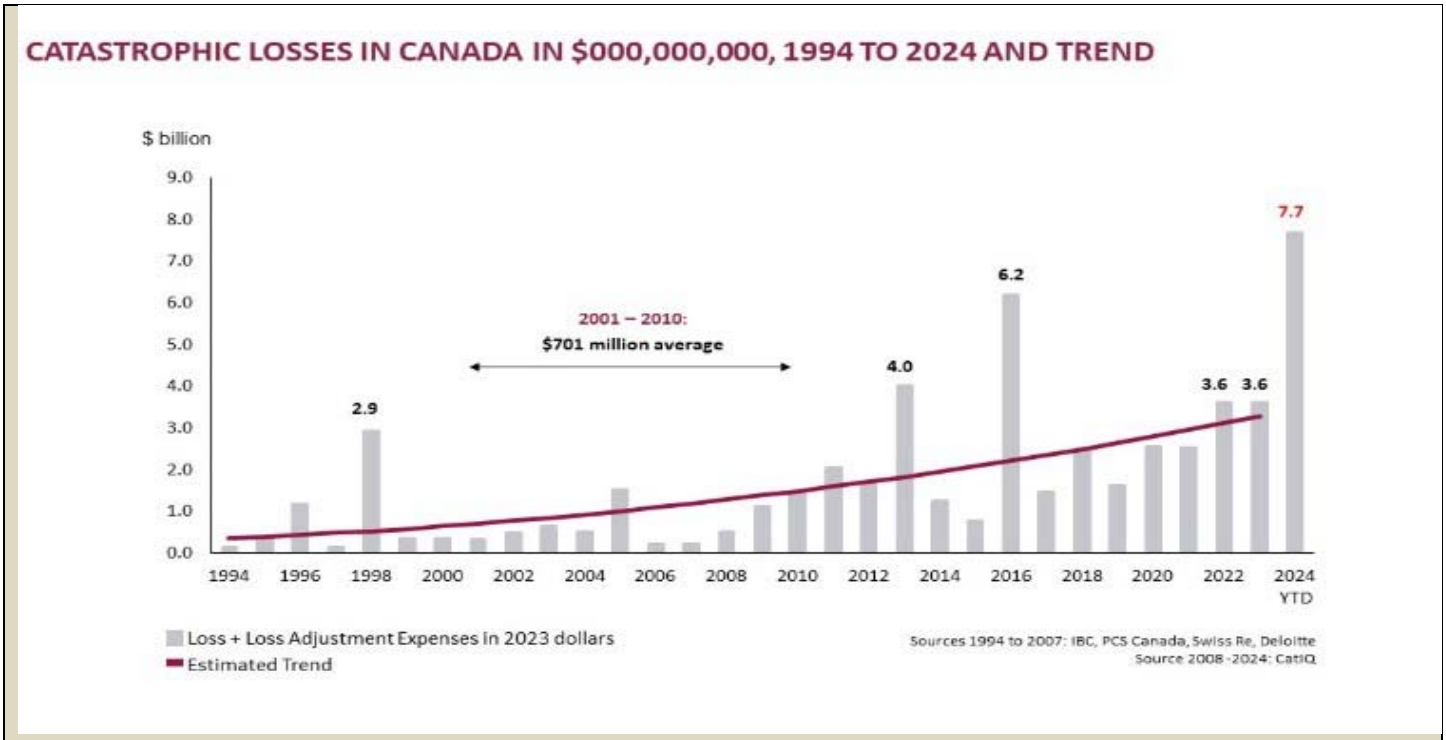
i) What kind of natural disasters most affect Canada?
ii) What positive and feasible role could the Canadian Armed Forces (CAF) play to address the challenges posed by climate changes and natural disasters?
iii) What kind of expertise would be needed, and what kind of training should members of the Canadian Armed Forces receive to assume such a mandate?
iv) What types of equipment would be needed to ensure quick and appropriate responses? Canadair planes, motorboats, material to rebuild roads and bridges, sandbag machinery, water-filtering systems, etc.?
v) How could the Canadian Armed Forces manage such interventions which by definition have an unpredictable character? Centre of research and communications, etc.
vi) Should there be logistic centres located in different parts of Canada (Eastern, Central and Western Canada, to provide early responses?

This Technical Note will try to provide preliminary responses to these questions and others that have been raised since the Concept Paper's issuance. However, this Technical Note is speculative given that no agreement or approval of the Green Helmet Initiative has taken place in Canada, although various governmental, academic and non-governmental organizations have been contacted.

2. Context of Natural Disasters and Climate Change in Canada

It is now well documented that climate change increases the frequency and scope of natural disasters, which now have much more significant impacts than they did in the past. According to Statistics Canada, in 2022, there were 15 catastrophic weather events in **Canada**, with claims ranging from $35 million to $1 billion, totalling $3.4 billion in insured losses.[2] According to the Canadian Insurance Bureau, "Summer 2024 shatters records for severe weather damage: over $7 billion in insured losses from floods, fires and hailstorms."[3]

[1] The Green Helmets Initiative (GHI): Concept Paper, A New Role for the CAF in Canada and the World (first version 2021, last version March 2024), by Dr. Rémy-Claude Beaulieu, 5 pages.
[2] https://www.statcan.gc.ca/o1/en/plus/7165-another-year-catastrophic-weather-canada
[3] https://www.ibc.ca/news-insights/news/summer-2024



Unfortunately, the trend shows the increasing scope and costs of such natural disasters, signalling the need for new tools to address such economic and social calamities.[4]

3. Natural Disasters in Canada

The Canadian Disaster Database (CDD), managed by Public Safety Canada, is a publicly accessible web-based repository of historical information on disasters that have directly affected Canadians, at home, since 1900. It contains detailed disaster information on over 1,000 disasters, including those triggered by natural hazards, technological hazards or conflict (not including war). The database describes where and when a disaster occurred, who was affected and provides a rough estimate of the associated costs. These costs might include various FPT government relief and recovery payments, municipal costs, insurance claims, and costs of supplies and assistance provided by non-governmental organizations. The database also provides information on the number of injuries, evacuations and deaths associated with a particular disaster.

You will notice that many natural disasters have not been registered, due to the definition of "disaster" adopted by the CDD. "The CDD tracks significant disaster events that conform to the Emergency Management Framework for Canada definition of a disaster and/or meet one or more of the following criteria:

- 10 or more people killed
- 100 or more people affected/injured/infected/evacuated or homeless
- an appeal for national/international assistance
- historical significance
- significant damage/interruption of normal processes such that the community affected cannot recover on its own

The CDD describes:

- where and when a disaster occurred;
- the number of injuries, evacuations, and fatalities; and

[4] https://www.ibc.ca/news-insights/news/summer-2024-shatters-records-for-severe-weather

- an estimate of the costs"[5]

The Natural Resources Department of Canada (NRD) website identifies the list of natural disasters taking place in Canada by alphabetical order: i) Avalanches; ii) Earthquakes (rare); iii) Floods and Land slides; iv) Hurricanes & severe storms (rare); v) Tornadoes; vi) Tsunamis (rare); vi) Wildfires.

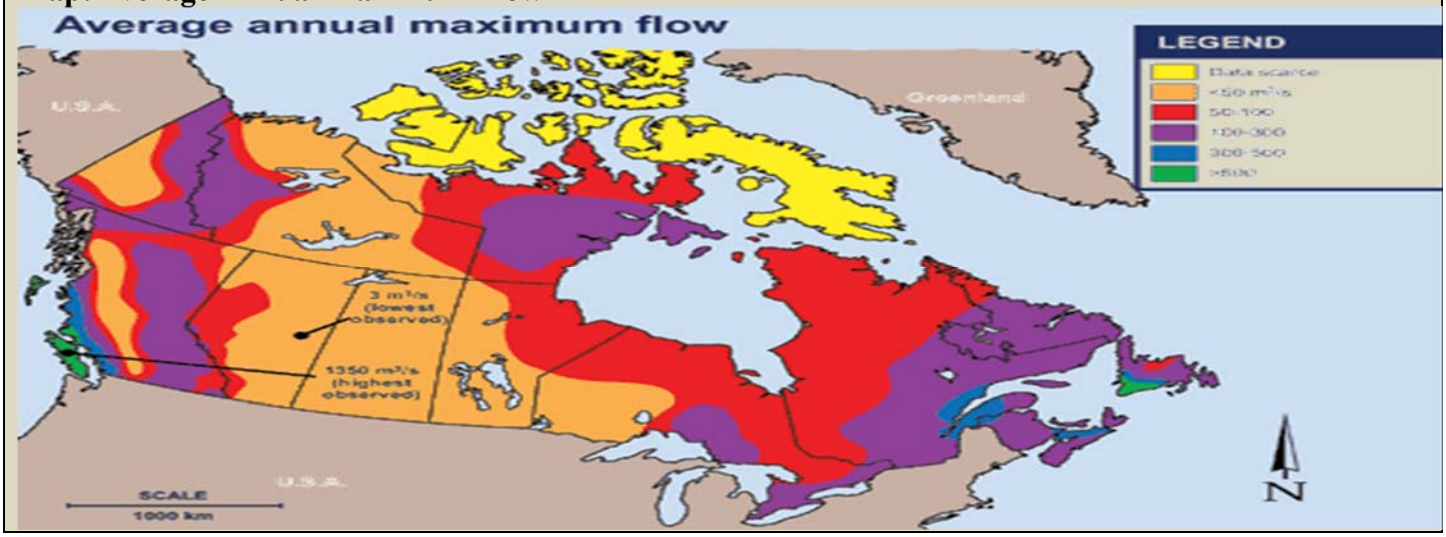
In terms of frequency, "flooding" is first by far. The Natural Resources Department offers a "Flood Mapping" service, which provides the Canadian public with the necessary information regarding where and when flooding occurs in Canada. According to the Department this service has multiple objectives: i) Provide a foundation for land use planning and government decision-making; ii) Support emergency management practices; iii) Enable flood mitigation activities like adding dikes or other infrastructure; iv) Empower citizens and property owners to make informed decisions related to flood risks.

Flood maps are critical tools that can help us identify potential risks and mitigate flood impacts. According to the Department site, many entities collaborate in the Flood Mapping process, including the Departments of Environment and Climate Change, Public Safety Canada, Crown-Indigenous Relations and Northern Affairs Canada.

The NRD considers Flood Mapping as a process of engagement with various communities. This process includes: i) Data acquisition; ii) Hazard Assessment; iii) Modelling and Mapping; iv) Communication and dissemination; v) Risk Assessment; vi) Mitigation; vii) Priority setting. The Department produces various types of maps: i) Inundation Maps; ii) Flood Hazard Maps; iii) Flood Risks Maps; iv) Flood Awareness Maps.[6]

The NRD website provides analyses of flooding by province. Also, each province and territory have their own flood management institutions, including the Water Security Agency in Saskatchewan, Surface Water Monitoring Institute in Ontario, Flooding and Climate Change in Newfoundland. There are also a number of "transborder agencies" such as the Ottawa River Regulation Planning Board including Ontario and Québec resources and the fourteen (14) international Transborder Watershed Boards between Canada and the USA. The overall situation is complex, with a multiplicity of actors.

Map: Average Annual Maximum Flow[7]



[5] https://www.publicsafety.gc.ca/cnt/rsrcs/cndn-dsstr-dtbs/index-en.aspx
[6] https://natural-resources.canada.ca/science-data/science-research/flood-mapping
[7] https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/floods/events-canada.html

The map shown above indicates the extent to which flooding may affect the territories of various provinces. This map shows, in general, how the average annual maximum flow of a 1,000-square-kilometre river basin varies across the regions of Canada. However, little quantitative data is provided regarding the frequency and scope of these natural disasters and the potential increase in frequency and impact due to climate change.

The Natural Resources Department also manages the Canadian Wildland Fire Information System (CWFIS), which creates daily fire weather and fire behaviour maps year-round and hot spot maps throughout the forest fire season, generally between May and September. "The Canadian Wildland Fire Information System monitors fire danger conditions and fire occurrence across Canada. Daily weather conditions are collected across Canada and used to produce fire weather and fire behaviour maps. In addition, satellites are used to detect fires and reported fire locations are collected from fire management agencies."[8]

In 2019, the Canadian Wildland Fire Management Advisory Group issued the Canadian Wildland Fire Strategy: A 10-year review and renewed call to action (2019, 15 Pages). The document mentions that "Over the past 10 years, Canada has witnessed a serious and sustained increase in extreme wildland fire, both in forest and urban settings, resulting in threats to live, property and natural resources values being amplified. Impacts on people and communities across the country are increasing," (Introduction, page 8).

In 2023, Canada faced a formidable challenge: record-breaking wildfires. These fires were fuelled by record high temperatures and widespread drought conditions across the country. To what extent can climate change be linked to these events? Scientists from around the world did a rapid turnaround study to find answers.

"Canada's 2023 wildfire season was the most destructive ever recorded. By the end of the year, more than 6,000 fires had torched a staggering 15 million hectares of land. To put that in perspective, that's an area larger than England and more than double the 1989 record. Normally, an average of 2.5 million hectares of land are consumed in Canada every year. And unlike previous years, the fires this year were widespread, from the West Coast to the Atlantic provinces, and the North. By mid-July, there were 29 mega-fires, each exceeding 100,000 hectares."[9]

2023 was an exceptional year. However, everybody agrees that it was just a sign of things still to come. The dramatic wildfires that happened in California the following year should have been a wake-up call given the size and scope of the damage incurred. The costs of the damage have been estimated 250 billion US$.[10] We may ask the following questions: Why is it that no mechanisms have been proposed either in Canada or the US to address such calamities? Could the Green Helmets Initiative be a response in Canada and the US?

4. The Canadian Response

In order to address the response to emergencies and natural disasters, the Canadian authorities, at the federal, provincial and territorial levels adopted "The Emergency Management Framework for Canada" in 2007 and reviewed it in 2017.

[8] https://cwfis.cfs.nrcan.gc.ca/home

[9] https://natural-resources.canada.ca/stories/simply-science/canada-s-record-breaking-wildfires-2023-l

[10] https://www.latimes.com/business/story/2025-01-24/estimated-cost-of-fire-damage-balloons-to-more-than-250-billion

The Emergency Management Framework for Canada	
Disasters in Canada are increasing in frequency and severity across the country. Combined, these disasters have cost tens of billions of dollars in damages and displaced hundreds of thousands of people. Disaster losses are likely to increase into the foreseeable future as a result of drivers of change, including: climate change; critical infrastructure interdependence; and shifting demographics in Canada. The impacts of climate change are already being felt across Canada increasing the frequency and intensity of hazards such as floods, wildfires, drought, extreme heat, tropical storms, melting permafrost, coastal erosion, and, in Northern Canada, damage to seasonal ice roads. These hazards pose significant risks to communities, individual health and well-being, the economy, and the natural environment. Moreover, many Indigenous communities are among the most vulnerable to climate change due to their remote and coastal locations, lack of access to Emergency Management (EM) services, and reliance on natural ecosystems.[11]	The Emergency Management Framework for Canada stipulates that it is consistent with the international Sendai Framework for Disaster Risk Reduction (DRR) 2015–2030: "The United Nations International Strategy for Disaster Reduction (UNISDR) coordinates international efforts in disaster risk reduction, and guides, monitors and reports on the progress of the implementation of the Sendai Framework for Disaster Risk Reduction (DRR). Canada is a signatory to the global framework, which Public Safety Canada is leading as federal department responsible for the domestic implementation of the Sendai Framework."[12] The authors have added that "Québec has adopted the 2014–2024 Québec Emergency Management Policy as well as a National Action Plan, which was directly inspired by the priority actions of the Hyōgo Framework, the predecessor of the Sendai Framework."

We should highlight the fact that both the Sendai as well as the Canadian frameworks focus more on "disaster risk reduction" and not necessarily on the response to natural disasters.

The Emergency Management Framework for Canada (EMFfC) mentions the following stakeholders: "Emergency Management (EM) partners include but are not limited to: Indigenous peoples, municipalities, communities, volunteer and non-governmental organizations, the private sector, critical infrastructure owners and operators, academia, and volunteers."[13] No mention of the potential role of the Canadian Armed Forces is made, although their interventions are frequent.

The Canadian Emergency Strategy then specifies responsibilities: "Provincial and territorial governments have responsibility for emergency management within their respective jurisdictions. The federal government exercises leadership at the national and international levels relating to emergency management responsibilities in its exclusive fields of jurisdictions and on lands and properties under federal responsibility. For these partnerships to be effective, all EM partners must work collaboratively with their respective governments."

Most Canadians have seen springtime scenes of Canadians with shovels in front of a huge sand pile, filling a bag, meaning that somewhere a river or a lake has gone out of its natural path and encroached on private land.

[11] https://www.publicsafety.gc.ca/cnt/rsrcs/pblctns/mrgncy-mngmnt-strtgy/index-en.aspx
[12] An Emergency Management Framework for Canada, Public Safety Canada, 2007–2017, p. 3.
[13] Emergency Management Strategy for Canada (2007–2017), published by Public Safety Canada, 32 pages.

Recently, the Government of Québec decided to form a group to be called upon in such situations. The volunteers participating in emergency responses to these situations may be compensated, up to $1,420, tax exempt, by the Government of Québec. This can apply in situations such as fires, missing persons searches, or other emergency situations.

Most formulations of the Emergency Management Framework for Canada mention FPT (Federal, Provincial and Territorial) authorities as responsible for all five objectives of the Framework:

1. Enhance society-wide collaboration and governance to strengthen resilience
2. Improve understanding of disaster risks in all sectors of society
3. Increase focus on society-wide disaster prevention and mitigation activities
4. Enhance disaster response capacity and coordination and foster the development of new capabilities
5. Strengthen recovery efforts by building back better, to minimize the impacts of future disasters

Above and beyond the fact that more specific responsibilities should be identified for each level of government authority, if the GHI was adopted, there should be specific roles identified where Canadian Armed Forces would come with the proper equipment and training to assist Canadians and communities confronted with flooding.

May we underscore that the Emergency Management Framework for Canada also mentions as an example the American FEMA (Federal Emergency Management Agency). "The Federal Emergency Management Agency (FEMA) is an agency of the United States Department of Homeland Security (DHS), initially created under President Jimmy Carter. The Agency's primary purpose is to coordinate the response to a disaster that has occurred in the United States and that overwhelms the resources of local and state authorities. The governor of the state in which the disaster occurs must declare a state of emergency and formally request from the president that FEMA and the federal government respond to the disaster." "While on-the-ground support of disaster recovery efforts is a major part of FEMA's charter, the agency provides state and local governments with experts in specialized fields, funding for rebuilding efforts, and relief funds for infrastructure development by directing individuals to access low-interest loans. In addition to this, FEMA provides funds for response personnel training throughout the United States and funds for non-federal entities to provide housing." [14]

Should there be a Canadian FEMA called CEMA (Canadian Emergency Management Agency)? We may underscore that in the US, FEMA is an institution providing financial and technical support to communities facing natural disasters, based on requests coming from the States, but do not offer physical support in terms of manpower as suggested within the Green Helmets Initiative.

5. Who pays the bill?

NATO requests that all members invest 2% of their GDP in defence spending. The good news is that the NATO definition already includes humanitarian and disaster relief spending in defence spending:

"If expenditures for operations, missions, engagements, and other activities are appropriated under the defence budget, they are included in the NATO definition. Expenditure for peacekeeping and humanitarian operations, paid by the Ministry of Defence or other ministries, the destruction of weapons, equipment and ammunition,

[14] https://en.wikipedia.org/wiki/Federal_Emergency_Management_Agency

and the costs associated with inspection and control of equipment destruction are included in defence expenditure."[15]

- Canada currently spends 41.5 billion CAN$ in military spending, corresponding to 1.37% of GDP.
- Canada committed itself to increase the defence budget by $8.1 billion in new defence spending over the next 5 years, starting in 2024-25, and $73 billion over the next 20 years.
- If Canada was to reach the NATO target now, it should increase its defence spending by almost 20 billion CAN$.
- On July 11, 2024, the Government of Canada announced its commitment to meet NATO's military spending target of 2% of GDP by 2032, therefore increasing the defence budget by (only!) 2.8 billion CAN$ per year.
- Should there be a new target set to include support for humanitarian assistance in the case of natural disasters?

It is our sincere belief, that if the Federal Government was to substantially increase the Canadian Defence budget, with the purpose of strengthening the capacity of the Canadian Armed Forces in order to assist Canadians facing the impact of natural disasters, as suggested in the context of the Green Helmets Initiative, that the Canadian public would be supportive.

6. Positioning of the Green Helmets Expertise Centres

One of the characteristics of the Green Helmets interventions would be its capacity to respond quickly. So, we might ask the question: where are Canadian Armed Forces located? Are these locations the most appropriate? Assuming that there could be specialized operational divisions in the context of the Green Helmets Initiative, where should such divisions, with appropriate staff and equipment, be located?

Currently, the Canadian Armed Forces are spread out in all Canadian Provinces, in 25 different locations (see below): i) eight armed forces locations; ii) nine air forces locations; iii) two navy locations; iv) four training and healing centres; v) various international locations in the US and Europe. The current Canadian Prime Minister has clearly indicated that one of his priorities would be to strengthen the presence of Canadian Armed Forces in the North (North-West Territories and Nunavut).

Current locations of the Canadian Armed Forces	
1. **British Columbia:** Comox (Air Force) and Esquimalt (Navy)	7. **New Brunswick**: Gagetown (Army)
2. Alberta: Cold Lake (Air Force), Edmonton (Army and Health Services), Suffield (Army), Wainwright (Health Services)	8. **Prince Edward Island:** none
3. **Saskatchewan**: Moose Jaw (Air Force)	9. **Nova Scotia**: Greenwood (Air Force), Halifax (Navy)
4. Manitoba: Shilo (Army), Winnipeg (Air Force)	
5. **Ontario:** Petawawa (Army and Health Services), Borden (Training), Kingston (Army), North Bay (Air Force), Trenton (Air	10. **Newfoundland-Labrador**: Gander (Air Force), Goose Bay (Air Force) 11. **Nunavut:** Station Alert (Air Force)

[15] https//www.nato.int/cps/is/natohq/topics_49198.htm#:~:text=Expenditure%20for%20peacekeeping%20and%20humanitarian,are%20included%20in%20defence%20expenditure.

Force), Ottawa (Headquarters and Health Services), Leitrim	
6. **Québec:** Valcartier (Army), Bagotville (Air Force), Gatineau-Ottawa (Support Centre)	12. **International:** Colorado Spring (Support Unit), Europe (Germany, Belgium Italy, the UK, etc.) (Support Unit)

The Green Helmets specialized centres should probably be located in each of the main regional areas of Canada, commencing by the west: i) British Columbia; ii) Western Provinces (Alberta, Saskatchewan and Manitoba); iii) Central Canada (Ontario and Québec); and iv) The Maritimes (New Brunswick, Prince Edward Island, Nova Scotia and Newfoundland-Labrador). Also, when considering the positioning of specialized centres in Canada, the Green Helmets Initiative should consider positioning specialized groups in Eastern Canada and Western Canada to respond to assistance requests according to the international dimensions of the GHI. For example, a specialized centre in Eastern Canada (Halifax, for example) could rapidly respond to assistance requests by air or navy in the Caribbean and Central America, while a similar specialized centre located on the Pacific Coast (Vancouver) could rapidly respond to assistance requests by air or navy in Asia (South or South-east).

As considered in the Technical Note regarding international dimensions, the specialized centres could also be training centres with knowledgeable staff and equipment.

7. The Need for Cross-Border Mediation

While developing the GHI Concept Paper, we were made aware by Judge Louise Otis (see summary bio below) that "legal mitigation" could be one of the areas of expertise that would be needed by and useful to the Green Helmets, given that litigation often arises when natural disasters take place, especially in cross-border disasters.[16] In the case of Canada, it is the border with the USA that is at stake. The Canada and United States (US) border is the longest in the world, spanning 8,891 km, across eight (8) Canadian Provinces and Territories and 13 US States. Natural disasters can occur irrespective of the border line between the two countries, therefore requiring mitigation of responsibilities for providing response and reconstruction.

The IUCM would provide high-level experienced mediators who are familiar with international climate change. These experts would work and travel in real time to complete the negotiations. The IUMC will consist of two types of mediators:

1. **Governance mediators** to assist climate negotiations.
2. **Field mediators** assisted by scientists to help resolve conflicts generated by the displacement of people and populations following floods, cataclysms and desertification.

Their tasks would be made more complex and urgent given the context of climate change. They may assist the Green Helmets and affected countries' authorities to determine where, when, with whom and how assistance may be provided.

The initiative called International Unit for Climate Mediation (IUCM)[17] could be implemented in conjunction with the Green Helmets Initiative (GHI), or independently.

[16] Environmental Mediation in the Age of Climate Crisis, by Louise Otis, Canada, 2025, 10 pages.
[17] NEW: International Unit for Climate Mediation (IUCM), by Louise Otis, Canada, one page.

8. Creating the Canadian Green Helmets

The creation of the Canadian Green Helmets should come from Canadian Parliament, which is currently in recess, as of March 23, 2025, but will resume its activities once the current federal elections are over (April 28, 2025). Nevertheless, changing the role of the Canadian Armed Forces (CAF) including the responsibility to respond to natural disasters in Canada and abroad would not be an easy task, given that this endeavour could potentially implicate many actors on the Canadian scene at federal, provincial and municipal levels.

If one of the Canadian political parties was suggesting the creation of the Green Helmets to assist Canadians facing natural disasters, the question should probably be debated at one or more of the Canadian Parliament's Standing Committees, among others the Standing Committee of National Defence (NDDN) should address the issue. Other Parliamentary Committees could also discuss the issue as it may impact activities in various sectors of activity. The Standing Committee on Environment and Sustainable Development (ENVI) could look at environmental and climate change considerations, while the Standing Committee of Foreign Affairs and International Development could look at the international dimensions of the Green Helmets Initiative.[18]

Also, given that for the time-being there is no clear role and responsibilities defined at federal, provincial and municipal levels regarding the response to natural disasters, a broad debate among provinces and municipalities should take place. Since 2007, Federal, Provincial and Territorial (FPT) collaboration in EM has been guided by the Emergency Management Framework for Canada (EM Framework), which was last updated in 2017. This framework should be reviewed eventually, if the Canadian Armed Forces were to play a specific role in the response to natural disasters in Canada.

Given the GHI would have implications on the role of Canadian Armed Forces, its budget, expertise requirements, equipment and positioning, among others, a law would probably be required.

The author has a PhD in Social Sciences from the EHESS of Paris. He worked for 27 years at the Canadian International Development Agency (1985–2012), six years for the OAS (2012–2018), and recently he has provided quality assurance of evaluation products for the World Food Programme and UNICEF (2018–2024).

Judge Louise Otis is a Canadian and international active judge, arbitrator and mediator in administrative and commercial matters. She is President of the Administrative Tribunal of the Organization for Economic Co-operation and Development (OECD). She is President of the Administrative Tribunal of the North Atlantic Treaty Organization (NATO).

[18] https://www.ourcommons.ca/Committees/en/Home