

SKIES OF INEQUALITY: INVESTIGATING THE INTERPLAY BETWEEN STATE FACTORS IN CIVIL AVIATION AND SYSTEMIC DISCRIMINATION IN NORTHERN CANADA

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ABSTRACT

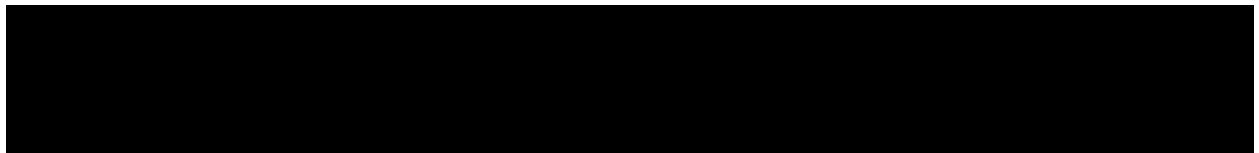
This thesis embarks on a journey to uncover the dark truth surrounding the causal role of States in civil aviation accidents (*State Factors*) and the ensuing spectre of systemic discrimination that haunts indigenous populations in Northern Canada. Despite Canada's reputation for stringent aviation regulations, a closer examination reveals that systemic safety deficiencies in the North have resulted in a disproportionate impact on indigenous communities.

Driven by the need to address these issues, this research contributes to broader discussions on human rights and the role of States in ensuring equitable safety outcomes in aviation. It provides a profound reflection on historical inequalities and it calls for a commitment to a future where safety is not a privilege but a universal norm and where Canadian skies are truly open to all.

Structured across six chapters, this thesis delves deep into the core of aviation safety governance in Canada, revealing a narrative rife with injustice and neglect. Drawing upon a comprehensive analysis of relevant treaties, regulations, policies, case studies, and socio-political theories, this research investigates the multifaceted *State Factors* that fuel a pernicious form of systemic discrimination in northern Canadian aviation. Its findings underscore how systemic failures stemming from government (in)action in Canada perpetuate safety disparities among northern indigenous communities and exacerbate their socio-economic vulnerabilities.

This thesis further advocates for targeted policy and legal reforms, and lays out a strategic litigation roadmap to confront this form of discrimination. Ultimately, it proposes a holistic approach to enhance aviation safety and promote equality for indigenous peoples, emphasizing the critical importance of uniform regulations and oversight, equitable resource allocation, and inclusive policymaking across Canada's civil aviation regime.

This research was supported by the Social Sciences and Humanities Research Council of Canada.



RÉSUMÉ

Cette thèse aborde le rôle causal des États dans les accidents en aviation civile (*Facteurs étatiques*) et la discrimination systémique qui en découle auprès des populations autochtones dans le Nord canadien. Bien que le Canada soit réputé pour sa réglementation rigoureuse du secteur aéronautique, un examen plus approfondi révèle que certaines lacunes systémiques en matière de sécurité aérienne ont un impact disproportionné sur les communautés autochtones dans le Nord.

Poussée par la nécessité de corriger ces lacunes, cette recherche ouvre un débat sur le rapport entre les droits de la personne et la nécessité d'assurer un niveau de sécurité équitable pour tous les usagers du transport aérien. Cette thèse propose ainsi une réflexion approfondie sur les inégalités auxquelles font face les peuples autochtones et plaide en faveur d'un avenir où la sécurité aérienne n'est plus un privilège, mais plutôt une norme universelle, et où le ciel canadien est véritablement ouvert à tous.

Divisée en six chapitres, cette thèse plonge au cœur de la gouvernance du secteur aérien au Canada, révélant un récit parsemé d'injustices et de négligence. En s'appuyant sur une analyse de traités, règlements, politiques, études de cas et théories sociopolitiques, cette recherche examine comment une variété de *Facteurs étatiques* alimente une forme pernicieuse de discrimination systémique dans le Nord canadien. Ses conclusions soulignent comment des défaillances systémiques découlant de l'(in)action du gouvernement canadien dans le secteur aéronautique perpétuent certaines disparités affectant la sécurité des communautés autochtones dans le Nord, exacerbant ainsi leurs vulnérabilités socio-économiques.

Cette thèse propose également des réformes politiques et juridiques, et met de l'avant une stratégie de litige pour lutter contre cette forme de discrimination. Enfin, elle préconise une approche holistique pour renforcer la sécurité aérienne et promouvoir l'égalité des peuples autochtones, en soulignant l'importance d'une réglementation et surveillance uniformes; d'une allocation équitable des ressources; et d'une élaboration de politiques inclusives en aviation civile.

Cette recherche a été appuyée par le Conseil de recherches en sciences humaines du Canada.

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LIST OF ABBREVIATIONS

Air Navigation Services	ANS
Airport Capital Assistance Program	ACAP
Air Traffic Control	ATC
Aviation Safety Information System	ASIS
Auditor General of Canada	OAG
Automated Dependent Surveillance Broadcast System	ADS-B
Automated Weather Observing System	AWOS
Auxiliary Power Unit	APU
Before Christ	B.C.
British Commonwealth Air Training Plan	BCATP
<i>Canadian Aviation Regulations</i>	CARs
Canadian Dollar	CAD
Canadian Aviation Safety Board	CASB
<i>Canadian Human Rights Act</i>	CHRA
Canadian Human Rights Commission	CHRC
Canadian Human Rights Tribunal	CHRT
Canadian Owners and Pilots Association	COPA
Canadian National Railway Company	CN
<i>Canadian Charter of Rights and Freedoms</i>	<i>Charter</i>
Civil aviation authority	CAA
<i>Civil Air Navigation Services Commercialization Act</i>	CANSCA
Controlled Flight Into Terrain	CFIT

List of Abbreviations

European Union	EU
Federal Aviation Administration	FAA
Federal Court of Appeal of Canada	FCA
First Officer	FO
Flight Service Station	FSS
Fond-du-Lac (Saskatchewan)	FDL
Functional Resonance Accident Model	FRAM
Global Navigation Satellite System	GNSS
Global Positioning System	GPS
Graphical Area Forecast	GFA
Instrument Flight Rules	IFR
International Air Transport Association	IATA
International Air Transport Association Operational Safety Audit	IOSA
International Civil Aviation Organization	ICAO
International Commission for Aerial Navigation	ICAN
Instrument Landing System	ILS
Maneuvering Characteristics Augmentation System	MCAS
Medical Evacuation Flight	Medevac
Meteorological Terminal Air Report	METAR
Minimum Descent Altitude	MDA
Minister of Transport (Canada)	MOT
National Airport Policy	NAP
National Airport System	NAS
Non-Directional Beacon	NDB

List of Abbreviations

Northern Indigenous Aeronautical Board of Canada	NIABC
Northern Indigenous Aeronautical Policy	NIAP
Performance-Based Navigation	PBN
Pilot Report	PIREP
Prairie and Northern Region (Transport Canada)	PNR
Process Inspection	PI
Program Validation Inspection	PVI
Provincial Airlines Limited	PAL
Area Navigation System	RNAV
Safety Management Systems	SMS
Standards and Recommended Practices	SARPs
State Safety Programme	SPP
Supreme Court of Canada	SCC
Terminal Aerodrome Forecast	TAF
Traffic Alert and Collision Avoidance System	TCAS
Transport Canada	TC
Transport Canada Civil Aviation Directorate	TCCA
Transportation Safety Board of Canada	TSB
<i>Universal Declaration of Human Rights</i>	UDHR
<i>United Nations Declaration on the Rights of Indigenous Peoples</i>	UNDRIP
Universal Safety Oversight Audit Programme	USOAP
United States	U.S.
Very High Frequency Omni-Directional Beacon	VOR

List of Abbreviations

Visual Approach Slope Indicator System	VASIS
Visual Flight Rules	VFR
World Health Organization	WHO
World War Two	WWII

PREFACE

It was the winter of 2010. I was conducting a solo flight to and from a distant mining town in the Province of Québec, near the 50th parallel, as a part of my commercial pilot training. On a background of the picturesque Canadian Shield's dancing hills, I was alone in C-FCIF, an old single-engine 1967 Piper Cherokee aircraft equipped with rudimentary analog flight instruments. Below me lay vast expanses of wilderness, scattered with frozen waterways set like mirrors across beautiful snow-covered conifer valleys. What started out as gratitude for this typical northern Canadian landscape morphed into an ugly fear throughout the homebound itinerary that night.

In the cold winter evening, I could see my breath shimmering in the red interior light of the cockpit¹ as I taxied towards the icy runway for departure. After completing the pre-takeoff checklist, my frozen fingertips engaged the throttle lever, triggering an immediate adrenaline rush as the aircraft commenced its ground roll at an increasingly rapid speed. When the wheels of the aircraft left the runway, the rumbling of my old piston engine and the darkness surrounding me quickly became the only remaining constants. Unlike the brightly lit city I was accustomed to, there were no visual references nearby and the horizon was imperceptible. I was flying blind—almost as if in a black hole—and I had to rely on my instruments to maintain directional control.

Shortly thereafter, I transitioned to uncontrolled airspace: I was now completely on my own, flying across the dark skies of Québec at almost three kilometres above sea level. It then dawned on me: if my sole engine failed right then and there, I would not even be able to see the ground before impact.² At that point, my mouth dried up under the mounting tension; I became glued to my flight instruments and hypersensitive to each variation in the aircraft's noises and vibrations.

¹ Red lighting is used by pilots to preserve their night vision. See Transport Canada, "Hazards Associated with Flying at Night", (2012), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/publications/system-safety-summer-briefing-kit-tp-14112/hazards-associated-flying-night-powerpoint-presentation>>.

² As the saying goes in aviation if your engine fails at night: "when you near the ground, if you don't like what you see, turn the landing lights off and pray." See Richard Collins, "Spooked about night flying in singles?", (2017), online: *Air Facts Journal* <<https://airfactsjournal.com/2017/11/spooked-night-flying-singles/>>.

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To my relief, the glowing silhouette of Ottawa's (Ontario) city lights eventually appeared on the horizon and I made it home safely that night.

As a pilot with first-hand experience facing the challenging and lethal hazards that are unique to Canadian aviation, I would come to recognize that same fear in several subsequent flights. For instance, when I encountered a thunderstorm while flying over the Côte-Nord region, a remote area in the Province of Québec with rocky and unforgiving terrain where pilots have fewer chances of survival should an emergency occur; a flight where I experienced a radio failure and then unexpectedly hit adverse weather over the Appalachian Mountains, forcing me to divert to another airport 125 kilometres away with minimal fuel left onboard and without air traffic control (ATC) support; and that windy day when I landed in Cape Breton Island (Nova Scotia) on a short gravel strip carved out from the side of a mountain with ravines at both ends.

Years later, whilst working for the Air Investigations Branch at the Transportation Safety Board of Canada (TSB), I realized in retrospect how dangerous northern flying was and how differently the outcome of my 2010 flight could have been if other variables had come into play. My appreciation of risk would increase even more, as I was routinely confronted with tragic stories from the North where pilots paid the ultimate price.³ Over the years, many pilots that I knew personally were also involved in fatal crashes. These tragedies, along with the memory of my own grandfather being killed in an aircraft accident, were stark reminders that aviation can be an unforgiving and deadly enterprise.

In my time at the TSB, I became particularly fascinated with the post-mortem causal analysis of these accidents, i.e., understanding how the compounded effect of various factors could bring down a perfectly functioning aircraft operated by well-trained airmen. One thing stood out to me more than anything else: there was a clear divide between air operations in Southern Canada

³ In some cases, their stories shared uncanny resemblances with flights that I had conducted myself under similar circumstances, albeit with a much different ending.

Preface

versus those in the North. This struck me as being incongruous with the reality of Northern Canada: why did the North experience systemic safety issues and adverse factors that were non-existent where I lived? Why should aviation be more dangerous in this area of the country when its residents depend so much on air services for basic commodities and essential services?

My personal story, background and past experiences, as described above, were the key reasons that drove me to investigate this question further and develop a thesis that would look into the distinct safety factors that play a role in these northern aviation tragedies. From the outset, my focus was on the role of the State in these accidents, but this research would soon uncover a much more pernicious influence behind the substandard safety levels that persist across the North.

As the reader will see, this thesis tells a story of neglect—neglect towards the safety and wellbeing of northern indigenous people whose survival—in the 21st century—is often dependent on air transportation. These people represent the most vulnerable elements of Canada's civil aviation network, hence why it is important to investigate the reasons behind the systemic safety issues that permeate the North. But before we delve into this burning issue, we must first set the stage for this tale of woe. The following **Introduction** will therefore provide the reader with the necessary background and identify the main issues that will drive the remainder of this thesis.

INTRODUCTION

1. Background

1.1 *The History of Aviation in Canada*

As the second-largest landmass on Earth,¹ maintaining an efficient transportation network has been the *conditio sine qua non* for the birth and expansion of Canada as a sovereign State since the 19th century. While rail, road and maritime transport industries each play an essential role in today's modern economy, aviation arguably remains the only mode of transportation that has the ability—on a year-round basis—to provide a continuous coverage across Canada's six time zones and vast territory spanning over 18 million square kilometres delimited by the Atlantic, Arctic and Pacific oceans.²

Accordingly, aviation has played an invaluable role over the past century in the development of the Great White North,³ particularly in regions where the rugged topography, harsh climates and sheer remoteness make it impossible for cars, trains and/or maritime vessels to access certain localities. In fact, the survival of many communities and industries would be in peril without air transportation, as it provides a vital lifeline and a means of connectivity for many Canadians:⁴

More than any other factor it has been the development of air service which has made Canada accessible to the whole world and has brought the most remote portions of the country into the Canadian community. There are no roads north of Thompson, Manitoba; there are no rails north of Churchill. But the arctic and subarctic regions are now linked with Toronto,

¹ Canada's total landmass is 9,984,670 km². See Statistics Canada, "Geography", (2018), online: *Government of Canada* <<https://www150.statcan.gc.ca/n1/pub/11-402-x/2011000/chap/geo/geo-eng.htm>>.

² *Transportation in Canada - Overview Report*, by Transport Canada, P-15388E (Ottawa, ON: Government of Canada, 2020) at 19.

³ *Comparison of Approaches for Supporting, Protecting & Encouraging Remote Air Services*, by RP Erickson & Associates (Ottawa, ON: Transport Canada, 2015) at 22; Institute of Air and Space Law McGill University, *Legal, economic and socio-political implications of Canadian air transport* (Montréal, QC: Centre for Research of Air and Space Law, 1980) at 18: "Most industrial states possess large populations concentrated in relatively small land areas. Such nations may well be served by one or two first-class airports. Canada is the reverse, for it has a vast land mass with scattered pockets of populations".

⁴ Nathalie Chalifour & Laurel Besco, "Taking Flight: Federal Action to Mitigate Canada's GHG Emissions from Aviation" (2016) 48:2 *Ottawa Law Review* 575–624 at 596. For instance, "[t]he average annual distance flown domestically per passenger in Canada (1,325 km in 2009) is more than many other industrialized countries with smaller landmasses (e.g., 425 km in the UK in the same year)".

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Winnipeg, Montreal and Vancouver by daily air service, and the planes are relied upon for day-to-day transportation as well as the necessities of life. Canada's [...] principal airlines [...] link the frozen tundra with the urban fringe along the U.S. border where 90% of the country's population lives.⁵

With aviation law literature mostly centred on general international law issues, or on the United States (U.S.) and the European Union (EU), it is surprising to note that few authors have focused their research on purely Canadian issues in air law.⁶ Yet, we must acknowledge that by its very nature, heritage, economic footprint and societal contributions, Canadian aviation stands out from other foreign aeronautical markets,⁷ thus warranting a closer look at its civil aviation law regime.

Historically, even the first powered flight in this country was remarkably Canadian; it occurred in 1909 on a cold winter morning when an aircraft “constructed out of steel tubing, wood, bamboo, friction tape, wire, rubberized fabric and doped linen”⁸—the Silver Dart—was successfully flown off a frozen lake in Baddeck, Nova Scotia. Little did we realize at the time how significant this milestone would become in the development of a young country that had only recently celebrated

⁵ Paul Stephen Dempsey, “Canadian Transport Liberalization: Planes, Trains, Trucks & Buses Rolling Across the Great White North” (1991) 19 *Transportation Law Journal* 113 at 115; See also *The Future of Canadian Air Travel: Toll Booth or Spark Plug?*, by Dennis Dawson & Stephen Greene (Ottawa, ON: Standing Senate Committee on Transport and Communications, June 2012) at 10: “75% of the Canadian population lives within 90 minutes by car of the U.S. border”.

⁶ A comprehensive literature review conducted in 2021 by the author of this thesis identified very few articles and/or authors in aviation law whose core focus was Canada. See Bernard M Deschenes, “The Canadian Aviation Safety Board: Experiences in International Co-Operation and Adaption” (1987) 12 *Annals of Air and Space Law* 4–14; Virgil Moshansky & Donald L Van Dyke, “The Role of the Judiciary in Aviation Safety the inside Story and Legacy of Dryden Revisited” (2012) 37 *Annals of Air and Space Law* 47–80; Norman MacKenzie, “Legislative Control over Aviation in Canada” (1932) 3:4 *Air Law Review* 407–416; Roger Harris, “Aviation Insurance in Canada: Current Regulatory Issues / Luftfahrtversicherungen in Kanada: Gegenwärtige Themen der Regulierung / L'Assurance d'Aviation au Canada: Aspects Actuels de Reglementation” (1995) 44:2 *Annals Air & Space* 197–202; Ghislaine Richard, “The Civil Aviation Tribunal of Canada after Five Years” (1991) 16 *Annals of Air and Space Law* 179–194; Chalifour & Besco, *supra* note 7; John Parnell, “Review and Appeal in Civil Aviation De-Licensing Regimes: A Comparative Study of New Zealand, Australia and Canada” (2013) 11:3 *New Zealand Journal of Public and International Law* 623–660; Paul P Fitzgerald, “Questioning the Regulation of Aviation Safety” (2012) 37 *Annals of Air and Space Law* 1–46.

⁷ Statistics Canada, *Aviation in Canada - Historical and Statistical Perspectives on Civil Aviation* (Ottawa, ON: Ministry of Supply and Services of Canada, 1986) at 32: “Canada has indeed grown to be a country with a passion for flying. From the beginning, Canadians have participated in the development of aviation, bringing their own expertise and determination to master this new mode of transport. And given the vast lands, and sometimes impenetrable countryside to be found in this country, their efforts have been well-rewarded, as the airplane has offered a dramatic solution to many of the travel needs of Canadians”.

⁸ “J.A.D. McCurdy and the Silver Dart: Canada's ‘First Aerial Navigator’”, (April 2021), online: *Nova Scotia Archives* <<https://archives.novascotia.ca/mccurdy/>>.

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its 40th anniversary. More importantly, it would suddenly open up a new frontier in the North, a remote part of the world with untapped resources that was relatively inaccessible until then.⁹

Given its disparate size and population, Canada has since relied heavily on air transportation to connect its relatively modest population from coast to coast,¹⁰ but also from North to South,¹¹ hence why “[t]he geographic challenges of unifying such a vast and underpopulated country have made transportation policy a priority for successive Canadian governments.”¹² Due to its massive size and low-density population,¹³ the need for interprovincial transport connecting Canadians has indeed permeated Canada’s transportation policy for over 150 years,¹⁴ more precisely since 1867 when Canada became a sovereign dominion within the British Commonwealth.

Under the original requirements of Canada’s *Constitution Act*,¹⁵ the birth of this country was *inter alia* conditional upon the creation of an intercolonial railway system that would unite Canadian provinces.¹⁶ The “Fathers of Confederation”¹⁷ therefore envisioned Canada becoming its own independent nation on the condition that a national transportation network be built to

⁹ Statistics Canada, *supra* note 10 at 15.

¹⁰ Paul Stephen Dempsey, *supra* note 8 at 114.

¹¹ By comparison, the longest distance from east to west is “5,514 km from Cape Spear, Newfoundland and Labrador, to the Yukon and Alaska boundary.” The longest distance from north to south is “4,634 km from Cape Columbia (Ellesmere Island), Nunavut, to Middle Island (Lake Erie), Ontario.” However, the air network servicing the north-south divide is significantly smaller than the network covering east-to-west routes. See Statistics Canada, *supra* note 4.

¹² Concordia University McGill University, *The McGill-Concordia Report on International Aviation Policy for Canada* (Montréal, Canada: Institute of Air and Space Law, 2005) at 11.

¹³ At the time of this writing, Canada’s population was estimated at 38,436,447 individuals. See Statistics Canada, “Population estimates, quarterly”, (2023), online: *Government of Canada* <<https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1710000901>>.

¹⁴ See *Canada Transportation Act*, SC 1996, c 10 at s 5.

¹⁵ Originally enacted as the *British North America Act*, 1867, 30–31 Vict., c 3 (UK).

¹⁶ *Ibid.* s 145: “Inasmuch as the Provinces of Canada, Nova Scotia, and New Brunswick have joined in a Declaration that the Construction of the Intercolonial Railway is essential to the Consolidation of the Union of British North America, and to the Assent thereto of Nova Scotia and New Brunswick, and have consequently agreed that Provision should be made for its immediate Construction by the Government of Canada: Therefore, in order to give effect to that Agreement, it shall be the Duty of the Government and Parliament of Canada to provide for the Commencement within Six Months after the Union, of a Railway connecting the River St. Lawrence with the City of Halifax in Nova Scotia, and for the Construction thereof without Intermission, and the Completion thereof with all practicable Speed”.

¹⁷ See House of Commons, “Fathers of Confederation”, (2024), online: *Parliament of Canada* <<https://www.ourcommons.ca/heritage/en/collection/17251>>.

provide a vital interconnectivity for the constituents of its new country¹⁸ and later to expand Canada's sovereign footprint into the West.

During the 20th century, the efficiency and popularity of aviation would eventually overtake rail transportation as the principal mode of passenger transportation. Accordingly, one can only assume that if the Confederation project had been delayed by a few decades into the 20th century, one of its preconditions would likely have been the creation of an "intercolonial air transportation network" between provinces.¹⁹

It was thus in this context and policy orientation that "Canada provided, or subsidized, first the railroads, and later the airlines,"²⁰ namely by actively participating in the establishment of both the Canadian National Railway Company (CN)—the "people's railroad"—and eventually Air Canada—the "people's airline".²¹ The latter would become Canada's flagship carrier; it would be particularly effective in linking "the vast country together by providing transcontinental services and [its cities] deemed to be of national importance."²² From its inception, Canada's transportation policies, infrastructure and regulations were therefore established and continue to ostensibly serve for the purpose of "nation building"²³ and maintaining national unity.²⁴ Yet, even with modern 21st century aeronautical capabilities, uniting such a vast and diverse territory remains a

¹⁸ See The Canadian Encyclopedia, "Confederation, 1867", (2017), online: *The Canadian Encyclopedia* <<https://www.thecanadianencyclopedia.ca/en/article/confederation-1867>>; James Marsh, "Railway History in Canada", (2009), online: *The Canadian Encyclopedia* <<https://www.thecanadianencyclopedia.ca/en/article/railway-history>>.

¹⁹ Under the living tree doctrine, one could even contend that air transportation represents the evolution of Canada's national transportation system as a prerequisite for becoming its own nation. See *Edwards v Canada (Attorney General)*, 1929 CanLII 438 (UK JCPC) at 107-108: "The B. N. A. Act planted in Canada a living tree capable of growth and expansion within its natural limits. The object of the Act was to grant a Constitution to Canada".

²⁰ McGill University, *supra* note 15 at 11.

²¹ *Ibid* at 11–12. Until 1964, the original appellation of Air Canada was Trans-Canada Airlines, which was founded in 1937 pursuant to the *Trans-Canada Airlines Act*, Can Stat, ch 43 (1937).

²² *Ibid* at 13.

²³ Richard W Bauman, "Foreword" (2000) 63:4 Law and Contemporary Problems 1–12 at 9; McGill University, *supra* note 15 at 12.

²⁴ McGill University, *supra* note 6 at 10.

challenging task, particularly in Northern Canada, where the reliability and safety of civil aviation operations have been called into question over the past decades. Why is that?



Figure 1 — The Geographical Boundaries of Northern Canada

1.2 The Southern and Northern Divide in Canadian Aviation

Statistics Canada defines Northern Canada²⁵ (“the North”) as “the northern parts of British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec, and Newfoundland and Labrador—collectively, the ‘Provincial North’—as well as the three territories (Yukon, the Northwest Territories and Nunavut), per the geographical boundaries adopted by the Conference Board of Canada’s Centre for the North”²⁶ (see Figure 1).²⁷ For the purpose of this thesis, the

²⁵ Statistics Canada, “What is north?”, (2006), online: *Government of Canada* <https://www150.statcan.gc.ca/n1/pub/11-402-x/2006/3119/ceb3119_001-eng.htm> Statistics Canada’s “definition of nordicity uses 16 characteristics, which include: the southern limits of the boreal forest, the presence of discontinuous permafrost, the requirements for home heating, the community’s isolation, the cost of living, and Revenue Canada’s formula for tax benefits based on remoteness”.

²⁶ Statistics Canada, “Delineating northern and southern Canada”, (2024), online: *Government of Canada* <<https://www150.statcan.gc.ca/n1/daily-quotidien/190704/mc-a001-eng.htm>>; see also *Northern and Arctic Air Connectivity in Canada*, by Michael Tretheway et al, International Transport Forum Discussion Papers 2021/03 (Paris, France: Organisation for Economic Co-operation and Development, 2021) at 5.

²⁷ Source: Statistics Canada, *supra* note 29.

remainder of the territory outside Northern Canada will be referred to as the “South” or “Southern Canada”.

Northern Canada’s *approximate*²⁸ boundaries start near the 50th parallel East of Winnipeg and then at the 55th parallel West of that same city.²⁹ Its landmass accounts for roughly two thirds of Canada’s landmass,³⁰ however, it only hosts 6% of its population.³¹ While there are no specific demographic data pertaining to indigenous populations in the northern parts of the above-mentioned provinces,³² it is important to note that the three territories, which account for 40% of Canada’s landmass,³³ are inhabited by a population composed by a majority of indigenous people (53%).³⁴

Despite the vast land that separates the North from the rest of the country, northern communities, more specifically their indigenous residents, do not benefit from the same level of connectivity and protections provided to most Canadians, in spite of the government’s pledge to

²⁸ *Report of the Commission of Inquiry on Aviation Safety / Commissioner the Honourable Mr. Justice Charles L. Dubin*, by Privy Council Office (Ottawa, ON: Government of Canada, 1982) at 341.

²⁹ McGill University, *supra* note 15 at 17–18; These two official boundaries, as proposed by the Government of Canada, will be relied upon for the purpose of this thesis. It must be acknowledged that there is no absolute consensus regarding the definition of the Canadian North, which has been the subject of many scientific and academic debates. Various definitions have been proposed based on “global or local, climatic or biological” factors. For a full discussion, see: Amanda Graham, “Indexing the Canadian North: Broadening the Definition” (1990) 6:1 *The Northern Review* 21–36; *Delineation of Canada’s North: An Examination of the North–South Relationship in Canada*, by Chuck McNiven & Henry Puderer, Geography Working Paper Series 2000–3 (Ottawa, ON: Statistics Canada, 2000).

³⁰ Natural Resources Canada, “The North”, (2024), online: *Government of Canada* <<https://natural-resources.canada.ca/earth-sciences/geography/atlas-canada/explore-our-maps/reference-maps/international-map-descriptions/the-francophonie/the-north/16886?ga=2.43265197.988391589.1623181493-1311799434.1623181493>>.

³¹ Statistics Canada, “Police-reported violent crimes against young women and girls in Canada’s Provincial North and Territories”, (2017), online: *Government of Canada* <<https://www150.statcan.gc.ca/n1/daily-quotidien/190704/dq190704a-eng.htm>>.

³² Demographic data is only available for each province as a whole and does not provide a separate statistical distribution for their southern and northern parts.

³³ Canada Guide, “The Northern Territories”, (2023), online: *Canada Guide* <<https://thecanadaguide.com/places/the-north/>>.

³⁴ “Aboriginal identity refers to whether the person identified with the Aboriginal peoples of Canada. This includes those who are First Nations (North American Indian), Métis or Inuk (Inuit) and/or those who are Registered or Treaty Indians (that is, registered under the Indian Act of Canada), and/or those who have membership in a First Nation or Indian band. Aboriginal peoples of Canada are defined in the *Constitution Act, 1982*, Section 35 (2) as including the Indian, Inuit and Métis peoples of Canada”, see Statistics Canada, “Census of Population (2016) - Aboriginal identity”, (2017), online: *Government of Canada* <<https://www12.statcan.gc.ca/census-recensement/2016/ref/dict/pop001-eng.cfm>>; Statistics Canada, “Aboriginal Peoples Highlight Tables, 2016 Census”, (2017), online: *Government of Canada* <<https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hltfst/abo-aut/Table.cfm?Lang=Eng&T=101&S=99&O=A>>.

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maintain a safe and efficient transportation network across all areas of the country.³⁵ Yet, depending on the season (e.g., when frozen waterways prevent the operation of maritime vessels and ferries, or in between seasons when ice roads are not operational),³⁶ air carriers often provide the only supply line between these northern communities and the rest of the world³⁷—a significant vulnerability that was further exacerbated during the COVID-19 pandemic when many key air routes in the North were disrupted:³⁸

Air is the crucial form of transportation in the northern region for travel, essential services (e.g., medical emergencies), all-season resupply (including food and mail), tourism, and other economic development. The northern air system has scheduled air carriers which provide mainline service between southern Canada and 4 northern gateways—Whitehorse, Yellowknife, Rankin Inlet, and Iqaluit—supported by an extensive network of connecting or feeder services. The northern airport system supports the air service through a system of 80 airports operated by the territorial governments, as well as a number of other airports operated by resource companies, tourist operators, and federal government departments.³⁹

As shown in Figure 2,⁴⁰ which depicts the existing transport infrastructure in Northern Canada, many isolated settlements in Northern Canada, which are predominantly inhabited by

³⁵ See *Canada Transportation Act*, SC 1996, c 10, s 5: “It is declared that a competitive, economic and efficient national transportation system that meets the highest practicable safety and security standards and contributes to a sustainable environment and makes the best use of all modes of transportation at the lowest total cost is essential to serve the needs of its users, advance the well-being of Canadians and enable competitiveness and economic growth in both urban and rural areas throughout Canada”.

³⁶ *Canada’s Arctic and Northern Policy Framework*, by Crown-Indigenous Relations and Northern Affairs Canada, R5-746/2019E (Ottawa, ON: Government of Canada, 2019); Pia Dimayuga et al, “Air transportation as a central component of remote community resilience in northern Ontario, Canada” (2021) 7:5 *Sustainable and Resilient Infrastructure* 624–637; Transport Canada, *supra* note 5 at 26: “Many northern communities receive only 1 sealift per year, and the shipping season is very limited, operating between July through mid-November, with heavy ice breaking required on the shoulders of the season. Sealift orders must be made about a year in advance for anything required the following season, including heavy equipment, construction materials, dry goods, fuel, and vehicles”.

³⁷ Some regions can eventually resume road transportation once the waterways completely freeze, at which point “ice roads” are developed and maintained during winter. See Michael Widener, Shoshanna Saxe & Tracey Galloway, “The Relationship between Airport Infrastructure and Flight Arrivals in Remote Northern Canadian Communities” (2017) 70:3 *Arctic* 249–258 at 249.

³⁸ See Transport Canada, “Support for small air carriers serving remote communities due to impacts from the COVID-19 pandemic”, (2020), online: *Government of Canada* <<https://tc.canada.ca/en/binder/remote-air-services-program>>; Transport Canada, “Government of Canada providing additional funding to support essential air services for remote communities in the Northwest Territories”, online: *Government of Canada* <<https://www.canada.ca/en/transport-canada/news/2021/06/government-of-canada-providing-additional-funding-to-support-essential-air-services-for-remote-communities-in-the-northwest-territories.html>>: “The global COVID-19 pandemic has created unprecedented challenges for Northern and remote communities that depend on supply chains remaining intact for the delivery of essential goods and services, medical care and transportation needs in their communities”.

³⁹ Transport Canada, *supra* note 5 at 26.

⁴⁰ Source: *A path to growth: Investing in the North - Report of the Standing Committee on Indigenous and Northern Affairs*, by Mary Ann Mihychuck (Ottawa, ON: House of Commons - Canada, 2019) at 87.

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indigenous populations, do not have a year-round road, rail or maritime connection. These are referred to as *fly-in communities*, which depend on aviation as the only reliable year-round means of transportation for essential goods⁴¹ and economic services.⁴² Many of these remote indigenous communities must “rely on air carriers to provide access to employment, health care, education, justice, child and family services, and social services, in addition to helping maintain cultural and familial connections,”⁴³ and even clean drinking water as witnessed during the 2021 Nunavut water crisis.⁴⁴

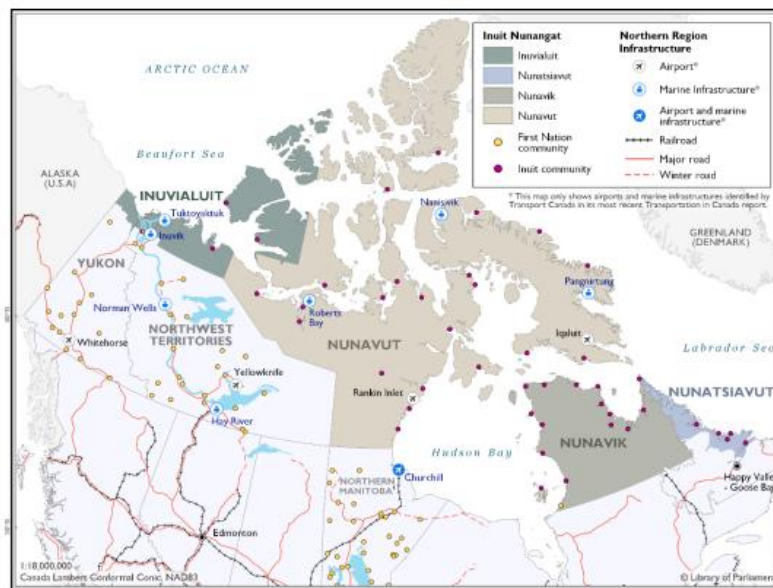


Figure 2—Transportation Infrastructure in Northern Canada

⁴¹ In a study focusing on northern indigenous communities, a northern operator had reported the following cargo data: “Fuel accounts for over half of all goods (56.7%), followed by Food (31.1%), Construction (5.2%), General Merchandise (3.1%), Furniture and Appliances (0.8%), Water (0.7%), Transportation (0.5%), and Other (1.8%). Considering the specific fuel types represented in Total Fuel, the majority of fuel delivered to communities is diesel (80.2%), followed by aviation gasoline (12.8%), gasoline (4.9%), jet fuel (2.1%), and minimal amounts of other types of fuel (0.1%)”. See Pia Dimayuga, *Northern Ontario Air Transportation and Remote Community Resilience and Wellbeing* University of Toronto, 2020) [unpublished] at 32–33.

⁴² Widener, Saxe & Galloway, *supra* note 40 at 249; *Civil Aviation Infrastructure in the North—Transport Canada*, Report 6, by Office of the Auditor General of Canada, Report 6 (Ottawa, ON: Government of Canada, 2017): “For Canada’s northern communities, air transportation is essential for supplying fresh food, medicine, and other goods; delivering health care services; providing medical emergency evacuations; and supporting tourism and travel outside of the community—many things that Canadians in the south take for granted. Air transportation is particularly important for remote northern communities, where it is the only reliable, year-round mode of transportation”.

⁴³ Indigenous Affairs, “Canada and Ontario Support Small Air Carriers Serving Remote First Nations Communities”, (2021), online: *Government of Ontario* <<https://news.ontario.ca/en/release/60047/canada-and-ontario-support-small-air-carriers-serving-remote-first-nations-communities>>.

⁴⁴ Bernd Debusmann, “Iqaluit: A month without clean water in Canada’s north”, (13 November 2021), online: *BBC News* <www.bbc.com/news/world-us-canada-59253088>.

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Aviation therefore provides a vital link that ensures the wellbeing and survival of many indigenous people living in northern communities.⁴⁵ Yet, despite their vital role in the survival of indigenous people up North, air carriers who operate to and from communities within the defined boundaries of Northern Canada face disproportionate safety risks when flying in the North:

The north presents inherent challenges and risks to air transportation because the northern population is spread out in small communities over vast stretches of inhospitable terrain. Air operations are subject to extreme weather, including cold temperatures, and to extended periods of darkness. Low and sporadic passenger volumes, along with harsh operating conditions, create a difficult and costly operating environment for the air transportation industry.⁴⁶

In this context, the Auditor General of Canada (AGC) and the TSB have both underlined systemic air safety issues unique to northern regions. The TSB has noted that 91% of all air accidents and 93% of all fatalities can be attributed to *commuter* and *air taxi operators* (see Chapter 4, *infra*),⁴⁷ many of which operate to and from indigenous communities in the North to provide essential goods and services.⁴⁸ As such, one must therefore wonder if the safety issues that persist in Northern Canada are linked to other existing inequalities faced by indigenous people across many facets of Canadian society.

1.3 Understanding the Colonial Roots of Canada's Air Transport Network

From an economic, policy and regulatory standpoint, the governance of Canada's air transportation industry reveals troubling inequalities, particularly in light of the glaring divide between air networks servicing large urban cities in the South and those operating to/from

⁴⁵ Indigenous Affairs, *supra* note 46; Dimayuga, *supra* note 44 at 9–11.

⁴⁶ Office of the Auditor General of Canada, *supra* note 45 at para 6.2.

⁴⁷ Transportation Safety Board of Canada, "Air Safety Management Systems", (27 March 2013), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/surveillance-watchlist/aviation/2012/air_4.html>.

⁴⁸ Office of the Auditor General of Canada, *supra* note 45; Transportation Safety Board of Canada, "Air transportation safety issue investigation report A15H0001 - Raising the bar on safety: Reducing the risks associated with air-taxi operations in Canada", (7 November 2019), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rap-ports-reports/aviation/etudes-studies/a15h0001/a15h0001.html>, s 1.0: "In many remote and northern parts of Canada, air-taxi services are the only way to reach communities, with small airplanes delivering food, equipment, and passengers. These vital air links have helped build Canada and sustain its people".

northern communities. Paradoxically, while major Canadian cities were developed in the late 19th and early 20th centuries around railways and road networks, northern localities were never connected to the main Confederation railway as part of Canada's "nation-building" efforts in the 19th century.⁴⁹ Yet, many northern communities still to this day do not have access to reliable and safe methods of transportation to bridge this century-old gap.

This hegemonistic approach takes its origins in part from the previously mentioned creation of Air Canada as a joint venture between the federal government and CN.⁵⁰ As a result of this historical construct, most commercial air transport networks were initially designed to primarily operate between major Canadian cities and still mainly run East-West in parallel with transcontinental railways along which most urban agglomerations were established.⁵¹ Consequently, most northern communities remain excluded to this day from Canada's mainline air transportation network.

The aerodromes that can be found in relative proximity to northern indigenous communities were in some cases established and/or maintained by the Canadian government as an access point to fly in officials and carry out oppressive policies against local indigenous populations during the 20th century.⁵² While aviation succeeded in linking remote northern indigenous populations with the rest of Canada, in the same way that railways opened up the West following Confederation,⁵³ it was also utilized as a means to displace indigenous populations, facilitate their assimilation and fly in private enterprises to exploit resources on their traditional lands.⁵⁴

⁴⁹ Tretheway et al, *supra* note 29 at 9–10.

⁵⁰ It must be noted that the Canadian federal government approached "the two major railways, along with Canadian Airways which had already established extensive operations in Canada, with a proposal to create a national non-profit Canadian airline which would be guaranteed by the government against loss. Although Canadian Pacific Railways (CPR) eventually decided not to participate, a compromise was reached between the federal government and Canadian National Railways". Statistics Canada, *supra* note 10 at 21–22.

⁵¹ McGill University, *supra* note 15 at 20.

⁵² See Dimayuga, *supra* note 44 at 4.

⁵³ McGill University, *supra* note 6 at 6.

⁵⁴ See Dimayuga, *supra* note 44 at 4 & 21.

Existing literature has indeed noted that “[t]he location of airports and the remote nature of First Nation reserves are a direct result of the colonial history of Canada, whereby treaties and other legislation dictated where First Nations were to live, among other restrictions.”⁵⁵ Many northern aerodromes are thus located in strategic locations where local indigenous populations were hurdled into well-defined reserves and their children flown out to residential schools or foster homes. Over time, many of these indigenous populations became sedentary and reliant on air services to obtain basic commodities and access essential services, once the government was partly successful in eradicating their traditional way of life. This explains why many northern reserves are situated near aerodromes, but also remain highly dependent on air transportation.⁵⁶

Unlike the “nation-building” approach that drove transportation policies in Southern Canada, we must acknowledge the conflicting legacy northern aviation, which played an ambivalent role, i.e., as the catalyst for the establishment and/or development of many northern settlements,⁵⁷ but also in facilitating the implementation of discriminatory policies. While colonial visions have since been tempered, these oppressive roots likely remain embedded in the government’s (in)adequate regulation and oversight of northern matters, as a subtle form of *systemic discrimination*.

1.4 Defining Systemic Discrimination

Despite being highly regarded on the international stage, namely for its purported multicultural and hospitable society, Canada has a dark past of outright oppression and ethnocide⁵⁸ against

⁵⁵ *Ibid.* at 2.

⁵⁶ Dimayuga, *supra* note 44 at 4: “The lasting effects of this colonial history is intrinsically connected to the current state of remote communities and their infrastructure and therefore must be acknowledged. [...] Decades later, in the 1970’s, the locations of remote airports were selected specifically to be within walking distance of reserves (Ontario Ministry of Transportation, 2018); the continuing remoteness of communities is a direct result of colonial history”.

⁵⁷ Statistics Canada, *supra* note 10 at 15: “Canada’s rich northland proved a powerful incentive for Canada’s early aviation entrepreneurs. Rich in minerals and resources, and poor in transportation links, the North represented the last great frontier. Here the new explorers of the air had to deal with intense cold, rough landings, inadequate supplies, equipment which was generally unsuited to the geography and climate, and their own rickety sub-standard planes”.

⁵⁸ A national enquiry concluded in 2019 that Canada had perpetrated genocide against indigenous people. See *A Legal Analysis of Genocide - Supplementary Report*, by Government of Canada, National Inquiry into Missing and Murdered Indigenous Women and Girls (Ottawa, ON, 2019).

its indigenous people⁵⁹ who have inhabited its territory for thousands of years. Even though the Canadian government has recently embarked on a nationwide campaign of reconciliation with indigenous people,⁶⁰ the latter continue to suffer from the adverse consequences of deliberate and invidious policies carried out against them in the past.

Even today, the legacy of these oppressive policies is reflected in many interrelated socio-economic inequalities that are rampant in indigenous communities across Canada. Compelling examples include the disproportionate rate of imprisonment,⁶¹ the missing and murdered indigenous women crisis,⁶² clean water shortages in indigenous communities,⁶³ employment and

⁵⁹ Statistics Canada, "Indigenous group of person", (2021), online: *Government of Canada* <<https://www23.statcan.gc.ca/imdb/p3Var.pl?Function=DECI&Id=1324435>>: "Indigenous group refers to whether the person is First Nations (North American Indian), Métis and/or Inuk (Inuit). A person may be included in more than one of these three specific groups. Aboriginal peoples of Canada (referred to here as Indigenous peoples) are defined in the *Constitution Act, 1982*, Section 35 (2) as including Indian, Inuit and Métis peoples." It must be noted that the use of the "Indian" appellation is a misnomer that has become frowned upon, and replaced by "First Nations" – the more appropriate form nowadays".

⁶⁰ See Crown-Indigenous Relations and Northern Affairs Canada, "Reconciliation", (2024), online: *Government of Canada* <<https://www.rcaanc-cirnac.gc.ca/eng/1400782178444/1529183710887>>.

⁶¹ Darren Major, "Indigenous women make up almost half the female prison population, ombudsman says", (2021), online: *CBC News* <<https://www.cbc.ca/news/politics/indigenous-women-half-inmate-population-canada-1.6289674>>: "Indigenous people make up about 32 per cent of the federal prison population, despite accounting for less than five per cent of the total population. Indigenous women, meanwhile, account for 48 per cent of the population in women's prisons. Nearly half of youth incarcerated across Canada are Indigenous"; Kara Brisson-Boivin, "Standardizing 'Corrections': The Politics of Prison Expansionism and Settler Colonial Representations of Punishment in Nunavut" (2018) 7 *Annual Review of Interdisciplinary Justice Research* 372–402; Sarah Runyon, "Correctional Afterthought: Offences Against the Administration of Justice and Canada's Persistent Savage Anxieties" (2020) 43:5 *Manitoba Law Journal* 1–38; Nate Jackson, "Aboriginal Youth Overrepresentation in Canadian Correctional Services: Judicial and Non-Judicial Actors and Influence" (2015) 52:4 *Alberta Law Review* 927–947; Emmett Macfarlane, "The Unconstitutionality of Unconstitutional Constitutional Amendments" (2022) 45:1 *Manitoba Law Journal* 198–218; Efrat Arbel, "Rethinking the 'Crisis' of Indigenous Mass Imprisonment" (2019) 34:3 *Canadian Journal of Law and Society* 437–456 at 450: "As of 2017, Indigenous people made up less than 5% of the Canadian population, but comprised 26.4% of the federal inmate population. The Office of the Correctional Investigator has reported an increase in the federal incarceration rate of Indigenous peoples every single year over the last three decades. Between 2007 and 2016, the Indigenous prison population increased by 39%".

⁶² See *Reclaiming Power and Place - The Final Report of the National Inquiry Into Missing and Murdered Indigenous Women and Girls*, by Government of Canada, CP32-163/2-1-2019E (Ottawa, ON: Government of Canada, 2019); *Missing and Murdered Aboriginal Women: A National Operational Overview*, by Royal Canadian Mounted Police, PS64-115/2014E (Ottawa, ON: Royal Canadian Mounted Police, 2014); Jane Bailey & Sara Shayan, "Missing and Murdered Indigenous Women Crisis: Technological Dimensions" (2016) 28:2 *Canadian Journal of Women and the Law* 321–341.

⁶³ *Make it Safe - Canada's Obligation to End the First Nations Water Crisis*, by Human Rights Watch (New-York, NY: Human Rights Watch, 2016); The Guardian, "Dozens of Canada's First Nations lack drinking water: 'Unacceptable in a country so rich'", (2021), online: *The Guardian* <<https://www.theguardian.com/world/2021/apr/30/canada-first-nations-justin-trudeau-drinking-water>>; Daina Goldfinger, "'An ongoing symbol of colonization': How bad water affects First Nations' health", (2021), online: *Global News* <<https://globalnews.ca/news/8199988/first-nations-water-crisis-health-effects/>>.

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income inequalities;⁶⁴ major health disparities,⁶⁵ including disproportionately high rates of tuberculosis in the North;⁶⁶ inequities in education;⁶⁷ etc. In the North, these disparities are further exacerbated, as local indigenous communities usually face further hardships as a result of their remoteness:

For too long, Canada's Arctic and northern residents, especially Indigenous people, have not had access to the same services, opportunities, and standards of living as those enjoyed by other Canadians. There are longstanding inequalities in transportation, energy, communications, employment, community infrastructure, health and education.⁶⁸

Each of these generalized inequalities arguably constitutes a form of *discrimination*, whose seminal definition was first proposed by the Commission on Equality in Employment in 1984,⁶⁹ and subsequently cited by the Supreme Court of Canada (SCC) in a 1987 landmark ruling:⁷⁰

Discrimination in this context means practices or attitudes that have, whether by design or impact, the effect of limiting an individual's or a group's right to the opportunities generally available because of attributed rather than actual characteristics. What is impeding the full development of the potential is not the individual's capacity but an external barrier that artificially inhibits growth. [...] It is not a question of whether this discrimination is motivated by an intentional desire to obstruct someone's potential, or whether it is the accidental by-product of innocently motivated practices or systems. If the barrier is affecting certain groups

⁶⁴ See *The Income Gap Between Aboriginal Peoples and the Rest of Canada*, by Daniel Wilson & David MacDonald, Growing Gap (Ottawa, ON: Canadian Centre for Policy Alternative, 2010); Joe Sawchuk, "Social Conditions of Indigenous Peoples in Canada", (2011), online: *The Canadian Encyclopedia* <<https://www.thecanadianencyclopedia.ca/en/article/native-people-social-conditions>>: "In 2019, the rate of employment for Indigenous peoples in Canada (57.5 per cent) was lower than the non-Indigenous population (62.1 per cent) [...] In comparison to non-Indigenous peoples, Indigenous peoples' income tends to be below the Canadian average. In 2016, the median after-tax income for non-Indigenous people was \$31,144. For those who identified as First Nations, it was \$21,253, for Métis, \$29,068, and Inuit, \$23,635".

⁶⁵ Sawchuk, *supra* note 67: "For example, life expectancy can be 10-15 years shorter for Indigenous peoples and infant mortality rates can be two to four times higher"; Public Health Agency of Canada, "Key Health Inequalities in Canada: A National Portrait – Executive Summary", (2018), online: *Government of Canada* <<https://www.canada.ca/en/public-health/services/publications/science-research-data/key-health-inequalities-canada-national-portrait-executive-summary.html>>: "Indigenous peoples also face inequalities in cause-specific outcomes. The prevalence of arthritis, asthma, diabetes, and obesity were higher among First Nations [...] than among non-Indigenous adults"; *Ignored to Death: Systemic Racism in the Canadian Healthcare System*, by Brenda Gunn (Winnipeg, MB: University of Manitoba, 2022).

⁶⁶ Philippe Teisceira-Lessard, "Nunavik: La tuberculose plus présente que jamais", (2024), online: *La Presse* <<https://www.lapresse.ca/actualites/sante/2024-01-05/nunavik/la-tuberculose-plus-presente-que-jamais.php>>.

⁶⁷ Wilson & MacDonald, *supra* note 67 at 4: "Those without a secondary school diploma form 32% of the Aboriginal population, more than twice the rate of the rest of Canadians (15%). The 28% of non-Aboriginal women who have a university degree or higher is double the rate for Aboriginal women and the situation is even worse for Aboriginal men, where only 8% have a university degree or higher, which is less than a third the 25% rate for non-Aboriginal men".

⁶⁸ Crown-Indigenous Relations and Northern Affairs Canada, *supra* note 36 at 2.

⁶⁹ *Report of the Commission on Equality in Employment*, by Rosalie Silberman Abella, MP43-157/1-1984E (Ottawa, ON: Human Resources and Skills Development Canada, 1984).

⁷⁰ *CN v Canada (Canadian Human Rights Commission)*, [1987] 1 SCR 1114.

in a disproportionately negative way, it is a signal that the practices that lead to this adverse impact may be discriminatory.⁷¹

While indigenous populations have been the victims of *intentional* discrimination by the State, *unintentional* decisions have also contributed to subtle yet pernicious patterns of systemic discrimination in many facets of Canadian society. In fact, unintended patterns of systemic discrimination are generally more prevalent than direct discrimination,⁷² hence why they warrant serious consideration by policymakers in all sectors of the Canadian society.⁷³

Accordingly, if there is uncontested evidence that systemic discrimination towards indigenous is rampant in many aspects of the Canadian society, particularly up North, one must wonder if its tentacles have also gained a deadly grip on the operational safety of northern air carriers.

2. Research Question & Hypothesis

Canadians have come to take the safety of air transport for granted. Generally speaking, they have good reason to invest confidence in the applicable regulatory regime. Despite their inherent differences, there are no definitive distinctions between southern and northern air operations under Canadian aviation law: both sectors are regulated evenly, at least on paper, and must—in most cases—meet the same legal requirements. Yet, their operational environment and regulatory outputs are vastly different;⁷⁴ there remain some striking shortcomings, particularly in Northern Canada, where federal funding, air navigation services, airport infrastructure, and government oversight are significantly deficient.

⁷¹ Rosalie Silberman Abella, *supra* note 72 at 2.

⁷² Gwen Brodsky, Shelagh Day & Frances Kelly, “The Authority of Human Rights Tribunals to Grant Systemic Remedies” (2017) 6:1 Canadian Journal of Human Rights 1–47 at 4: “To a large extent the systemic discrimination that needs to be addressed in Canada today is the result of historical attitudes, stereotypes and practices that have become embedded in the normal operation of institutions. This discrimination is not always the result of overt, intentional acts but of discriminatory practices that remain in place because they have become normalized. Institutional inertia helps to entrench these practices and hold them in place”.

⁷³ See *Canada (Human Rights Commission) v Taylor*, [1990] 3 SCR 892 at 931; *Ontario Human Rights Commission and O'Malley v Simpsons-Sears Ltd.*, [1985] 2 SCR 536 at 549-550; *Bhinder v Canadian National Railway Co.*, [1985] 2 SCR 561 at 586.

⁷⁴ *Connecting the North: A draft transportation plan for Northern Ontario*, by Government of Ontario (Toronto, ON: Government of Ontario, 2020) at 2: “...the North has unique transportation challenges. Vast distances between communities, winter storms and the natural landscape can make it harder for people to get around”.

Introduction

Given the prevalence of systemic discrimination throughout Canada's indigenous population, particularly up North, one can only assume that the aviation sector is not immune from the harmful effects of this widespread phenomenon. If systemic discrimination exists in most facets of indigenous societies, we can logically assume that it has also contaminated the air transportation regime in Northern Canada. Air investigation reports indeed reveal that many northern accidents are caused by common factors that are either absent or less prevalent in Southern Canada due to disparities in government oversight, resources, services and aeronautical infrastructure.

While air transport in Southern Canada can be characterized as meeting and exceeding international safety norms, there is thus a striking asymmetry when it comes to Canada's North. Why do so many accidents occur there? What explains the less robust application of flight safety rules and protocols? These questions take on a harder edge as one takes into account Northern Canada's dependency on air transport and the fact that lower levels of safety have a disproportionate impact on indigenous people. Such considerations lead to a more challenging research question:

Does the uneven application of Canada's air transport safety regime in the North amount to a form of systemic discrimination against indigenous people?

The following thesis will answer this question in the *affirmative*. The hypothesis of this research will be confirmed by relying on a multidisciplinary approach going beyond "black letter law." The underlying question of this thesis will be conclusively answered by examining qualitative and quantitative evidence stemming from legal, historical, social sciences, and scientific sources, including air safety statistics, investigations reports, government inquiries, academic literature, technical documentation in the aeronautical sector, public policies, studies pertaining to industrial accidents in various industries, case law and evidence-based indicators compiled through a number of case studies.

3. Research Outline

This thesis will examine the impact of economic, societal political and/or policy decisions at the State-level on the safety of northern air operations in Canada. It will consider how the emergence of widespread safety deficiencies has contributed to a disproportionate number of accidents in the North and exposed local indigenous populations to higher risks, as well as unreliable transportation options. Accordingly, thesis will argue that the unequal treatment of these indigenous people is a form of systemic discrimination that stems from multilayered failures by the State in providing northern indigenous people with equal safety benefits under the *Aeronautics Act*.⁷⁵ To demonstrate the above, this thesis will follow a two-pronged approach. **Part I** will examine the distinctive role of States in aircraft accidents, namely by proposing a new concept—*State Factors*—as a contributory element in contemporary accident causation models. **Part II** will assess how *State Factors* have had a disproportionate role in northern accidents in Canada and argue that this amounts to a form of systemic discrimination against indigenous populations.

3.1 Part I—*State Factors in Aviation Occurrences*⁷⁶

By way of background, there are three key factors that can influence aviation safety: *technical*, *human* and *organizational* factors. However, these three factors do not explicitly take into account how the governing functions of a State, namely its regulatory framework, executive policies, and oversight (in)action, can trigger noticeable fluctuations in aviation safety levels and contribute to accidents.

⁷⁵ *Aeronautics Act*, RSC, 1985, C A-2.

⁷⁶ *Annex 13 to the Convention on International Civil Aviation - Accident and Incident Investigation (12th Edition) - Standards and Recommended Practices*, AN13 2020 c 1. An occurrence includes both “accidents” and “incidents”, as defined by ICAO. For the purpose of this thesis, the words “occurrence” and “accident” will be used interchangeably, albeit most case studies cited in this research meet the legal definition of an accident: “*Accident*. An occurrence associated with the operation of an aircraft [...], in which: a) a person is fatally or seriously injured [...] b) the aircraft sustains damage or structural failure [...] c) the aircraft is missing or is completely inaccessible. [...] *Incident*. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation”.

Introduction

Given the predominant role of States in the regulation of safety, Part I will propose a fourth factor in the field of aviation safety—the *State Factor*—in addition to the three safety factors mentioned above. By drawing upon the historical roots of air safety regulation and examining the global system that governs aviation safety worldwide, Part I will argue that various forms of State (in)action can weaken this system and act as causes and contributing factors in the chain of events leading up to aircraft accidents.

As a starting point, **Chapter 1** will explore the societal, historical, political and legal origins that underpin the State-centric approach in the regulation of safety in all facets of human civilization, as a means to satisfy primitive human needs for survival. Applied to the context of civil aviation, the key takeaway from this chapter is that States have a predominant influence in either preventing aircraft accidents or allowing safety deficiencies to persist. Accordingly, States must be held accountable—under modern accident causation models—for the safety deficiencies they produce when these contribute to deadly tragedies.

Chapter 2 will examine in more detail how the current legal framework in international air law can be used by individual States either as a sword to advance aviation safety or as a shield to depart from universal safety norms. It will be argued that the perverse effect of the “complete and exclusive sovereignty” doctrine under the *Chicago Convention* allows States to tolerate unsafe behavior, which can contribute over time to more accidents in their country. Accordingly, *safety* has a national identity that varies from one country to another, depending on each country’s willingness and/or ability to prevent accidents. This factor must therefore be considered when examining the causal origins of aviation tragedies.

Building on the foundations set out in the previous chapters, **Chapter 3** will define the *State Factor*. This chapter will argue that under traditional accident causation models, a fourth consideration—the *State Factor*—must be recognized in the series of factors and events that play a role in the sequence of aircraft accidents. From a governance standpoint, this section will argue that

air safety is a dynamic variable, which can be positively or negatively shaped by State (in)action or decisions to depart from international norms. Chapter 3 will thus analyze how a sovereign country's differing levels of public funding, accountability, operational constraints, and political challenges can inhibit domestic air safety levels and be correlated with an increase in accidents. Accordingly, Chapter 3 will establish the foundational elements to investigate in **Part II** how specific government (in)actions, i.e., *State Factors*, have a disproportionate and discriminatory impact on the safety of civil aviation in Northern Canada.

3.2 Part II—Systemic Discrimination in Northern Aviation

Part II will investigate the disparate effect of *State Factors* in Northern Canada. It will examine how inferior safety levels up North are the by-product of gaps within Canada's broader civil aviation regime (*State Factors*). It will also establish how the pervasive role of *State Factors* in northern accidents illustrates a modern manifestation of persisting euro-colonial attitudes of paternalism, self-righteous views, and expressions of oppression against indigenous people.⁷⁷ By relying on case studies where State (in)action in the North contributed to major safety deficiencies, a practical application of the *State Factor* as a concept will expose how Canada's current aviation regime (lack of adequate funding, oversight, and infrastructure) neglects the safety of northern air operators and thus constitutes a *prima facie* form of systemic discrimination against northern indigenous people.

To do so, **Chapter 4** will analyze a series of TSB investigation reports, where inadequate oversight in Northern Canada, or lack thereof, was cited as a contributing factor in deadly accidents that seriously injured and even killed indigenous people. It will analyze how the lack of meaningful surveillance in the North prevents the timely identification and correction of safety deficiencies before they materialize into tragic accidents. This chapter will also identify instances where northern

⁷⁷ See Erica Neeganagwedgin, "Indigenous Lands and Territories: Self-Determination, Activism and Canada's White Paper" (2019) 21:1 *Whitehead Journal of Diplomacy and International Relations* 84–96 at 85.

operations are exempted from universally recognized safety norms and analyze how spineless surveillance policies, akin to a form of regional deregulation, have jeopardized the safety of these carriers.

Chapter 5 will examine how Canada's aeronautical infrastructure, services and equipment in the North have fallen well-below international norms. This chapter will discuss how the lack of airport funding and infrastructure (e.g., substandard runways, poor lighting, lack of air navigation services and weather coverage, antiquated navigational aids, the absence of proper de-icing equipment, etc.) adversely affects the safety and reliability of aviation in the North and exposes northern communities to higher risks. Moreover, it will identify past occurrences where these gaps have contributed to deadly accidents at or near northern airports that service indigenous communities.

By following the SCC's recognized approach for establishing a case of systemic discrimination, **Chapter 6** will provide a synthesis of the key findings made in this thesis as a means to formally diagnose the existence of systemic discrimination within Canada's civil aviation regime. It will conclude that there are connections between political, social and economic disparities in indigenous communities and the salient, yet disproportionate air safety issues currently affecting the North. At the root of these issues, *State Factors* displayed through patterns of systemic discrimination within the Canadian federal government, will emerge as a major determinant that currently endangers the safety and wellbeing of indigenous people.

PART I - STATE FACTORS IN AVIATION OCCURRENCES

CHAPTER 1 - THE GENESIS OF AVIATION LAW: REGULATING SAFETY AS AN ELEMENTARY HUMAN NEED

1. Introduction

Safety,¹ in all aspects of our society, is a public good, whose main beneficiary is humanity as a whole, particularly in civil aviation.² Safety is innate to the biological identity of *homo sapiens* who are driven—like any other living being—by a fundamental need for self-preservation. Under this guiding premise, the purpose of Chapter 1 is to introduce the theoretical foundations underlying the human *needs* and *rights* pertaining to safety, as a means to highlight the central role of the State in the regulation of air safety, as well as its inherent responsibilities over failures that contribute to aviation occurrences. To do so, this chapter will outline the societal, historical and legal reasons that underpin the central role of States, such as Canada, in the governance of civil aviation, as a foundation for subsequent chapters.

In keeping with the broader theme of this thesis, Chapter 1 will provide key insights into understanding why all *homo sapiens*, regardless of their individual characteristics, share common needs for safety, which are reflected in our modern-day society by a broad range of laws aiming to protect the wellbeing of the public. Yet, as discussed in subsequent chapters, the theoretical precepts discussed in Chapter 1 are not always applied *equally*, particularly when it comes to the asymmetric regulation of air safety in Northern Canada. In this context, Chapter 1 will also

¹ As a preliminary clarification, it must be noted that this thesis will focus solely on aviation *safety*—not *security*. Whilst acknowledging the intimate and dynamic relationship between both concepts (i.e., “security” is a component of aviation “safety”), security mostly addresses *intentional* acts. Security thus falls outside the scope of this thesis, even though its theoretical premises regarding the role of the State in regulating and overseeing aviation, including accidents, can be equally applied in both fields of study. See Paul Stephen Dempsey & Laurence E Gesell, *Public Policy and the Regulation of Commercial Aviation* (Chandler, AZ: Coast Aire Publication, 2013) at 39; Aaron J Gellman, “Relating Aviation Safety and Security” (2004-2008) 2004 *Issues Aviation L & Pol’y* 1085. at 1085-1086; Michael Milde, *International Air Law and ICAO: Essential Air and Space Law*, 3d ed (The Hague, Netherlands: Eleven International Publishing, 2016) at 223:

There is some terminological confusion since in French the word “sécurité” is equivalent to English “safety”; the English word “security” in French is “sûreté”. Spanish language uses the expression “seguridad” both for “safety” and “security” and Russian also use a single word: “bezopasnost”.

² Md Tanveer Ahmad, “Achieving Global Safety in Civil Aviation: A Critical Analysis of Contemporary Safety Oversight Mechanisms” (2012) 37 *Annals of Air and Space Law* 81–124 at 89.

consider how the failure to meet the elementary safety needs of a specific group of individuals may contribute to disproportionate risks, accidents, as well as bodily injury or death, infringe on their *right to safety* and constitute a form of discrimination.

Accordingly, Chapter 1 is an important building block in this thesis to understand *how* and *why* the Government of Canada has positive obligations under both international and Canadian law to maintain elementary standards of safety—without discrimination—over the aeronautical activities falling under its jurisdiction. To do so, Chapter 1 will also discuss the origins behind the role and intervention of States in the regulation of aeronautical activities. These foundational elements are necessary to understand the international legal framework presented in Chapter 2, as well as the analysis in Chapter 3, which will discuss how regulatory failures at the State level under this framework play a defined causal role in modern air tragedies that disproportionately affect northern indigenous populations in Canada (see Chapter 4 and 5).

2. Safety: A Collective Necessity

As the highest priority in civil aviation,³ it has been stated that “safety is the condition precedent to all commercial airline activities,”⁴ hence why aviation remains one of the most regulated industries in the world.⁵ For thousands of years and well before the advent of powered flight, humans have sought various ways to protect and improve their safety⁶—a sacred concept⁷

³ Paul Stephen Dempsey & Laurence E. Gesell, *supra* note 1 at 227.

⁴ Paul P Fitzgerald, “Chapter 2.2 - Questioning the Regulation of Aviation Safety” in Ram Jakhu, Sanat Kaul & Kuan-Wei Chen, eds, *Emerging Trends in Aviation and Space Applications: Legal, Safety and Policy Issues* Monograph Series II (Montréal, QC: Centre for Research in Air and Space Law, 2014) 119 at 119; Paul Stephen Dempsey & Laurence E. Gesell, *supra* note 1 at 39.

⁵ Paul Stephen Dempsey & Laurence E. Gesell, *supra* note 1 at 161 & 253.

⁶ *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices - Second Edition*, AN14 2016, International Standards and Recommended Practices, ss 1–2. In aviation, safety is defined as the “state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are reduced and controlled to an acceptable level.”

⁷ In the Roman Empire, “safety” had a sacrosanct value in society, as formal oaths and promises were solemnly sworn on the safety of one’s children or the Emperor. See Rhona Beare, “The Meaning of the Oath by the Safety of the Roman Emperor” (1978) 99:1 *The American Journal of Philology* 106–110 at 108.

which aims to prevent any harm to human life, property, and the environment,⁸ caused by *unintentional*⁹ human action(s) and/or natural events.

Even when natural disasters occur, blame is often assigned to human (in)action when the Earth's inherent, yet irresistible risks, are not successfully contained and materialize into fatal events.¹⁰ Over time, there has been a growing and perhaps unrealistic expectation that humans, more specifically their governing States, are responsible for managing *all* risks,¹¹ regardless of their human or natural origins.¹² This social expectation is further increased in the context of private enterprises when they produce risks that go beyond the immediate confines of their activities and start affecting human communities at large:

...where the exercise of a particular activity cannot be left to the discretion of private individuals and where a greater public interest justifies the intervention of the State. The purpose of the regulatory mechanism is to protect various individuals or groups of people from the risk which may potentially derive from the exercise of a particular activity.¹³

In a sense, most, if not all countries, particularly those who have embraced a form of welfare State model (including Canada),¹⁴ rely heavily on social regulation¹⁵ carried out by their governing

⁸ Michael Milde, *supra* note 1 at 223.

⁹ See Paul Stephen Dempsey & Laurence E Gesell, *supra* note 1 at 10.

¹⁰ See Antonio Romano-Tassone, "The Right to Safety: Some Jurisprudential Reflections" (2009) 1:1 Italian Journal of Public Law 250–259 at 251.

¹¹ John Twigg, *The Right to Safety: Some Conceptual and Practical Issues* (Benfield Hazard Research Centre, 2003) at 8.

¹² Romano-Tassone, *supra* note 10 at 251:

Collective attention turns not only towards the risks created by human activity but also towards natural risks, which were once regarded as inevitable parts of life, if not even as manifestations of divine wrath, in the face of which all that was possible was acceptance or, as the case may be, collective expiation. Even these phenomena - or rather the risks attached to their happening - are conceived of being basically manageable, to such a point indeed that the damage they occasion is one way or another attributed to human conduct, mainly in the form of some act of omission, such as neglecting to take the precautions necessary to reduce their destructive power. A good example are the accusations laid at the countries hit by the tsunami on 26 December 2004 to the effect that appropriate warning systems did not exist or if they did not work.

¹³ See Francis Schubert, "Chapter 3.1 - The Regulation of Air Navigation Services in the Single European Sky: The Laws of Increasing Complexity" in Ram Jakhu, Sanat Kaul & Kuan-Wei Chen, eds, *Emerging Trends in Aviation and Space Applications: Legal, Safety and Policy Issues* Monograph Series II (Montréal, QC: Centre for Research in Air and Space Law, 2014) 181 at 184.

¹⁴ Yet, each country will have differing levels of regulations and surveillance requirements, thus showing the subjective nature of "safety". In other words, "what may be viewed as dangerous for you may not be as dangerous for me".

¹⁵ See Paul Stephen Dempsey & Laurence E. Gesell, *supra* note 1 at 39–40.

bodies to protect their individual and common safety,¹⁶ but also on the corresponding observance of rules by other members of their society.¹⁷ In this context, the International Civil Aviation Organization (ICAO) has defined “regulation” as the “giving of authoritative direction to bring about and maintain a desired degree of order” (emphasis added).¹⁸

We can thus understand why humans *need* a social order to protect their freedom,¹⁹ whose prerequisites necessarily imply safety barriers. As part of this social contract under which all parties should be treated equally,²⁰ “we” therefore expect—in exchange for our subjugation to laws and payment of taxes—that “our” State will do everything it can to protect “us” from predictable and even unexpected dangers in all aspects of society:²¹ industrial accidents, natural disasters (e.g., earthquakes, tsunamis, volcanic eruptions, etc.), weather phenomena (e.g.,

¹⁶ See Romano-Tassone, *supra* note 10 at 252.

¹⁷ Schubert, *supra* note 13 at 184: “The regulatory framework, in its broader sense, includes both the material rules governing a regulated activity and the authorities that are empowered with the competence to produce regulations and to supervise the exercise of a regulated activity”.

¹⁸ International Civil Aviation Organization, *Safety Oversight Manual - Part A: The Establishment and Management of a State's Safety Oversight System (Doc 9734 AN/959)*, 2d ed (Montréal, QC: International Civil Aviation Organization, 2006), s B-3 (Appendix B).

¹⁹ Jean-Jacques Rousseau, “Chapter 6 - Of the Social Contract” reproduced in Victor Gourevitch, ed, *The Social Contract & Other Later Political Writings* (Cambridge, UK: Cambridge University Press, 1997) at 50:

If, then, one sets aside everything that is not of the essence of the social compact, one finds that it can be reduced to the following terms: Each of us puts his person and his full power in common under the supreme direction of the general will; and in a body we receive each member as an indivisible part of the whole.

²⁰ While there exist various interpretations of the social contract (e.g., by Thomas Hobbes, John Locke, Immanuel Kant, Jean-Jacques Rousseau and John Rawls), the common premise of this theory seeks to understand why and how individuals form societies in which they agree to compromise on their autonomy and liberty for the greater good of their common wellbeing, including safety and security. See Thomas Hobbes, *Leviathan (1651)* (Wilmington, North Carolina: Infomotions, Inc., 2000) at 56–57; See Paul Stephen Dempsey & Laurence E. Gesell, *supra* note 1 at 10; Brian Skyrms, “Evolution, Norms, and the Social Contract” (2016) 48:4 Arizona State Law Journal 1087–1100 at 1087–1089; Jennifer Hendricks, “Renegotiating the Social Contract” (2012) 110:6 Michigan Law Review 1083–1100 at 1087–1090; See also Cornelius F Murphy, “Jurisprudence and the Social Contract” (1988) 33:1 Am J Juris 207-240 at 211:

By way of a social contract, individuals confer authority upon a society. This act, which incorporates a body politic, confers the power of majority decision. The society, in turn, establishes a government. A judicature will provide for the impartial administration of law and an executive will enforce its decisions. Supreme power is placed in the legislature. It has the purpose of enacting general laws to protect liberty and the public good. As it is a fiduciary authority, the people possess a reserved power to remove and alter the legislative if it acts contrary to the trust reposed in them.

²¹ See Douglas O William, “Human Welfare State” (1949) 97:5 University of Pennsylvania Law Review 597–607 at 600.

tornadoes, hurricanes, ice storms, etc.), transportation occurrences, and as we explore further into space, even extraterrestrial threats.²²

With regards to a State's responsibility and legislative duty over safety,²³ the list of susceptible industries subject to this societal expectation is endless and will keep growing in the future with the advent of new societal concerns and technological advances. This common expectation, which should—in theory—result in *equal* benefits under law for *all* members of a defined society, is the basis of the universal system that regulates our safety in civil aviation, and reflects one of several key considerations that will drive the remainder of this thesis.

3. Safety— A Basic Human Need

The above-mentioned safety imperatives are important and instinctive influencers in the way we behave, react, make decisions, and ultimately regulate our society. In his seminal paper—*A Theory of Human Motivation*,²⁴ Abraham Maslow proposed a hierarchy of prepotent human goals which influence and motivate our behavior.²⁵ In Maslow's hierarchy of needs, which is illustrated in the form of an ascending pyramid (see Figure 1), *safety* is ranked as the second most important human need after our basic physiological requirements to sustain life, such as consuming air, water, food, etc. Under this theory, Maslow further suggested that human behavior and motivations are essentially governed by the intrinsic priority our organism gives to each

²² See generally Neal Mark, "Preparing for Extraterrestrial Contact" (2014) 16:2 Risk Management 63–87.

²³ See Murphy, *supra* note 19 at 211.

²⁴ See generally Abraham H Maslow, "A Theory of Human Motivation" (1943) 50:4 Psychological Review 370–396.

²⁵ *Ibid* at 394–395:

These basic goals are related to each other, being arranged in a hierarchy of prepotency. This means that the most prepotent goal will monopolize consciousness and will tend of itself to organize the recruitment of the various capacities of the organism. The less prepotent needs are minimized, even forgotten or denied. But when a need is fairly well satisfied, the next prepotent ('higher') need emerges, in turn to dominate the conscious life and to serve as the center of organization of behavior, since gratified needs are not active motivators.

elementary need, with those at the bottom of the pyramid (usually) taking precedence over those at the top of it.²⁶

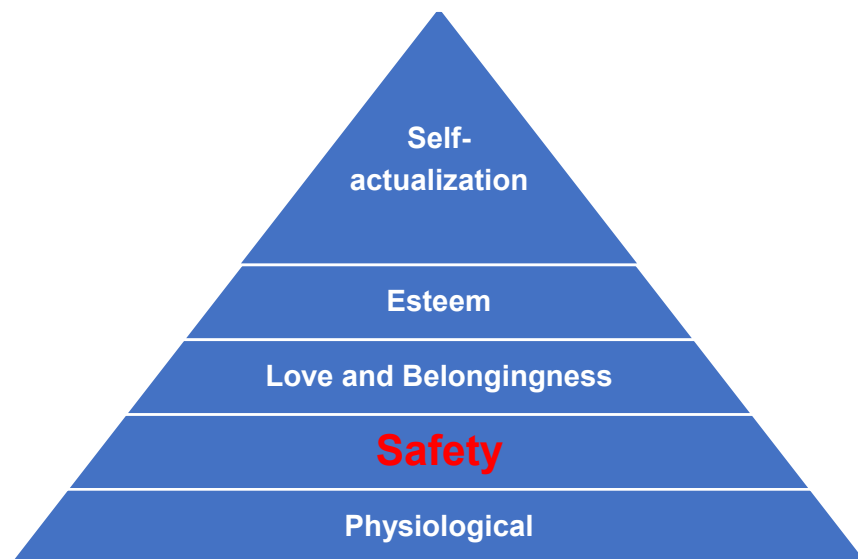


Figure 1—Abraham Maslow's Hierarchy of Needs

Under the pyramid's second bottom echelon, it is interesting to observe how all humans function to seek and preserve their *safety*, which at times, can even trump physiological needs (e.g., eating) in urgent and perilous situations.²⁷ It thus becomes apparent that safety is “an active and dominant mobilizer of the organism’s resources”²⁸ aimed at taking measures to protect our wellbeing from external hazards. Under Maslow’s theory, we can presume that any danger or

²⁶ Maslow, *supra* note 24 at 370–371.

²⁷ *Ibid* at 376:

If the physiological needs are relatively well gratified, there then emerges a new set of needs, which we may categorize roughly as the safety needs. All that has been said of the physiological needs is equally true, although in lesser degree, of these desires. The organism may equally well be wholly dominated by them. They may serve as the almost exclusive organizers of behavior, recruiting all the capacities of the organism in their service, and we may then fairly describe the whole organism as a safety-seeking mechanism. Again, we may say of the receptors, the effectors, of the intellect and the other capacities that they are primarily safety-seeking tools. Again, as in the hungry man, we find that the dominating goal is a strong determinant not only of his current world-outlook and philosophy but also of his philosophy of the future. Practically everything looks less important than safety, (even sometimes the physiological needs which being satisfied, are now underestimated). A man, in this state, if it is extreme enough and chronic enough, may be characterized as living almost for safety alone. (emphasis added).

²⁸ *Ibid* at 379.

threat²⁹ to this basic human goal will be met by an *immediate* human reaction seeking to defend itself from an actual or perceived threat.³⁰ In the legal realm, we can infer that this specific reaction will manifest itself through the enactment of laws aiming to prevent, mitigate or eliminate any hazard with the potential to compromise our safety; it also reflects the instinctive foundations that empower the State to legitimately intervene and protect our wellbeing in specific circumstances.³¹

Based on this “instinctive regulatory response”, it becomes apparent that the need for safety under Maslow’s theory is undoubtedly a driving force, not only in the daily behavior of individuals, but also more broadly in the way humans tend to congregate in organized societies and collectively regulate their safety as a *common need*. Beyond the need to use the law as a measure of social control,³² there is an apparent human motivation to protect shared safety imperatives,³³ not solely for ourselves as *individuals*, but more broadly for the *collective* safety of our society.³⁴ In any aspect of our society, our collective need to regulate safety is the foundation for various legal systems, whose purpose is to prevent harm to our society’s survival, property and environment.³⁵ We can thus understand why *safety*, as the second most important human need, naturally influences humans to establish common rules to protect the safety of all.

²⁹ *Ibid* at 395: “Any thwarting or possibility of thwarting of these basic human goals, or danger to the defenses which protect them, or to the conditions upon which they rest, is considered to be a psychological threat. With a few exceptions, all psychopathology may be partially traced to such threats”.

³⁰ *Ibid*.

³¹ Romano-Tassone, *supra* note 10 at 253.

³² See Herbert Lionel Adolphus Hart, “Positivism and the Separation of Law and Morals” (1958) 71:4 Harvard Law Review 593–629 at 608.

³³ Romano-Tassone, *supra* note 10 at 254:

According to the Montreal Declaration, the holders of the right to safety are both the individuals and the communities or the groups to which they belong. However, it is clear enough that individuals are not considered in their own right but only as a part of the aggregate community. Individual safety is thus not the object of the right to safety except to the extent that the individual is indistinguishable from the group or the community. The collective dimension of risk is therefore a fundamental element of the right to safety.

³⁴ See Thomas R Kearns, “Socratic Jurisprudence: The Province of Legal Morality - Undetermined” (1982) 91:7 Yale LJ 1508–1520 at 1513.

³⁵ Dinesh Mohan, “People’s Right to Safety” (2003) 6:2 Health and Human Rights 161–167 at 162:

“The demand for establishing a right to safety emerges in a society where people feel the need for a norm on which to base an actionable claim for protection from physical, social, or emotional harm. This need is also strengthened when societal agreement and action take hold”.

Maslow's theory can assist us in understanding why, throughout the history of mankind, States across the world have enacted countless laws and regulations to enhance and protect the safety of their constituents in all facets of our lives (e.g., building codes, product regulations, workplace legislation, traffic rules, etc.). In the context of safety, it has been stated that "...every legal order has and always has had the fundamental task of protecting the community."³⁶ Consequently, whether a human is on firm ground, on the water, in the skies or even in space, he or she will be subjected to laws and regulations whose primary purposes are *inter alia* to protect our safety and wellbeing from known dangers, presumably in response to past events experienced by the human race.

The corresponding human reaction³⁷ when faced with a known danger also explains the *reactive* nature of most regulations (particularly in relatively newer industry sectors, such as aviation and space exploration),³⁸ which are typically adopted in response to (previously) unforeseen events, phenomena or tragedies. Although proactive and predictive regulations are preferable as they consider potential risks before they result in accidents and death,³⁹ modern science cannot predict every disaster, thus why many regulations are written in the blood of earlier tragedies,⁴⁰ as noted *infra* in chapters 3, 4 and 5. Indeed, there is a form of causality between safety regulations and past accidents,⁴¹ as humans, and more specifically, their elected or

³⁶ Romano-Tassone, *supra* note 10 at 253.

³⁷ Maslow, *supra* note 24 at 395.

³⁸ Paul Stephen Dempsey, "Aviation Security: The Role of Law in the War against Terrorism" (2003) 41:3 Columbia Journal of Transnational Law 649–734 at 659: "[T]he development of aviation policy has long been a reactive, rather than a proactive, process".

³⁹ Jens Rasmussen, *Risk Management, Adaptation, and Design for Safety* (New-York, NY: Springer, 1994) at 36.

⁴⁰ See René David-Cooper, "Don't Drink and Drive, Smoke and Fly: A Clearance for Pilots to Get High?" (2014) 29 Annals of Air and Space Law 555 at 576.

⁴¹ Paul Kahn, *Making the Case* (New Haven, Connecticut: Yale University Press, 2016) at 176. As stated by Kahn: "Past events must be modeled statistically to reveal the underlying causal connections. Laws intervene in a causally ordered world. They then become causes contributing to new effects."

appointed representatives, have an innate reaction and motivation to establish *post facto* rules aiming to prevent the reoccurrence of known events that endanger our wellbeing.⁴²

The key takeaway from this brief overview of our societal needs is that safety is a common requirement for sustaining contemporary civilizations: it does not have territorial or ethnic boundaries, nor should its underlying legal standards vary and produce risks that discriminate certain individuals, given that we all share a universal necessity to protect our wellbeing. Throughout the history of laws, this behavioral motivation has likely been the origin of most common *safety obligations* (e.g., regulations), including those that now govern the safety of the traveling public in aviation,⁴³ but perhaps also the trigger for the emergence of individual *safety rights*, as discussed in the next section.

4. The “Right to Safety”

Based on the previous section, we can affirm that safety is “the result of a complex process where humans interact with their environment, including the physical, social, cultural, technological, political, economic and organisational environments.”⁴⁴ Given the multitude of entities and contributing factors, achieving an acceptable level of safety in any aspect or sector of our society, particularly in aviation, requires a systems-based approach (see Chapter 3) where

⁴² For example, we can assume that many lives would have been saved if the Titanic had carried sufficient lifeboats to accommodate the number of passengers and staff onboard. However, the Titanic was only required under the *Merchant Shipping Act of 1894* to carry 16 lifeboats – a requirement that was based on the gross tonnage of the ship rather than its total passenger and crew capacity. While the Titanic surpassed these requirements by carrying 20 lifeboats, only 33% of the ship’s passenger and crew population could fit in the available lifeboats at the time of the sinking. This tragedy prompted the adoption of the *Convention on Safety of Life at Sea* in 1914, which included *inter alia* new rules requiring that sufficient lifeboats be carried onboard to accommodate all passengers and crew members. Vicki Bassett, “Causes and Effects of the Rapid Sinking of the Titanic”, (1998), online: *University of Wisconsin* <writing.engr.psu.edu/uer/bassett.html>; Dave Fowler, “Titanic Lifeboats”, (2021), online: *Titanic Facts* <titanicfacts.net/titanic-lifeboats/>; Mandy Savage, “Five Safety Lessons Learned from the Sinking of the Titanic”, (14 April 2015), online: *EHS Today* <*www.ehstoday.com/safety/article/-21916859/five-safety-lessons-learned-from-the-sinking-of-the-titanic>.

⁴³ Paul Stephen Dempsey & Laurence E. Gesell, *supra* note 1 at 99. Public interest is defined as “the interest of all who are affected by industry – consumers, shippers, receivers, passengers, stockholders, employees, managers and employers, large and small, urban and rural – to enjoy safe, adequate and dependable service [...]”.

⁴⁴ “Montreal Declaration: People’s Right to Safety - 6th World Conference on Injury Prevention and Control, Montreal, Canada, 15 May 2002” reproduced in (2003) 6:2 Health and Human Rights, at s 2 [*Montreal Declaration*].

the State has an overarching responsibility to protect (through various means, including the law) the people's safety from any transgression by public and private entities.⁴⁵

This brings us to an important question: have positive legal rights emerged from the *homo sapiens*' elementary "need" for safety? While there is no explicit and enforceable right to safety under international and Canadian law, it is the inherent foundation for many fundamental rights and is arguably implicit to the right to *life*,⁴⁶ which is well recognized in an infinite number of international and domestic legal instruments across the globe.⁴⁷ Indeed, the legal recognition of economic, social and cultural rights (e.g., the right to food, housing, health and workplace safety) has been interpreted as providing "signposts indicating how one might assess progress towards the right to safety."⁴⁸ This argument is particularly compelling if we consider that "everyone has the [equal] right to the highest attainable standard of protection against natural and man-made hazards."⁴⁹

Although some view safety as a mere precondition for socio-economic development rather than a fundamental right,⁵⁰ it has been argued on the international stage that a *tacit* right to safety can be recognized under existing rights enacted in various international instruments and State

⁴⁵ *Ibid.*, s 11. Although it is not binding and never led to a formal treaty, the *Montreal Declaration* is an important legal instrument, as it could eventually lead to general practices accepted as law. More specifically, under Article 11, the *Montreal Declaration* sought to establish the State responsibilities in the context of safety:

1. All States shall develop mechanisms to protect the people's right to safety against any violation by agencies, including corporate bodies.

2. All States shall respect and protect the right to safety. Accordingly, all States shall formulate injury prevention and safety promotion policies.

⁴⁶ See Mohan, *supra* note 35 at 162; See generally Robin F Holman, "Chapter 2.1 - The Rogue Civil Airliner and International Human Rights Law: An Argument for a Proportionality of Effects Analysis Within the Right to Life" in Ram Jakhu, Sanat Kaul & Kuan-Wei Chen, eds, *Emerging Trends in Aviation and Space Applications: Legal, Safety and Policy Issues* Monograph Series II (Montréal, QC: Centre for Research in Air and Space Law, 2014) 63.

⁴⁷ Myongil Kang, "Refining Aviation Sanctions from an Air Law Perspective" (2015) 40:6 Air & Space Law 397–420 at 415: "From an air law perspective, safety is of paramount importance. [...] Since aviation safety, if compromised, will deprive man of the most superior right, i.e., the right to life, and obstruct the orderly development of international civil aviation, ICAO and certain States have initiated efforts to facilitate conformity with safety obligations".

⁴⁸ Twigg, *supra* note 11 at 11.

⁴⁹ *Ibid* at 2.

⁵⁰ This was, for example, the African Union's position in the early 2000s. See Garth Stevens, "Advancing Safety as a Fundamental Human Right" (2003) 6:2 Health and Human Rights 168–170 at 169.

constitutions,⁵¹ which protect the life, security, health and property of individuals.⁵² Internationally, non-binding legal instruments, such as the *Delhi Declaration on a People's Right to Safety* (2000) and the *Montreal Declaration on People's Right to Safety* (2002),⁵³ have promoted the need to adopt a universally recognized right to safety.⁵⁴ While a formally endorsed “right to safety” has not yet been expressly recognized under international law,⁵⁵ it is nonetheless an essential prerequisite for the sustainability of human life, and perhaps even a form of *ex ante* protection for well-established human rights,⁵⁶ for instance under Article 3 of the *Universal Declaration of Human Rights* (UDHR), which provides that “everyone has the right to life, liberty and security of person.”⁵⁷

Under Canadian law specifically, one could also argue that a right to safety is implicitly protected under Section 7 of the *Canadian Charter of Rights and Freedoms* (hereinafter, “*Charter*”), which provides that “[e]veryone has the right to life, liberty and security of the person and the right not to be deprived thereof in accordance with the principles of fundamental justice” (emphasis added).⁵⁸ Because the State is the guarantor of the rights enshrined under the *Charter*, a person or group of individuals cannot be said to be *secure* within the meaning of the *Charter*,

⁵¹ Twigg, *supra* note 11 at 6.

⁵² See Romano-Tassone, *supra* note 10 at 253.

⁵³ See *Montreal Declaration* *supra* note 44.

⁵⁴ Stevens, *supra* note 50 at 168–169.

⁵⁵ Mohan, *supra* note 35 at 166:

Proponents of the right to safety, however, differ on the priorities for action: the relative role that organizational structures and powerful elites play in producing hazardous systems; the effectiveness of approaches that give priority to technological fixes over behavioral change; the relative roles of interventions by the state and government and by civil society organizations; and the need for creating regulations, setting standards, and ensuring police enforcement. It is very difficult to resolve these issues in the absence of a basic ethic that gives a strong underpinning to the debate.

⁵⁶ Romano-Tassone, *supra* note 10 at 253:

If it is correct that the right to safety does not protect fundamental values different than those already contemplated by various human rights charters, there is nonetheless no doubt that it guarantees them in a new way, i.e. by means of what we might call *ex-ante* protection.

⁵⁷ *Universal Declaration of Human Rights*, G.A. Res. 217 A (III), U.N. Doc. A/810 (1948).

⁵⁸ *Canadian Charter of Rights and Freedoms*, s 1, Part 1 of the *Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (UK), 1982, c 11, art 7.

when their lives are in danger as a result of government (in)action.⁵⁹ Furthermore, from a literal standpoint, the definition of safety, i.e., a state of “freedom from injury, harm, danger or loss to personal property whether deliberate or accidental,”⁶⁰ implies that it is a prerequisite to human *life* and *security*—a right protected under Section 7 of the *Charter*.⁶¹

While it must be conceded that a right to safety has not been expressly recognized under Canadian law and jurisprudence (at least not yet), the author G  rald-A Beaudoin has relied on the SCC’s ruling in *Morgenthaler*⁶² to argue that any State-imposed prejudice on a person’s physical and/or psychological safety can trigger a breach under Section 7 of the *Charter*.⁶³ In interpreting Section 7 of the *Charter*, the Ontario Court of Appeal has also noted that this provision is designed to protect a person’s physical and psychological integrity, which specifically contemplates the possible negative effects of State conduct on the preservation of our physical safety and wellbeing.⁶⁴

Based on the foregoing, the author suggests that Section 7 of the *Charter* could be construed as providing Canadians with a right to safety *in certain circumstances*, as a corollary to

⁵⁹ *Canada (Attorney General) v Nasogaluak*, 2023 FCA 61 at 69: “To establish that a law or other government action violates section 7 of the *Charter*, a claimant must show that the law or action interferes with, or deprives him or her of, life, liberty or security of the person and that the deprivation is not in accordance with the principles of fundamental justice: *Ewert v Canada*, 2018 SCC 30 at para. 68”.

⁶⁰ “Safety Definition & Legal Meaning”, (2023), online: *The Law Dictionary* <<https://thelawdictionary.org/safety/>>.

⁶¹ Each of these considerations may explain why the Government of Canada considered a public-private terrorism insurance scheme following the 9/11 terrorist attacks in the United States. In the same context, ICAO had also proposed “Globatime”, an “international contingency mechanism to provide non-cancellable third-party aviation war risk coverage through a non-profit special purpose insurance entity, with multilateral government backing.” However, this proposed scheme for a mutual insurance fund was never implemented despite a strong support by ICAO’s membership. See Carol Lyons, “Does Canada need a terrorism risk insurance scheme?”, (December 15), online: *McMillan* <<https://mcmillan.ca/insights/does-canada-need-a-terrorism-risk-insurance-scheme-2/>>; Ludwig Weber & Arie Jakob, “Activities of the International Civil Aviation Organization (ICAO) in 2002/2003” (2003) 28 *Annals of Air and Space Law* 397 at 398–400; Ludwig Weber, “Modernization of the Liability Regime for Surface Damage” (2004) 29 *Annals of Air and Space Law* 473 at 475.

⁶² See *R. v Morgenthaler*, 1988 CanLII 90 (SCC), [1988] SCR 1 30 at 90.

⁶³ G  rald-A Beaudoin, *Les droits et libert  s au Canada* (Montr  al, QC: Wilson & Lafleur, 2000) at 288 cited in *Zarzour c Canada*, 2001 FCT 463.

⁶⁴ *R. v Michaud*, 2015 ONCA 585 at para 64.

the *Charter* right to life and security, thus requiring the State to protect the safety of all members of the public, including indigenous populations, with *equal* measures.

It must be emphasized however that this does not amount to an *absolute* right to safety, i.e., a guarantee by the State wherein all citizens are immune against any external threat or harm.⁶⁵ As stated by the United States (U.S.) Supreme Court with respect to the Federal Aviation Administration (FAA)—the equivalent of Transport Canada (TC), a civil aviation authority “has a statutory duty to promote safety in air transportation, not to insure it.”⁶⁶ Nor does it amount to a legally enforceable right on its own, given that it is not expressly provided for or recognized by existing legislation and case law. The right to safety discussed in academic discourse therefore remains a theoretical aspiration at this point, as the contours of this “right” are not clearly defined, nor sufficiently circumscribed under Canadian law.

However, safety can trigger binding obligations if it is connected with more concrete individual rights, for instance the right to non-discrimination. More specifically, we all have a right to be treated equally; in aviation, this can be interpreted as providing everyone with a right to enjoy *relatively* equal safety benefits and protections under law. While safety may not be an enforceable right, at least not yet, it is certainly a common expectation and a tributary to other tangible human rights, such as the right to equality, life and security under the *Charter*. The right to equal safety protections and benefits, when connected to and viewed through the lens of well-recognized rights codified under legislation, can therefore have some normative value.

⁶⁵ *R v Kovich (GW)*, 2016 MBCA 19 at para 141: “Safety regulations will always involve uncertain risk assessment that will implicate the safety of others. They involve drawing certain and knowable bright lines, like speed limits. There may not be a clear answer as to whether a particular bright line rule achieves the right balance. There are invariably trade-offs with these limits and courts have indicated previously that they should act with deference to complex regulatory responses”.

⁶⁶ *United States v Varig Airlines*, 467 U.S. 797 (1984) at 467.

When connected with other existing human rights, the proposed "right" to safety thus requires that all members of the public be given an *equal* and *adequate* form of protection under law against a variety of risks,⁶⁷ i.e., an equal opportunity to exercise their right to life. In this context, it has been stated that "the right to safety is not the right to be safe, but a right to the [equal] enjoyment of a variety of facilities, goods, services and conditions necessary for the realization of the highest attainable standard of safety."⁶⁸

In the author's opinion, there should also be a heightened recognition of an emerging entitlement to safety when examined in the context of indigenous populations, particularly in light of Canada's adherence to the *United Nations Declaration on the Rights of Indigenous Peoples* (UNDRIP),⁶⁹ which provides under Article 7 that "indigenous individuals have the rights to life, physical and mental integrity, liberty and security of the person."⁷⁰ This provision, which shares similarities with the wording of Section 7 of the *Charter*, once again reaffirms that Canada must take positive measures to ensure that the safety and physical integrity of indigenous people are protected under Canadian law - without discrimination.

A contrario, it could be argued that any State interference, but also any marked government (in)action, that contributes to a disproportionate exposure to safety risks and the endangerment of a person's life, constitutes a breach of the *Charter*, as well as UNDRIP in the context of indigenous individuals, if there is a sufficient causal connection between the State-caused effect and the prejudice suffered by the individual(s).⁷¹ Under both instruments, a breach of the *Charter* could be established if a particular group of individuals is exposed to higher risks

⁶⁷ Twigg, *supra* note 11 at 6–7: "Here the term 'adequate' is not defined rigidly. The precise meaning of 'adequacy' is to a large extent determined by the prevailing social, economic, cultural, climatic, ecological and other conditions".

⁶⁸ *Ibid* at 11.

⁶⁹ *United Nations Declaration on the Rights of Indigenous Peoples Act*, SC 2021, c 14 [UNDRIP].

⁷⁰ The presumption of conformity, per the SCC ruling in *R v Hape*, 2007 SCC 26, indicates that courts should favour an interpretation of domestic law that conforms with international law.

⁷¹ *Canada (Attorney General) v Bedford*, [2013] SCR 3 1101 at para 75, citing *United States v Burns*, 2001 SCC 7, [2001] SCR 1 283; see also *Suresh v Canada (Minister of Citizenship and Immigration)*, 2002 SCC 1, [2002] SCR 1 3.

as a result of government measures, resources, laws, etc. Unfortunately, this is precisely the type of State interference and (in)action which currently endangers the safety of northern indigenous residents by exposing them to higher risks in civil aviation, as discussed *infra* in chapters 4 to 6.

But before we delve into these burning issues, it is important to establish what is the expected legal baseline for State intervention in civil aviation to satisfy our safety needs and rights, hence why the remainder of Chapter 1, followed by Chapter 2, will outline the evolution of aeronautical activities in parallel with the central role of State governance in civil aviation. Accordingly, the next sections of this chapter will provide a historical overview on the birth and evolution of contemporary “air law” and reveal how actively involved States were in the regulation of aeronautical activities at the dawn of the last century, which contrasts with Canada’s inferior commitment, or lack thereof, towards the current safety of northern civil aviation.

5. The Birth of Air Safety Regulations

5.1 New Technology, New Dangers and New Rules

If safety is a societal necessity accompanied by rules and tacit rights, then how did this phenomenon specifically translate in the regulation of civil aviation when aircraft first appeared in our skies? The answer to this question requires a broader outlook on the evolution of laws in parallel with the development of new technologies over the past centuries.

Based on the previous sections of this chapter, we can appreciate why common safety needs and rights are generally met by corresponding laws when faced with emerging risks. In the context of modern State governance, the rule of law has always placed national governments at the center of regulatory advances in response to safety necessities and more importantly, as the guardians

of legal compliance in our society.⁷² One of the pioneers of contemporary air law, H. A. Wassenbergh, once stated that:

Justice and freedom no longer are criteria for the development of society; the law is. Good law is law that is effective in serving the development of a society. [...] What, however, is the development of society and what is the task of government to service this development? The task of the government is to take effective measures to further the development of its State, the society. These measures cannot be more than means to be used by citizens to further develop their society. The goal of government is to provide such means. The means, if effective in serving the development of society, are the purpose of government activity.⁷³

While means to satisfy our primal safety needs have significantly progressed over time, the sophistication of safety regulations as we know them today originates from a long and gradual evolution spanning over many centuries, with some of the first safety regulations dating back as far as the second millennium B.C.⁷⁴

After a relatively slow progression during the Middle Ages⁷⁵ and the Renaissance,⁷⁶ the sophistication of safety regulations gained significant momentum during the four industrial revolutions and experienced a rapid legal evolution during a relatively short period in contrast with past centuries. The advent of new technologies, such as combustion engines, electricity, motorized vehicles, and more recently, artificial intelligence along with the Internet, brought new

⁷² Institute of Air and Space Law McGill University, *Legal, economic and socio-political implications of Canadian air transport* (Montréal, QC: Centre for Research of Air and Space Law, 1980) at 50.

⁷³ HA Wassenbergh, *Aspects of Air Law and Civil Air Policy in the Seventies* (The Hague, Netherlands: Martinus Nijhoff Publishers, 1970) at 1.

⁷⁴ LW King, "The Code of Hammurabi", (2008), online: Yale Law School - Lillian Goldman Law Library <avalon.law.yale.edu/ancient/hamframe.asp> For instance, under the *Code of Hammurabi* (1755-1750 B.C.), a mason would be exposed to a death sentence if a house he built collapsed and killed its owner. This rule effectively regulated safety by requiring that masons guarantee the integrity of their construction projects with their own life. More specifically, Article 229 of the *Code of Hammurabi* provided that "If a builder builds a house for someone, and does not construct it properly, and the house which he built fall in and kill its owner, then that builder shall be put to death."

⁷⁵ During the Middle Ages for instance, the first set of public health and safety laws were adopted in various European States to prevent and mitigate the spread of diseases. See Kate Kelly, *The Middle Ages: 500-1450* (New-York, NY: Infobase Publishing, 2009) at 96.

⁷⁶ The Renaissance era saw the appearance of a growing body of safety laws, for example, to govern construction standards, waste management, the quality of drinking water, fire prevention in urban centers, the spread of viruses (e.g., mandatory quarantine measures), etc. See Kathryn Hinds, *Everyday Life in the Renaissance* (New-York, New-York: Marshall Cavendish Benchmark, 2010) at 148–151; Elizabeth Storr Cohen & Thomas Vance Cohen, *Daily Life in Renaissance Italy*, 2d ed (Westport, Connecticut: Greenwood Press Group, 2001) at 117.

opportunities, significantly increased the productivity of the global economy, and improved the overall wellbeing of most nations. While modernity was successful at making many aspects of our lives safer, emerging technologies and industries also unearthed new and deadly risks, many of which were unknown until tragedies occurred.⁷⁷ Such risks, mostly industrial in nature, were not specifically regulated, nor even remotely considered by existing legal regimes at the time.⁷⁸

As a result, the 20th and 21st centuries witnessed many tragedies in relatively new industrial sectors: the Chernobyl nuclear disaster⁷⁹ (1986/30 reported fatalities),⁸⁰ the Challenger space shuttle explosion (1986/7 fatalities),⁸¹ the Exxon Valdez oil spill (1989)⁸² and more recently, the blast in the Port of Beirut (2020/200 fatalities & 6,000 injured).⁸³ Canada was not spared by the deadly hazards triggered by modern industrial activities and suffered many catastrophic accidents during the same timeframe, including the 1917 Halifax Explosion (2,000 fatalities),⁸⁴ the 1979 Mississauga train derailment (250,000 evacuees),⁸⁵ the 1982 sinking of the Ocean Ranger off the coast of Newfoundland (84 fatalities),⁸⁶ the 1992 Westray mine explosion in Plymouth,

⁷⁷ Romano-Tassone, *supra* note 10 at 251.

⁷⁸ Each industry, including new ones, is unique and faces its own set of risks. Different industries vary in their complexity, operational challenges, hazards and potential vulnerabilities that can lead to accidents, thus why each industry ought to be regulated through its own set of unique statutes and regulations to address their specific nature.

⁷⁹ See generally *Summary Report on the Post Accident Review Meeting on the Chernobyl Accident*, by International Atomic Energy Agency (IAEA), 75-INSAG-1 (Vienna, Austria: International Atomic Energy Agency (IAEA), 1986).

⁸⁰ The actual number of fatalities remains a contentious matter. See International Atomic Energy Agency, “Frequently Asked Chernobyl Questions”, (2003), online: <<https://www.iaea.org/newscenter/focus/chernobyl/faqs>>; Richard Gray, “The true toll of the Chernobyl disaster”, (22 February 2022), online: *BBC News* <<https://www.bbc.com/future/article/20190725-will-we-ever-know-chernobyls-true-death-toll>>.

⁸¹ See generally *Report of the Presidential Commission on the Space Shuttle Challenger Accident*, Accident Investigation, by National Aeronautics and Space Administration, Accident Investigation Executive Order 12546 of February 3, 1986 (Washington, DC, 1986).

⁸² See generally *The Exxon Valdez Oil Spill - A Report to the President*, by Samuel K Skinner & William K Reilly (The National Response Team, 1989).

⁸³ See generally Mohamad Ali Cheaito & Samar Al-Hajj, “A Brief Report on the Beirut Port Explosion” (2020) 1:4 *Mediterranean Journal of Emergency Medicine & Acute Care*.

⁸⁴ See generally Lois Kernaghan & Richard Foot, “Halifax Explosion”, (15 November 2017), online: *The Canadian Encyclopedia* <www.thecanadianencyclopedia.ca/en/article/halifax-explosion>.

⁸⁵ “Mississauga Train Derailment”, (2023), online: *Heritage Mississauga* <<https://heritagemississauga.com/mississauga-train-derailment/>>.

⁸⁶ See generally The Honourable Justice Alex Hickman. Royal Commission on the “Ocean Ranger” marine disaster—Report one: the loss of the semisubmersible drill rig “Ocean Ranger” and its crew (St-John, Newfoundland: Ministry of Supply and Services, 1984); See also Susan Dodd, *The Ocean Ranger - Remaking the Promise of Oil* (Halifax, Nova Scotia: Fernwood Publishing, 2011).

Nova Scotia (26 fatalities),⁸⁷ the 2000 E. coli outbreak in Walkerton, Ontario (2,000 individuals infected and 6 deaths)⁸⁸ and the 2013 train derailment in Lac-Mégantic, Québec (47 fatalities).⁸⁹ This brief obituary illustrates how 20th and 21st century technologies brought on unexpected dangers that subsequently triggered regulatory shockwaves across various legislative instruments.

5.2 Defining Aviation

The clash between new technology and unregulated risks was exactly the situation faced by many countries at the dawn of aviation, which explains why some view air law⁹⁰ as the “last born of juridical notions.”⁹¹ But when exactly did air law first appear in our legal system? To answer this question, we must identify the birthdate of modern aviation. Many would state that the first-powered flight by the Wright Brothers on December 17, 1903, near Kitty Hawk (North Carolina, United States) constitutes the birth of civil aviation.⁹² Yet, if we refer to ICAO’s current definition for “aircraft”, earlier attempts by humans to fly should also be considered in the historical scope of aviation:

⁸⁷ See generally Peter K Richard, “Report of the Westray Mine Public Inquiry”, (1997), online: *Province of Nova Scotia* <novascotia.ca/lae/pubs/westray/>.

⁸⁸ See generally Dennis R O’Connor, “Report of the Walkerton Inquiry, Parts A & B”, (2002), online: *Ontario Ministry of the Attorney General* <www.archives.gov.on.ca/en/e_records/walkerton/index.html>.

⁸⁹ See generally Transportation Safety Board of Canada, “R13D0054 - Runaway and main-track derailment, Montreal, Maine & Atlantic Railway, Freight train MMA-002, Mile 0.23., Sherbrooke Subdivision, Lac-Mégantic, Quebec, 06 July 2013”, (20 August 2014), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rapports-reports/rail/2013/r13d0054/r13d0054.asp>.

⁹⁰ “Air law is used interchangeably with ‘aviation law’: ‘Air Law’ has been retained as a general term for what is essentially ‘Aviation Law’ today”. See Peter H Sand, Jorge de Sousa Freitas & Geoffrey N Pratt, “A Historical Survey of International Air Law Before the Second World War” (1960) 7:1 McGill Law Journal 24–42 at 25.

⁹¹ Marcel Le Goff, *The Present State of Air Law* (The Hague, Netherlands: Martinus Nijhoff Publishers, 1950) at 24 reproduced in Peter H Sand, Jorge de Sousa Freitas & Geoffrey N Pratt, “A Historical Survey of International Air Law Before the Second World War” (1960) 7:1 McGill Law Journal 24–42 at 24.

⁹² Michael Milde, *supra* note 1 at 6; Dick van het Kaar, *International Civil Aviation: Treaties, Institutions and Programmes*, Essential Air and Space Law 22 (The Hague, Netherlands: Eleven International Publishing, 2019) at 1; Ronald Schnitker & Dick van het Kaar, *Safety Assessment of Foreign Aircraft Programme: A European Approach to Enhance Global Aviation Safety*, Essential Air and Space Law 11 (The Hague, Netherlands: Eleven International Publishing, 2013) at 1.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.⁹³

Based on this definition, "aviation" is not limited solely to the operation of fixed-wing aeroplanes,⁹⁴ but also includes the operation of helicopters, hot air balloons, blimps, gliders and gyroplanes.⁹⁵ We must therefore look beyond the Wright Brothers and examine earlier manifestations of flying or attempts to do so, in order to uncover the early roots of international air law,⁹⁶ and understand how civil aviation quickly became "one of the most closely regulated activities of man in this world."⁹⁷

5.3 Solving the Riddle of Human Flight

The thousand-year-old riddle⁹⁸ of human *powered* flight⁹⁹ was perhaps convincingly solved by two Americans in 1903, but there were previous reports of flight occurrences,¹⁰⁰ for

⁹³ Annex 6 to the Convention on International Civil Aviation (Tenth Edition - Standards and Recommended Practices - Part 1 International Commercial Air Transport - Aeroplanes (Eleventh Edition), AN6 2018, ss 1–1 Canada adopted a similar definition under ss 3(1) of the *Aeronautics Act*, RSC, 1985, C A-2, the only difference being that Canada includes "rockets" in its definition but not ICAO: "any machine capable of deriving support in the atmosphere from reactions of the air, and includes a rocket".

⁹⁴ *Ibid* at paras 1–1: "Aeroplane – A power-driven heavier-than-air aircraft deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight".

⁹⁵ Brian F Havel & Gabriel S Sanchez, *The Principles and Practice of International Aviation Law* (Cambridge, UK: Cambridge University Press, 2014) at 31; SKYbrary, "Aircraft Category Taxonomy", (13 December 2017), online: SKYbrary <www.skybrary.aero/index.php/Aircraft_Category_Taxonomy>.

⁹⁶ Ruwantissa Abeyratne, *Legal and Regulatory Issues in International Aviation* (Irvington-on-Hudson, New-York: Transnational Publishers, 1996) at xix; John Cobb, Cooper, "Air Law - A Field for International Thinking" in Ivan A Vasic, ed, *Explorations in Aerospace Law: Selected Essays by John Cobb Cooper, 1946-1966* (Montréal, QC: McGill University Press, 1968) 4 at 13:

If Air Law is to present an adequate, complete and well-rounded body of rules for the government of all forms of human activity relating to what may properly be termed 'flight', then the rules of Air Law should include regulatory provisions applicable to every form of instrumentality which produces man-made or man-controlled flight through space above and beyond the surface of the earth.

⁹⁷ HA Wassenbergh, *Public International Air Transportation Law in a New Era - Economic Regulation of International Air Carrier Operations* (Alphen aan den Rijn, Netherlands: Kluwer-Deventer, 1976) at 11.

⁹⁸ For a complete and detailed overview of aviation's historical evolution, see Nicolas Mateesco Matte, *Traité de Droit Aérien Aéronautique (Évolution - Problèmes Spatiaux)*, 2d ed (Paris, France: Éditions A. Pedone, 1964) c 1 (L'idée de Voler) at 19-37.

⁹⁹ The human fascination for flight has existed for thousands of years and is best illustrated by the tale of Icarus, who tried using wings made from wax and feathers. Icarus flew too close to the sun, which melted his wings and caused him to fall to his death. See Encyclopaedia Britannica, "Icarus - Greek Mythology", (20 July 1998), online: *Encyclopaedia Britannica* <www.britannica.com/topic/Icarus-Greek-mythology/additional-info#history>.

¹⁰⁰ For a detailed history of the evolution of "aircraft" until the mid-20th century, see Matte, Nicolas Mateesco, *Droit Aérien Aéronautique: Évolution - Nouvelle Orientation* (Paris, France: Éditions A. Pedone, 1954) at 11–29.

instance, in China as early as the first millennium, when man-carrying kites were used for military purposes,¹⁰¹ a practice that continued for another thousand years as witnessed centuries later by Marco Polo in the 13th century.¹⁰² There were, of course, many unsuccessful attempts during the second millennium to fly with the aid of man-made wings¹⁰³—the most notable design being produced by Leonardo de Vinci.¹⁰⁴ However, a great majority of these attempts ended tragically when the “pilots”¹⁰⁵ fell to their deaths.¹⁰⁶ As such, the lack of sustained flight by these apparatuses would not fit the modern definition of aircraft as it stands today. The first successful manned human flight actually occurred on November 21, 1783,¹⁰⁷ when Jean-François Pilâtre de Rozier and François Laurent traveled over the City of Paris, France, in a hot-air-balloon designed by Joseph and Jacques Montgolfier.¹⁰⁸ This historic event decisively marked the birth of aviation,¹⁰⁹ particularly since hot-air-balloons are defined today as “aircraft” under current international air law and even under Canadian law.¹¹⁰

¹⁰¹ See Joseph Needham & Ling Wang, *Science and civilisation in China - Part 2: Physics and physical technology, mechanical engineering* (Cambridge, UK: Cambridge University Press, 1965) at 587.

¹⁰² *Ibid.*

¹⁰³ See Henri Perrin de Boussac, *Le Statut International de L'Espace Aérien* Université de Paris - Faculté de Droit, 1931) [thesis] at 13.

¹⁰⁴ Matte, *supra* note 98 at 23; Peter Jakab, “Leonardo da Vinci and Flight”, (22 August 2013), online: *Smithsonian Air and Space Museum* <airandspace.si.edu/stories/editorial/leonardo-da-vinci-and-flight>.

¹⁰⁵ At the time, “pilots” were actually referred to as aeronauts. See Sand, de Sousa Freitas & Pratt, *supra* note 90 at 29.

¹⁰⁶ See American Institute of Aeronautics and Astronautics, “Aerospace History Timeline”, (2021), online: *American Institute of Aeronautics and Astronautics* <www.aiaa.org/about/History-and-Heritage/History-Timeline>.

¹⁰⁷ There were, however, earlier reports of a primitive balloon contraption being successfully operated over Lisbon, Portugal, in 1709 with nobody onboard. See Perrin de Boussac, *supra* note 103 at 14.

¹⁰⁸ See Michael Milde, *supra* note 1 at 6; Perrin de Boussac, *supra* note 103 at 14–16; American Institute of Aeronautics and Astronautics, *supra* note 106.

¹⁰⁹ International Civil Aviation Organization, “The Postal History of ICAO - Aviation History: Human Flights with Balloons”, (2021), online: *International Civil Aviation Organization* <applications.icao.int/postalhistory/-aviation_history_human_flights_with_balloons.htm_human_flights_with_balloons.htm>:

One of the old dreams of humankind then had been realized, taken from testing a concept to a real flight in the span of one year. That event is often considered the first-time humankind flew, more than a century before the Wright Brothers took to the skies. [...] Balloonists had solved only one of manned flight's problems, i.e., lifting from the ground and floating into the air essentially at the mercy of the prevailing wind; but flight means controlling the wind and requires three indispensable factors: lift, power and aerodynamic control.

¹¹⁰ *Canadian Aviation Regulations*, SOR/96-433 at ss 101.01(1): “balloon means a non-power-driven lighter-than-air aircraft”.

The advent of this new technology was, however, soon met by concerns, as several private and public law rights clashed immediately. On the one hand, an ancient Latin maxim *cujus est solum, ejus est usque ad coelum et ad inferos*¹¹¹ established the notion that “[w]hoever owns the soil, it is theirs all the way up to heaven and down to hell.”¹¹² Yet, this primitive rule was only first documented in the legal sphere during the 13th century,¹¹³ when powered flight was not remotely considered by existing laws at the time and purely viewed as an imaginary myth. While early interpretations argued that “ownership of the land extended to the periphery of the universe,”¹¹⁴ this quasi-biblical concept was meant to apply to the private usable airspace (e.g., building heights, road overpasses, overhanging trees, etc.)¹¹⁵ and was never conceived as an unfettered right over the entire airspace above one’s property. Courts and legal systems eventually discarded this principle, as it was deemed to be incompatible with modern aviation.¹¹⁶ This legal maxim would nonetheless influence how States eventually asserted rights over their airspace and advocated for the inclusion of sovereignty as a key principle under the *Paris Convention* and the *Chicago Convention*,¹¹⁷ as discussed in Chapter 2.

It must also be noted that early interpretations seeking to delineate “the right to fly” relied, rightly so, on Roman law’s acknowledgement that “air” could not be appropriated¹¹⁸ and was

¹¹¹ See Abeyratne, *supra* note 96 at xix–xx.

¹¹² Bruce Ziff et al, *A Property Law Reader: Cases, Questions, and Commentary*, 3rd ed (Toronto, Ontario: Carswells, 2012) at 116.

¹¹³ See Brian F. Havel & Gabriel S. Sanchez, *supra* note 95 at 5 & 40–41.

¹¹⁴ This approach was firmly rejected by the Supreme Court of the United States in 1946. See *United States v Causby*, 328 US 256, 261 (1946).

¹¹⁵ For a detailed analysis on the legal scope of airspace sovereignty, see Haanappel, Peter, “Chapter 2 - Aerial Sovereignty: From Paris 1919, Through Chicago 1944, to Today” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) at 30–31.

¹¹⁶ See Abeyratne, *supra* note 96 at xx.

¹¹⁷ See Rajesh Singh, “Chapter 25 - Multilateral Approach to Market Access Expansion- What the Future Holds” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 333 at 333; see generally Yehuda Abramovitch, “The Maxim “Cujus Est Solum Ejus Usque Ad Coelum As Applied in Aviation” (1969) 8:4 McGill Law Journal 247–269 at 247–269; Abeyratne, *supra* note 96 at xx.

¹¹⁸ See John Cobb Cooper, “United States Participation in Drafting Paris Convention 1919” (1951) 18:3 Journal of Air Law and Commerce 266–280 at 273.

therefore a collective resource.¹¹⁹ This was in harmony with Hugo Grotius' approach a few centuries earlier who also believed "that the air could not be reduced to private property and thus was common property."¹²⁰ While common law and civil law systems nowadays do provide certain rights (e.g., trespass and privacy) to owners on the immediate airspace over their property, it is now well established that no person has unlimited rights on the airspace above their property,¹²¹ as it now falls in the *res omnium communis* category of collective rights.¹²² The communal characteristic of the airspace is important to highlight, as it explains why the "[p]rotection and regulation of exclusive public or individual rights in areas used by the citizens of a state are functions of that state in the exercise of its territorial sovereignty."¹²³

The early acknowledgement of the airspace as a public and collective resource therefore explains why States had an immediate motivation to assert their sovereignty over it in the early days of aviation, and consequently why public safety authorities across the world started

¹¹⁹ John Cobb Cooper, "International Air Law: Roman Law and the Maxim Cujus Est Solum in International Air Law" (1952) 1 McGill Law Journal 23–65 at 26:

Roman law recognized that space is the reservoir for the air which man breathes and is the access to the heavens from which comes—the light and heat of the sun; that man uses parts of space when he walks on a public road or private path, or when he builds a house or grows crops or trees. Space above the lands of the Roman state was recognized as an integral part of the habitable earth.

¹²⁰ Stephen M Shrewsbury, "September 11th and the Single European Sky: Developing Concepts of Airspace Sovereignty" (2003) 68 Journal of Air Law and Commerce 115–162 at 124. This point was first advanced by President Franklin D. Roosevelt at the opening plenary session of the 1944 Chicago Conference. See *Proceedings of the International Civil Aviation Conference: Chicago, Illinois, November 1-December 7, 1944* (Washington: U.S. Govt. Printing Off., 1948) at 43. .

¹²¹ For a more detailed analysis on the property right and restrictions associated with airspace, see René David-Cooper, "Defining Common Law Property Rights—The Ownership Conundrum of Landing Slots Resolved" (2016) 16:1 Issues in Aviation Law and Policy 7–52.

¹²² See James T Lyon, "Space Vehicles, Satellites, and the Law" (1961) 7:4 McGill Law Journal 271–286 at 281; Nicolas Mateesco Matte, "À Qui Appartient le Milieu Aérien" (1952) La Revue du Barreau du Québec at 227; John C Hogan, "Legal Terminology for the Upper Regions of the Atmosphere and for the Space Beyond the Atmosphere" (1957) 51:2 American Journal of International Law 362–375 at 366; David J Dohan, "Airspace and Article 414 C.C." (1956) 2:2 (Spring 1956) McGill Law Journal 114–127 at 116; Hugh R Smart, "Lacroix v. The Queen" (1956) 2:2 McGill Law Journal 154–161 at 154; JE Richardson, "Aviation Law in Australia" 1 Federal Law Review 1964–1965 at 243; Bruce Ziff et al, *supra* note 112 at 179; Gregory A McKenzie, "Weather Modification: A Review of the Science and the Law" (1976) 6:2 Environmental Law 387–430 at 404; Eugene Pepin, "Legal Problems Created by the Sputnik" (1957) 4:1 McGill Law Journal 66–72 at 70; Joseph F English, "Air Freedom: The Second Battle of the Books" (1931) 2:3 Journal of Air Law 356–372 at 358.

¹²³ John Cobb Cooper, "Rights in Airspace From Antiquity to the Advent of Aircraft: Roman Law and the Maxim Cujus est Solum in International Air Law" in Ivan A Vlasic, ed, *Explorations in Aerospace Law Selected Essays by John Cobb Cooper (1946–1966)* (Montréal, QC: McGill University Press, 1968) 54 at 56.

regulating the safety of “their skies”. For instance, on April 23, 1784—a year after the first hot-air-balloon flight occurred, the first ever documented set of aviation legislation was adopted when the Paris police responded to prevailing safety concerns and issued regulations prohibiting the operation of balloons without a special license.¹²⁴ Similar regulations were also adopted in the same year by the City Council of Ypres (Belgium), followed by the Council of Namur (Belgium) in 1785 and the Senate of Hamburg (Germany) in 1786.¹²⁵ Following a series of fatal accidents, including an earlier occurrence that killed one of the first balloon “pilots”—Jean-François Pilâtre de Rozier, additional safety regulations were adopted in 1819 by France to require that all balloons carry parachutes.¹²⁶ While these regulatory interventions were relatively primitive, they reflected a notable inclination by concerned States to actively regulate this emerging human activity and its inherent safety implications.¹²⁷

Fast-forward to the dawn of the 20th century—after the first powered flight occurred,¹²⁸ the first ever ordinance specifically governing *powered-flights* was adopted in 1908 by a small town in the U.S.—in Kissimmee, Florida. This rudimentary ordinance prohibited aircraft from operating within 10 feet of streets and within 20 feet of any paved surface at a speed above 8 miles per hour. The ordinance was also the first piece of legislation granting enforcement powers and resources to a public authority (the City Council of Kissimmee).¹²⁹ Oddly enough, there were no aeronautical activities in or near the town of Kissimmee at the time; in fact, the first documented

¹²⁴ See Matte, *supra* note 98 at 29; International Civil Aviation Organization, *supra* note 109.

¹²⁵ Matte, *supra* note 98 at 29.

¹²⁶ *Ibid.*

¹²⁷ *Ibid.*

¹²⁸ In the meantime, gliders, dirigibles and Zeppelins were also developed and made their entry in the civil aviation market—the latter two gained popularity, right until the Hindenburg disaster, when their appeal significantly dwindled. See American Institute of Aeronautics and Astronautics, *supra* note 106.

¹²⁹ *Ordinance regulating the status and the employment of airships within the town of Kissimee*, State of Florida, United States (1908).

flight above this town was not until 1911.¹³⁰ While these regulations were perhaps a bit premature in retrospect, they were written by the town's attorney at the time, P.A. Vans Agnew, who grew concerned about aviation risks after returning from a trip to France where he saw an aircraft flying dangerously close to urban buildings.¹³¹

This period was only the beginning of a widespread adoption of regulations worldwide: aviation was a fast-evolving technology and it was becoming "justifiable for law to begin to take its share in the aerial labour."¹³² Between 1910 and 1914, aviation regulations were adopted in many countries across the world, including France, Austria, Germany, Russia, Switzerland, the United Kingdom, Serbia and Italy,¹³³ as well as in the dominions (e.g., Canada), colonies and territories governed by imperial powers.¹³⁴ These primitive laws were early attempts to regulate human relationships within the gaseous envelope formed by air¹³⁵—the airspace—in the context of flying activities.¹³⁶ At the time, "this small degree of attention paid to a minor new fad did not turn into comprehensive policies and regulations,"¹³⁷ despite the growing number of aeronautical activities worldwide.

¹³⁰ Rebecca Maksel, "The First U.S. Air Law Was In a Town Without Airplanes", (8 June 2015), online: *Air & Space* <www.airspacemag.com/daily-planet/first-us-air-law-was-town-without-airplanes-180955524/>.

¹³¹ *Ibid.*

¹³² JF Lycklama, *Air Sovereignty*. (The Hague, Netherlands: Martinus Nijhoff Publishers, 1910) reproduced in John Cobb Cooper, *supra* note 96 at 6.

¹³³ Sand, de Sousa Freitas & Pratt, *supra* note 105 at 26.

¹³⁴ Matte, *supra* note 98 at 111.

¹³⁵ *Ibid* at 67.

¹³⁶ John Cobb Cooper, *supra* note 96 at 6 at 6–7:

A careful analysis of the writing of the other principal early jurists indicates that the new term 'Air Law' was intended to include all human flight deemed physically possible in the areas of space deemed usable, although this was then assumed to comprise only the space above the earth's surface in which flight of aircraft lighter-than-air was already possible and in which the flight of aircraft heavier-than-air could then be considered possible. As this usable space around the earth was identified by the presence of the gaseous substance called 'air' and was thus separated from all universal space beyond, the body of legal rules to be applied to flight was quite logically termed 'droit aérien' or 'Air Law'.

¹³⁷ Jan Walulik, *Progressive Commercialization of Airline Governance Culture*, Routledge Research in International Commercial Law (New-York, NY: Routledge, 2017) at 9.

Yet, the exercise of sovereignty and the regulation of safety would face a dramatic schism when civil aviation became globalized and started redefining the interaction of States under international law. This important evolution will be further discussed in Chapter 2, which will explain how the exercise of this sovereignty by individual States now contributes to variances in domestic accident statistics, but also establishes the ultimate responsibility for each government over the safety of its national aeronautical activities.

6. Chapter 1—Summary & Key Takeaways

The genesis of safety regulations and aviation law outlined in this introductory chapter highlights how common safety needs will usually trigger the emergence of corresponding rules and rights. Accordingly, it comes to no surprise that the birth of aviation—one of mankind’s most profound technological achievements¹³⁸—was met almost instantly with regulations “to protect the public interest from its inherent dangers and complexity.”¹³⁹ The rapid evolution of aviation laws and regulations at the dawn of the 20th century thus highlights key findings.

Firstly, it highlights the innate reaction by States to regulate air safety soon after they were initially exposed to the risks associated with the operation of aircraft, confirming that safety is the *conditio sine qua non* for all aeronautical activities.¹⁴⁰ The adoption of safety regulations in the town of Kissimmee is perhaps the most compelling example; even without actual aircraft in the skies above it, this town felt the *need* to mobilize its public resources to protect its constituents’ safety, particularly in the absence of any State or federal aviation laws at the time.¹⁴¹ This confirms

¹³⁸ Paul Stephen Dempsey, “State of the Airline, Airport & Aviation Industries” (1992) 21:1 Transportation Law Journal 129–214 at 130.

¹³⁹ René David-Cooper, “Landing Safety Management Systems (SMS) in Aviation: The Implementation of Annex 19 for Commercial Air Carriers in Canada” (2015) 30:1 Annals of Air and Space Law at 449; See also Paul Stephen Dempsey & Laurence E. Gesell, *supra* note 1 at 144 & 153.

¹⁴⁰ Weber, Ludwig, “The Chicago Convention” in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, NY: Routledge, 2017) 9 at 16.

¹⁴¹ See Matte, *supra* note 98 at 111.

that safety, as the second-most important human need under Maslow's theory, is a driving force in human behavior, but more importantly in the reactive development of safety regulations—a tendency that has perpetuated itself until today when new safety risks emerge in aviation.¹⁴²

Secondly, this chapter revealed that not every State regulated air safety exactly at the same time, nor in the same way, in the early days of civil aviation. The implementation of domestic legislation was noticeably staggered in each country and addressed—in a heterogeneous fashion—safety issues that were in some cases unique to each country. This highlights a notable variance in the early days of air safety regulations, where States implemented regulatory norms at their own pace and own will, based on their particular national socio-economic, political, and technological experiences; each State behaved differently and regulated aviation based on its own national individuality—a behavior that persists to this day (see Chapter 2). This finding reveals that in the absence of binding international norms, States maintain a relative discretion, particularly in how they regulate purely domestic activities within their jurisdiction.

The third and most important aspect to note is the central role that State entities played in the early development of air transportation,¹⁴³ namely with respect to safety regulations. The history of aviation shows that there was never any doubt about who should be entrusted with the mandate and legal responsibility for regulating and enforcing air safety requirements. Regardless of their culture, religion, economic philosophy or political beliefs, individual States who directly witnessed the birth of civil aviation responded instinctively with corresponding safety regulations, and never surrendered the regulation of safety to market forces and/or private interests. This illustrates the strong influence and responsibility that States had (and obviously still have) on their

¹⁴² E.g., States started regulating recreational and commercial drones relatively quickly when they became more commonly used near the start of the 21st century.

¹⁴³ Paul Stephen Dempsey & Laurence E. Gesell, *supra* note 1 at 171.

national air safety levels. This finding also highlights the basis for exercising the doctrine of State sovereignty in the context of civil aviation.

Based on the foregoing, Chapter 1 highlights key considerations with respect to Canada's responsibility over the safety of individuals that rely on air transportation in the North. Although "absolute safety is probably impossible in a democratic society,"¹⁴⁴ we can conclude that an equal application of safety norms and protections for *all individuals* is expected in an egalitarian nation like Canada. In theory, this communal necessity should warrant equal measures under law, as all humans—regardless of their race, nationality, ethnicity or religion—share common safety needs to ensure their wellbeing and survival. Furthermore, there may very well exist an implicit right to safety under section 7 of the *Charter* (or at a minimum a right to non-discriminatory safety protections under section 15), meaning that Canada must exercise its statutory mandate over the regulation and oversight of air safety in a diligent and symmetric manner to ensure equal treatment and safety benefits for all Canadians—from coast to coast, and from North to South—including indigenous people.

Accordingly, Chapter 1 brings us to an important finding that will support the remainder of this thesis: the federal Minister of Transport (MOT), which holds exclusive jurisdiction over civil aviation activities across Canada, retains the ultimate responsibility for any safety issues and accidents resulting from a marked departure (whether the effects are intended or not) of its public duty to protect the traveling public, particularly when such (in)action overly affects a specific group of individuals and impedes on their safety rights and needs. As shown in the next chapters, failing to do so can contribute to the emergence and the exacerbation of systemic issues, and establish the basis for breaches under the *Charter*, should this phenomenon disproportionately affect a defined group of individuals.

¹⁴⁴ *Alberta v Hutterian Brethren of Wilson Colony*, 2009 SCC 37 at para 201.

CHAPTER 2 – THE GLOBALIZATION OF CIVIL AVIATION: EFFECTS AND CONSEQUENCES OF SOVEREIGNTY ON GLOBAL SAFETY

1. Introduction

This thesis focuses on how Canada's asymmetric regulation and oversight of northern air transportation provide indigenous people with unequal benefits under law, particularly in light of their disproportionate exposure to *State Factors* (see Chapter 3 *infra*) that contribute to higher risks and accident rates in civil aviation. But to establish a differential treatment towards northern indigenous residents in the application of air safety norms, we must first have a solid understanding of the legal framework that governs aeronautical activities worldwide. Understanding the fundamental precepts of international air law is thus essential to convincingly establish how deviations from universal norms adversely impact the safety of northern air operators.

From a governance standpoint, what are the applicable rules, standards and best practices that ought to be followed by States in order to ensure the safety their national civil aviation industry? What are the historical origins, sources, jurisdictional aspects and legal grounds for enacting and enforcing laws in civil aviation worldwide? These are all important questions that will be answered in Chapter 2, in order to identify the marked departure between universal safety norms in place across most developed nations and the resulting substandard air safety regime that exists in Northern Canada.

With this in mind, the purpose of Chapter 2 is to provide readers who may not have a specialized background in air law with the necessary legal foundations to understand the international framework that governs the safety of civil aviation, which in turn dictates the common norms that ought to be in place across Canada. To demonstrate the existence of an unequal treatment under Canada's air safety regime (as argued *infra* in chapters 4 to 6), one must indeed

compare the subject matter of this case study with the universal benchmarks for attaining safe performance levels.

To successfully make the argument that this form of institutionalized normalization of deviance¹ constitutes a form of systemic discrimination (see Chapter 6 *infra*), it is necessary to understand what a “reasonable State”, acting under the same legal framework, must do or not do in light of the applicable rules and known risks, and what is legally expected from a State with respect to its responsibility and mandate over the safety of aeronautical activities within its jurisdiction. Therefore, a solid understanding of the universal framework governing civil aviation is essential to (1) conduct a thorough autopsy of the systemic safety issues experienced in the North and (2) trace back their origins all the way up to the State-level, in this case being Canada's MOT, as a foundation to Chapter 3, which defines this phenomena as *State Factors*.

Accordingly, Chapter 2 will examine the theoretical foundations of air safety regulations by investigating the origins of international air law, particularly *when, why and how* universal safety norms emerged in the aviation sector during the 20th and 21st centuries. Although existing literature has extensively discussed ICAO's role, mandate and powers, the regulation of safety under international air law is constructed on a multi-layered *system* incorporating global and national building blocks (see Chapter 3 *infra*).² In order to understand how *systemic* safety issues arise in Canadian aviation, particularly in the North, one must therefore understand the initial

¹ Terry Wilcutt & Hal Bell, “The Cost of Silence: Normalization of Deviance and Groupthink”, (3 November 2014), online: *National Aeronautics and Space Administration* <<https://sma.nasa.gov/docs/default-source/safety-messages/safety-message-normalizationofdeviance-2014-11-03b.pdf>>: “Social normalization of deviance means that people within the organization become so much accustomed to a deviation that they don't consider it as deviant, despite the fact that they far exceed their own rules for the elementary safety”.

² See Francis Schubert, “Chapter 3.1 - The Regulation of Air Navigation Services in the Single European Sky: The Laws of Increasing Complexity” in Ram Jakhu, Sanat Kaul & Kuan-Wei Chen, eds, *Emerging Trends in Aviation and Space Applications: Legal, Safety and Policy Issues* Monograph Series II (Montréal, QC: Centre for Research in Air and Space Law, 2014) 181 at 185.

design of the legal system that governs international air transportation, as its tentacles effectively shape Canada's domestic legal system.³

For all these reasons, the purpose of Chapter 2 is to provide the reader with a thorough understanding of the international framework under which Canada governs its civil aviation industry with a view of illustrating the MOT's key responsibilities and central role in certain northern air accidents.

2. Safety as an International Responsibility: Making the Case for the Harmonization of Civil Aviation Norms

In the 21st century, it may be trite to acknowledge that aviation's global nature requires a cohesive international legal framework to govern aeronautical activities, as a single commercial flight often travels across several national borders and would otherwise be subjected to potentially conflicting regulations in the skies.⁴ In the context of a globalized society, the international harmonization of rules is thus a prerequisite for ensuring *universal* safety, hence why compliance with safety standards has arguably evolved into an obligation *erga omnes*:

One of the characteristics of obligations *erga omnes* is their universality and non-reciprocity, i.e., they are obligations of a State "towards the international community as a whole", and all States have a legal interest in their observance. These obligations "are grounded not in an exchange of rights and duties but in an adherence to a normative system". Although the *Chicago Convention* was adopted in 1944, when the concept of *erga omnes* was not yet proclaimed, there is evidence, however, that certain safety obligations are grounded "in an adherence to a normative system" [...] The safety standards laid down within the framework of the *Chicago Convention* are designed to protect the common interests of the international civil aviation community, and to enhance the global normative system for the safety of civil aviation. They are not pronounced on the basis of *quid pro quo*, under which States could derogate from obligations *inter se*.⁵

³ Institute of Air and Space Law - McGill University, *Legal, economic and socio-political implications of Canadian air transport* (Montréal, QC: Centre for Research of Air and Space Law, 1980) at 269.

⁴ See Martine De Serres, "Chapter 14 - Consumer Protection" in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 330 at 351.

⁵ Jiefang Huang, "Aviation Safety, ICAO and Obligations Erga Omnes" (2009) 8:1 Chinese Journal of International Law 63-79 at 72 See also *Barcelona Traction (Belgium v Spain) (Second Phase)* ICJ Reports 1970, at paras 33-34: "In particular, an essential distinction should be drawn between the obligations of a State towards the international community as a whole, and those arising vis-à-vis another State in the field of diplomatic protection. By their very nature the former are the concern of all States. In view of the importance of the rights involved, all States can be held to have

Chapter 2— The Globalization of Civil Aviation and Air Law: Effects and Consequences of Sovereignty on International Safety

Given the international community's universal focus on elementary considerations for humanity,⁶ it comes to no surprise that safety's importance "transcends the boundaries of territory and the limits of nationalities,"⁷ hence why its regulation has been entrusted to an international body—ICAO.⁸ Driven by the collective benefits of civil aviation for the international community, the universal framework governing civil aviation safety is also grounded on the premise that in our globalized world, a single State's failure to comply with safety norms is likely to be suffered jointly by the international community.⁹

... when safety standards and procedures are involved on international flights, one cannot even take the position that non-compliance by a sovereign State affects only the citizens of that State. Any other State that receives flights of aircraft registered in the non-complying State has every reason to be concerned about whether international standards and procedures are indeed being followed with respect to such aircraft and crews.¹⁰

Nowadays, rarely do aircraft accidents affect a single State; an omission by one State can instantaneously trigger loss and grief in several other countries. As stated by ICAO, the "[l]ack of appropriate safety oversight in one Contracting State [...] threatens the health of international civil

a legal interest in their protection; they are obligations *erga omnes*. Such obligations derive, for example, in contemporary international law, from the outlawing of acts of aggression, and of genocide, as also from the principles and rules concerning the basic rights of the human person, including protection from slavery and racial discrimination. Some of the corresponding rights of protection have entered into the body of general international law (*Reservations to the Convention on the Prevention and Punishment of the Crime of Genocide, Advisory Opinion*, I.C.J. Reports 1951, p. 23); others are conferred by international instruments of a universal or quasi-universal character".

⁶ *Ibid* at 79: "Civil aviation is to a large extent international by its nature. It transcends territorial boundaries and various nationalities. Given its vital role in the contemporary world, its safety has gradually become the concern of the international community as a whole. There is strong evidence to demonstrate that aviation safety is closely linked to the elementary considerations of humanity, which is one of the core values underlining the concept of obligations *erga omnes*. In this sense, there is growing consensus that aviation safety is not a matter of an individual State but has become the concern of all States".

⁷ Jiefang Huang & Mathieu Vaugeois, "Chapter 5 - The Impact of Sovereignty on the Administration of International Civil Aviation Through International and Regional Organizations" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 55 at 58; See also Michael Milde, *International Air Law and ICAO: Essential Air and Space Law*, 3d ed (The Hague, Netherlands: Eleven International Publishing, 2016) at 184.

⁸ See Ratajczyk, Mikolaj, *Regional Aviation Safety Organisations - Enhancing Air Transport Safety Through Regional Cooperation*, Aviation Law and Policy Series (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2015) at 58.

⁹ See Huang & Vaugeois, *supra* note 7 at 58.

¹⁰ Assad Kotaite, "Is there a Lessening of State Sovereignty or a Real Will to Cooperate Globally?" (1995) 20:6 Air and Space Law 288–293 at 289.

aircraft operations.”¹¹ The internationality of safety in civil aviation is perhaps best illustrated by the 2019 crash of Ethiopian Airlines Flight 302 near Addis Ababa, involving an American-built aircraft (Boeing 737 MAX) operated by an Ethiopian air carrier, in which 157 individuals from 35 different nationalities lost their lives.¹² This tragedy is a perfect, yet sombre example highlighting how the omission by one State (in this case, the United States Federal Aviation Administration’s (FAA) flawed process for certifying aircraft)¹³ can lead to a *global* tragedy with a deadly ripple effect across many countries. In other words, the effects of a *State Factor* (as defined *infra* in Chapter 3), i.e., a safety deficiency stemming from inadequate governance over its national aviation interests, can have transnational implications, but also nationally when localized safety issues arise within a country.

Seeing that *State Factors* can have distinct domestic and international components, the regulatory framework in place to govern civil aviation safety must be dissected in two layers; the first being at the national level (individual States) and the second being governed internationally (ICAO).¹⁴ As we will see in this chapter, distinct characteristics and flaws within this unique system can influence *how* accidents occur, as well as their varying probability between and within individual countries. As such, a “top-down” analysis of the history, mandate, functions and governing role of ICAO is necessary to comprehend *why* and *how* States *can* decide to comply with, or deviate from international air safety norms, thus contributing to shortcomings such as varying safety levels and accident statistics from one State to another.

¹¹ Analysis of the Effective Implementation (EI) of States Safety Oversight Systems, ICAO NCMC/2 — WP/05, 06/11/17, Second Regional Meeting for National Continuous Monitoring Coordinators (NCMC/2). See also Joseph Wheeler, “Chapter 1.1 - ICAO Ash Guidance Updates and Australia’s Encounter with Chile’s Puyehue-Cordon Caulle” in Ram Jakhu, Sanat Kaul & Kuan-Wei Chen, eds, *Emerging Trends in Aviation and Space Applications: Legal, Safety and Policy Issues* Monograph Series II (Montréal, QC: Centre for Research in Air and Space Law, 2014) 1 at 15.

¹² See BBC News, “Ethiopian Airlines: The Victims of a Global Tragedy”, (4 April 2019), online: *BBC News* <www.bbc.com/news/world-africa-47522028>.

¹³ See generally Vincent Correia, “Certification Issues Revealed by the 737 Max Crisis: A Comparative Approach from a European Perspective” (2020) 45:3 *Air & Space Law* 309–340. It could also be argued that Ethiopian Airlines, a State-owned airline, also failed to train its pilots on the operation of Boeing’s Maneuvering Characteristics Augmentation System (MCAS), given that other airlines had done so, albeit in a limited capacity.

¹⁴ See Schubert, *supra* note 2 at 184.

3. The Globalization of Civil Aviation Operations

3.1 *The Emergence of an Internationalist Approach to Regulate Air Safety*

Chapter 1 examined the genesis of safety regulations and how individual States—motivated by societal safety imperatives—played a vital role in their initial development and enforcement. However, a State-centric approach—in any industry—may become inadequate when a regulated issue goes beyond the territorial limits of a single country. The internalization of an activity may indeed pose a threat to a State's ability to maintain the effectivity and reach of its underlying legal framework. While States may be reluctant to relinquish their legal monopoly and constrict their national authority under international agreements, a compromise for universal uniformity among concerned States is often the only viable solution to successfully tackle an issue in a concerted effort, particularly in the interconnected world we now live in.

In aviation—well before aircraft took to the sky in Northern Canada, the central role of many States would face a similar predicament when aircraft that were previously flown on short distances within the territory of a single country started travelling across international borders,¹⁵ the most famous flight being Louis Blériot's journey across the English Channel in 1909.¹⁶ Such events signified the birth of *international* aviation, yet no *international law* norms anticipated such events, nor governed their conduct at the dawn of the 20th century.

Many States faced a common problematic: national safety regulations were rapidly becoming inadequate, as the multiplicity of various domestic rules lacked uniformity between

¹⁵ Peter H Sand, Jorge de Sousa Freitas & Geoffrey N Pratt, "A Historical Survey of International Air Law Before the Second World War" (1960) 7:1 McGill Law Journal 24–42 at 29–30.

¹⁶ See John Cobb Cooper, *The Right to Fly* (New-York, NY: Henry Holt and Company, 1947) at 17; Michael Milde, *International Air Law and ICAO: Essential Air and Space Law*, 3d ed (The Hague, Netherlands: Eleven International Publishing, 2016) at 7: "No legal steps were taken to authorize the flight and its landing in a foreign territory and Bleriot even did not carry his French passport or any other identification paper!"; Albert Roper, *La Convention Internationale du 13 octobre 1919: Son origine – Son Application – Son Avenir* (Paris, France: Librairie du Recueil Sirey, 1930) at 8: "There was however an earlier flight across the English Channel. In 1785, Frenchman Jean-Pierre Blanchard and American John Jeffries travelled across the English Channel onboard a gas balloon"; See also Historycom Editors, "Two explorers cross the English Channel in a balloon", (6 January 2020), online: *History* <www.history.com/this-day-in-history/across-the-english-channel-in-a-balloon>.

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countries and did not address the legal vacuum with respect to how international flights should be conducted.¹⁷ From an operational perspective, the existence of different national rules governing the right of way, landing and takeoff patterns, cruising altitudes (etc.), posed a serious risk to aircraft travelling from one country to another and thus jeopardized safety.¹⁸ The unique legal, political, technical and operational facets of aviation became a matter of public international law the moment the general public was exposed to its risks,¹⁹ particularly when private individuals started actively participating in aeronautical activities across international borders.²⁰ Accordingly, “it soon became evident that most of the legal problems could not be resolved on a purely national basis. International regulation was necessary.”²¹ Facing a rapid evolution and multiplication of aeronautical activities, it was only a question of time before the transnational impact of aviation operations would be met by an international response from concerned States:²²

It would seem to be an essential task of State, international and supranational institutions to develop, in the first instance, a coherent legal theory out of the heterogeneity of the risks in question, the collective dimension of the risks themselves and the need to eliminate or limit them.²³ (*emphasis added*)

In light of the growing number of cross-border flight intrusions,²⁴ an international meeting was convened in 1910, the Paris Conference,²⁵ to lay down the basic international principles

¹⁷ See Elizabeth R Dutkiewicz, “The Applicability and Effect of International Civil Aviation Conventions in Southern Africa” (1978) 4 South African Yearbook of International Law 70–89 at 70.

¹⁸ See Michael Milde, *supra* note 7 at 170; Ruwantissa Abeyratne, *Legal and Regulatory Issues in International Aviation* (Irvington-on-Hudson, New-York: Transnational Publishers, 1996) at xiii (Preface).

¹⁹ See Jan Walulik, *Progressive Commercialization of Airline Governance Culture*, Routledge Research in International Commercial Law (New-York, NY: Routledge, 2017) at 9.

²⁰ See generally Henri Wassenbergh, “Safety in Air Transportation and Market Entry - National Licensing and Safety Oversight in Civil Aviation” (1998) 23:2 Air & Space Law 74–81.

²¹ Sand, de Sousa Freitas & Pratt, *supra* note 15 at 27.

²² See Dick van het Kaar, *International Civil Aviation: Treaties, Institutions and Programmes*, Essential Air and Space Law 22 (The Hague, Netherlands: Eleven International Publishing, 2019) at 1.

²³ Antonio Romano-Tassone, “The Right to Safety: Some Jurisprudential Reflections” (2009) 1:1 Italian Journal of Public Law 250–259 at 254.

²⁴ See Correia, Vincent, “Chapter 1 - The Legacy of the 1919 Paris Convention Relating to the Regulation of Aerial Navigation” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 3 at 10; Sand, de Sousa Freitas & Pratt, *supra* note 15 at 29–30.

²⁵ See Michael Milde, *supra* note 7 at 7; Cooper, John Cobb, *supra* note 16 at 18–20; International Civil Aviation Organization, “The Postal History of ICAO - The Paris Convention of 1910: The Path to Internationalism”, (2021), online: *International Civil Aviation Organization* <www.applications.icao.int/postalhistory/1910_the_paris_convention.htm>: “Nineteen European States (Austria-Hungary, Belgium, Bulgaria, Denmark, France, England, Germany, Italy,

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governing civil aviation. However, participating countries could not *definitively* agree on the legal status of airspace,²⁶ more specifically on the concepts regarding (1) the freedoms of the air and (2) the scope of national sovereignty into international airspace,²⁷ and thus did not achieve the desired goal of adopting an international treaty.²⁸

The participating States did produce a draft convention (*Projet d'une convention internationale relative à la navigation aérienne*),²⁹ which laid down the foundations for later international aviation law treaties,³⁰ namely that States were sovereign over the airspace above their territorial land and waters.³¹ Sovereignty is now the most elementary principle and leading axiom in international air law,³² as well as the foundation of the *State Factor*, as discussed *infra* in Chapter 3. As such, the heritage left by this meeting was that each State would eventually inherit sovereign rights and obligations in the airspace above their respective territory and territorial waters.³³ Conversely, the expression of this sovereignty reflected each State's desire to

Luxembourg, Monaco, Netherlands, Portugal, Romania, Russia, Serbia, Spain, Sweden, Switzerland, and Turkey) attended this conference; nations from other continents were not invited, given the distances involved, the prospect of their aircraft operating in Europe was considered unrealistic".

²⁶ See Cooper, John Cobb, "The International Air Navigation Conference, Paris 1910" in Ivan A Vlastic, ed, *Explorations in Aerospace Law: Selected Essays by John Cobb Cooper, 1946-1966* (Montréal, QC: McGill University Press, 1968) 105 at 118–120; Cooper, John Cobb, "The International Air Navigation Conference, Paris 1910" (1952) 19:2 Journal of Air Law and Commerce 127–143 at 140.

²⁷ Sand, de Sousa Freitas & Pratt, *supra* note 15 at 34: "Thus, in practice, the establishment of international airways and lines continued to be a matter of negotiation, or rather hard bargaining, between States".

²⁸ See generally Roper, Albert, "The Organization and Program of the International Commission for Air Navigation (C.I.N.A.)" (1952) 19:2 Journal of Air Law and Commerce 127–143.

²⁹ Stephan Hobe, "Chapter 3 - Sovereignty as a Basic Concept of International Law and a Core Principle of Air Law" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 35 at 37–38.

³⁰ See John Cobb Cooper, "The Evolution of the Modern Principle of State Sovereignty in Airspace" in Ivan A Vlastic, ed, *Explorations in Aerospace Law Selected Essays by John Cobb Cooper (1946–1966)* (Montréal, QC: McGill University Press, 1968) 103 at 105; Ricardo de Oliveira, "Chapter 15 - The Delineation Between Civil Aircraft and State Aircraft: A Move Into the Aviation World of Tomorrow after 75 Years of Uncertainty" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 197 at 200.

³¹ See Cooper, John Cobb, *supra* note 26 at 127.

³² See Michael Milde, *supra* note 7 at 35; Ricardo Schubert, Francis, "Chapter 11 - Limits in the Sky: Sovereignty and Air Navigation Services" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 147 at 151; Juan Carlos Salazar & Peter van Fenema, "International Air Transport Agreements" in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, NY: Routledge, 2017) 252 at 253.

³³ See Michael Milde, *supra* note 7 at 9; Haanappel, Peter, "Chapter 2 - Aerial Sovereignty: From Paris 1919, Through Chicago 1944, to Today" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention:*

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maintain an absolute responsibility over the safety of its national aviation activities, which arguably also extends to regulatory failures that contribute to accidents.

3.2 The Paris Convention (1919)

The first formal “Constitution of the Air,”³⁴ the *Convention Relating to the Regulation of Aerial Navigation (Paris Convention)*,³⁵ was eventually adopted in 1919.³⁶ A notable achievement under the *Paris Convention* was the establishment of the International Commission for Aerial Navigation (ICAN)³⁷ responsible, through its supervisory role and various technical sub-commissions, for “the preparation of amendments to the convention for submission to States for ratification; the elaboration and revision of the safety and technical regulations; the interpretation of these regulations and the circulation of information respecting air navigation.”³⁸ As the predecessor to ICAO, the ICAN would lay down the foundations for a transnational approach in the governance of international civil aviation driven by normative and institutional structures under

The Evolution of Aerial Sovereignty Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) at 26; Anna Konert, “Chapter 4 - The Development of Civil Aviation and Its Impact on Sovereignty” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 45 at 45.

³⁴ The Paris Convention came into effect on July 11, 1922. See Nicolas Mateesco Matte, *Traité de Droit Aérien Aéronautique (Évolution - Problèmes Spatiaux)*, 2d ed (Paris, France: Éditions A. Pedone, 1964) at 135; Robert QC Lawson, “Chapter 16 - Does an Immovable Object Meet an Irresistible Force? An EU Perspective on the Apparent Tension Between the Protection of Airspace Sovereignty and the Notion of Private Sector Transnational Air Carriers” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 209 at 210.

³⁵ For a detailed analysis on the *Paris Convention*, see Matte, Nicolas Mateesco, *Droit Aérien Aéronautique: Évolution - Nouvelle Orientation* (Paris, France: Éditions A. Pedone, 1954) c 1 (Part III) - La Convention de Paris.

³⁶ See Michael Milde, *supra* note 7 at 10; See generally Cooper, John Cobb Cooper, “United States Participation in Drafting Paris Convention 1919” in Ivan A Vlasic, ed, *Explorations in Aerospace Law: Selected Essays by John Cobb Cooper, 1946-1966* (Montréal, QC: McGill University Press, 1968) 137; Cooper, John Cobb, “United States Participation in Drafting Paris Convention 1919” (1951) 18:3 *Journal of Air Law and Commerce* 266–280.

³⁷ See Brian F Havel & Gabriel S Sanchez, *The Principles and Practice of International Aviation Law* (Cambridge, UK: Cambridge University Press, 2014) at 31; Michael Milde, *supra* note 7 at 11; Correia, Vincent, *supra* note 24 at 20–22; International Civil Aviation Organization, “The Postal History of ICAO - International Aviation Organizations Working Alongside ICAN and Dealing Secondly with Aeronautical Matters”, (2021), online: *International Civil Aviation Organization* <applications.icao.int/postalhistory/international_aviation_organizations_working_alongside_ican_part_2.htm>: “The International Commission for Air Navigation (ICAN) was by no means the first and only international organization designed to further the growth of aviation. Numerous international aviation organizations, such as conferences, congresses, commissions, committees, existed in those years and held many meetings; as air navigation rapidly became international, multiple issues raised for its development also had to be treated internationally. The purpose of this chapter is to describe the work undertaken by international organizations whose work interested ICAN. Most were established after WWI or became interested in air navigation with the development of air traffic”.

³⁸ Sand, de Sousa Freitas & Pratt, *supra* note 15 at 34.

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the umbrella of an international civil aviation body,³⁹ as well as a multilateralist approach for the development of universal safety requirements.⁴⁰

In particular, the *Paris Convention* became the first *successful* regulatory instrument⁴¹ establishing international safety norms in the form of binding annexes⁴² reflecting the first true and universal source of air safety legislation.⁴³ The *Paris Convention* introduced a novel *system* to regulate international civil aviation through uniform safety rules for all Contracting States⁴⁴—a relatively successful approach that would later be emulated under the *Chicago Convention* and permeate ICAO's structure.⁴⁵ By setting the foundations of modern international air law,⁴⁶ the *Paris Convention's* most renowned and enduring legacy was the *formal recognition* of a State's *complete and exclusive*⁴⁷ sovereignty over its territorial airspace under its very first article.⁴⁸ State sovereignty over territorial airspace already existed as a cardinal principle of customary

³⁹ See Matte, Nicolas Mateesco, *supra* note 35 at 49–51; van het Kaar, *supra* note 22 at 9–10.

⁴⁰ HA Wassenbergh, *Public International Air Transportation Law in a New Era - Economic Regulation of International Air Carrier Operations* (Alphen aan den Rijn, Netherlands: Kluwer-Deventer, 1976) at 153.

⁴¹ See Brian E Foont, "Shooting down Civilian Aircraft: Is There an International Law" (2007) 72:4 Journal of Air Law and Commerce 695–726 at 699; Correia, Vincent, *supra* note 24 at 3.

⁴² *Convention Relating to the Regulation of Aerial Navigation, 13 October 1919*, 11 LNTS173, 1922 UKTS2, [*Paris Convention*], s 39: "The provisions of the present Convention are completed by the Annexes A to H, which, subject to Article 34 (c), shall have the same effect and shall come into force at the same time as the Convention itself". As discussed *infra*, ICAO annexes are not automatically binding per se under the *Chicago Convention*, as States who find it impracticable to comply with them can file differences before ICAO. This is a major difference between the *Paris Convention* and the *Chicago Convention*, as the annexes of the former were automatically binding.

⁴³ See Sand, de Sousa Freitas & Pratt, *supra* note 15 at 35.

⁴⁴ Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 31: "Despite its brief life span, the *Paris Convention* had lasting effects on public international aviation law, including the *Chicago Convention*. The Convention, for example, introduced the concept of global technical uniformity that would also underpin its Chicago successor, pioneering the use of special annexes dedicated to standards of airworthiness for airlines and certificates of competency for pilots".

⁴⁵ See Matte, *supra* note 34 at 135–136.

⁴⁶ See Hobe, *supra* note 29 at 43.

⁴⁷ See Pai Zheng, "Chapter 23 - Sovereignty and Air Services Agreements: The Case of China" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 307 at 309; David McClean, *Shawcross & Beaumont: Air Law* (London, United Kingdom: LexisNexis Subscriptions, 1996) at 23 reproduced in; Ruwantissa Abeyratne, "Philosophy of Air Law" (1992) 37 American Journal of Jurisprudence 135–144 at 138: The "exclusive" aspect of air sovereignty can be further defined as "the right to exercise the functions of a State to the exclusion of all other States in regard to a certain area of the world".

⁴⁸ *Paris Convention, supra* note 42: Article 1 recognized that a "[State] has complete and exclusive sovereignty over the air space above its territory. For the purpose of the present Convention, the territory of a State shall be understood as including the national territory, both that of the mother country and of the colonies, and the territorial waters adjacent thereto".

international law prior to 1919,⁴⁹ but its formal recognition under this treaty was an important step in the early development of international air law,⁵⁰ thus crystallizing its status as a cornerstone of contemporary international air law.⁵¹ More importantly, it reaffirmed each State's central role and responsibility towards the public in regulating the safe operation of aircraft within its airspace.

4. ICAO: The Emergence of an International "System"

4.1 The Chicago Convention (1944)

World War II was a defining period in aviation, marked by fast technological advancements in leaps and bounds:⁵² monoplanes replaced biplanes; aircraft speeds, useful loads and flight ranges were significantly increased; and the first jet turbine aircraft were taking the skies.⁵³ Aircraft were now travelling across oceans from one continent to another in a matter of hours on journeys that previously took several days to complete onboard maritime vessels.⁵⁴ The culmination of

⁴⁹ See Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 40–41; Michael Milde, *supra* note 7 at 11; Sand, de Sousa Freitas & Pratt, *supra* note 15 at 31; John Cobb Cooper, "Rights in Airspace From Antiquity to the Advent of Aircraft: Roman Law and the Maxim Cujus est Solum in International Air Law" in Ivan A Vlasic, ed, *Explorations in Aerospace Law Selected Essays by John Cobb Cooper (1946–1966)* (Montréal, QC: McGill University Press, 1968) 54 at 55.

⁵⁰ This was a significant departure from the approach in maritime law, which allowed the unfettered and peaceful access to the oceans by a ship registered in any State. See Paul Stephen Dempsey, *Law & Foreign Policy in International Aviation* (Ardsley, New-York: Transnational Publishers Inc., 1987) at 8; See Roberto Cassar, "Chapter 28 - The Future of Sovereignty in International Civil Aviation: The Resurgence of Sovereignty Versus the Freedom of Flight" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty Aerospace Law and Policy Book* (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 367 at 371; Abeyratne, *supra* note 18 at 4: "In this respect, it was contended that traffic by air differed materially from traffic by sea, where commerce need have no direct connection with the country from which the ship may have come. The air routes were analogous to railroad lines [...]."

⁵¹ However, the vertical limit of such sovereign airspace remains a contentious issue, which has not yet been fully agreed upon. For a full analysis, see generally Dean N Reinhardt, "The Vertical Limit of State Sovereignty" (2007) 72:1 *Journal of Air Law and Commerce* 65–140; See also Correia, Vincent, *supra* note 24 at 15.

⁵² See Michael Milde, *supra* note 7 at 13; International Civil Aviation Organization, "The Postal History of ICAO - 1944: The Chicago Convention", (2021), online: *International Civil Aviation Organization* <applications.icao.int/postalhistory/1944_the_chicago_convention.htm>.

⁵³ The Heinkel He 178 was the first experimental jet engine aircraft to fly on August 27, 1939, although the first commercial jet, the De Havilland Comet 106, would not enter commercial service until 1952. See "The Jet Engine: A Historical Introduction", (16 March 2004), online: *Stanford University* <cs.stanford.edu/people/eroberts/courses/ww2/projects/jet-airplanes/planes.html>; See also Abeyratne, *supra* note 18 at xviii (Preface); Britannica, "The Jet Enters the Civilian World - Technical Advantages and Challenges", (2021), online: *Britannica* <www.britannica.com/technology/history-of-flight/the-jet-enters-the-civilian-world>.

⁵⁴ See Michael Whitaker, "Chapter 24 - A US Perspective on the Utility of the Chicago Convention" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty Aerospace Law and Policy Book* (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 325 at 325–326.

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these drastic technological changes, as well as a shift in the geopolitical and economic balance across the world, triggered an urgent need to modernize international air law.

In 1944, an international meeting was convened to, among other goals,⁵⁵ “discuss the principles and methods to be followed in the adoption of a new aviation convention”.⁵⁶ The conference resulted in the successful adoption of the *Chicago Convention*⁵⁷—ICAO’s enabling constitution.⁵⁸ As “the fundamental source of law in the field of international civil aviation,”⁵⁹ the *Chicago Convention* provides a multilateral framework for the standardization and harmonization of international safety norms,⁶⁰ including aircraft licensing, airworthiness certification, registration of aircraft, international operating standards, and airways and communication controls.⁶¹ At the time of this writing, 193 Member States were parties to the *Chicago Convention*,⁶² which reflects the remarkable and sustained success of this treaty.⁶³

⁵⁵ See *Proceedings of the International Civil Aviation Conference: Chicago, Illinois, November 1-December 7, 1944* (Washington: U.S. Govt. Printing Off., 1948), Vol 1, at 11–13. Another key goal was to “make arrangements for the immediate establishment of provisional air routes and services”, however, this was not successfully achieved on a multilateral basis.

⁵⁶ International Civil Aviation Organization, “International Civil Aviation Conference - Chicago, Illinois, 1 November to 7 December 1944”, (2021), online: *International Civil Aviation Organization* <www.icao.int/ChicagoConference/Pages/default.aspx>; See also Weber, Ludwig, “The Chicago Convention” in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, NY: Routledge, 2017) 9.

⁵⁷ *Convention on International Civil Aviation*, 7 December 1944 ,15 UNTS 295, ICAO Doc 7300/6, [*Chicago Convention*]. ;*Proceedings of the International Civil Aviation Conference: Chicago, Illinois, November 1-December 7, 1944* (Washington: U.S. Govt. Printing Off., 1948), Vol 1, at 4: “In the light of this record of achievement, it can safely be said that the International Civil Aviation Conference at Chicago was one of the most successful, productive, and influential international conferences ever held”.

⁵⁸ See Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 19–20; Tanveer Ahmad, “Environmental Law: Emissions” in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 195 at 222; Bin Cheng, *The Law of International Air Transport* (London, United Kingdom: Stevens & Sons, 1962) at 25.

⁵⁹ Michael Milde, *supra* note 7 at 15; See also Dempsey, Paul S, “Introduction: Multilateral Conventions and Customary International Law” in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 1 at 1.

⁶⁰ See van het Kaar, *supra* note 22 at 16–17.

⁶¹ Paul Stephen Dempsey, *supra* note 50 at 12–13.

⁶² International Civil Aviation Organization, “Council States 2019-2022”, (2021), online: *International Civil Aviation Organization* <www.icao.int/about-icao/Council/Pages/council-states-2019-2022.aspx>.

⁶³ See Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 39; Ratajczyk, Mikolaj, *supra* note 8 at 20.

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4.2 ICAO's Role and Mandate

Under the *Chicago Convention*, air safety represents a key priority and international responsibility,⁶⁴ which defines ICAO's *raison d'être*.⁶⁵ Indeed, ICAO's membership shares a common desire and responsibility to establish and comply with international safety norms.⁶⁶ Article 44 of the *Chicago Convention* specifically sets out ICAO's aims and objectives.⁶⁷ These primarily involve the development of principles and techniques of international air navigation, as well as fostering the planning and development of international air transport in accordance with the key principles set out in its Preamble.

In keeping with the focus of this thesis, the most compelling objective under Article 44 is found under Paragraph (d) which provides that civil aviation ought to be developed in a *safe, regular, efficient* and *economical* manner.⁶⁸ As it will be discussed in Chapter 3, these four considerations strongly influence not only ICAO, but also national regulators in their attempt to delicately balance economic interests and financial resources (i.e., public funds) against predominant safety imperatives—a sensitive exercise, which may at time favour the industry's economic health at the expense of aviation safety.⁶⁹

⁶⁴ ICAO Assembly Resolution A29-13 (1992), "Improvement of Safety Oversight", Doc 100075, I-98, stated that each "individual State's responsibility for safety oversight of international civil aviation within their territories and with respect to aircraft carrying their registration marks".

⁶⁵ See H Schubert, Francis, "Air Navigation" in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 88 at 96; Ronald Schnitker & Dick van het Kaar, *Safety Assessment of Foreign Aircraft Programme: A European Approach to Enhance Global Aviation Safety*, Essential Air and Space Law 11 (The Hague, Netherlands: Eleven International Publishing, 2013) at 116.

⁶⁶ See Alexander Batalov, "Chapter 6 - The Impact of Sovereignty on Regional Cooperation in Civil Aviation: The Russian Perspective" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 67 at 81; Mikolaj Ratajczyk, "Chapter 8 - The Impact of Sovereignty on the Administration of International Civil Aviation Through International and Regional Organisations: Regulating Civil Aviation Safety at a Regional Level - A European Perspective" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 97 at 107. However, "[...] a State retains the ultimate responsibility for the fulfillment of its obligations under the Chicago Convention".

⁶⁷ *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57, s 44.

⁶⁸ *Ibid* at para 44(d).

⁶⁹ *Report of the Commission of Inquiry on Aviation Safety / Commissioner the Honourable Mr. Justice Charles L. Dubin.*, by Privy Council Office (Ottawa, ON: Government of Canada, 1982) at 15: "It is to be observed that there is no specific reference in the *Aeronautics Act* to aviation safety, but the duty to be concerned with it is implicit. It is also implied that

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These four objectives indeed run the risk of being in conflict with each other (e.g., money vs safety), which can coerce individual States into making difficult decisions by favouring one objective to the detriment of another, and potentially contribute to safety disparities within a country. It can thus be inferred that ICAO's objectives not only shape its international policies, strategies, and norms, but also flow down at the State-level and can have repercussions on the governance of civil aviation safety within each ICAO Member State,⁷⁰ including Canada. Today's international system governing civil aviation is therefore directly connected with Canada's own regulatory and oversight framework governing its national aeronautical activities.

4.3 Standards and Recommended Practices (SARPs): Achieving Global Uniformity

One of ICAO's most important responsibilities under the *Chicago Convention* is the adoption of uniform regulations, standards and procedures, which enhance the technical harmonization, interoperability and sustainability of civil aviation.⁷¹ More specifically, ICAO is entrusted with the development and implementation of uniform safety rules across all borders of its membership⁷² by enacting international *Standards*⁷³ and *Recommended Practices*⁷⁴ (SARPs), which are

the duty of the Minister is to be concerned with the economics of aviation and the aerospace industry in Canada. This dual function imposes a special burden since economics and safety may conflict".

⁷⁰ See Christopher M Petras & Vaugeois, Mathieu, "Safety Regulation and Oversight" in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 64 at 80.

⁷¹ See Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 24; Yaw Nyampong, "Aircraft and Airport Noise: Local Issues with Global Implications" in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 180 at 186.

⁷² *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57 at para 54(l): "The Council shall [...] Adopt, in accordance with the provisions of Chapter VI of this Convention, international standards and recommended practices; for convenience, designate them as Annexes to this Convention; and notify all contracting States of the action taken". See also ICAO, Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation, ICAG Doc A36-13, Appendix A.

⁷³ International Civil Aviation Organization, "Making an ICAO Standard", (2021), online: *International Civil Aviation Organization* <www.icao.int/safety/airnavigation/pages/standard.aspx>: "A Standard is defined as any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which Contracting States will conform in accordance with the Convention; in the event of impossibility of compliance, notification to the Council is compulsory under Article 38 of the Convention"; See also "Definition of 'International Standards' and 'Recommended Practices'", Assembly Resolution A1-31, ICAO Doc. 4411.

⁷⁴ See ICAO, "Definition of 'International Standards' and 'Recommended Practices'", Assembly Resolution A1-31, ICAO Doc. 4411; International Civil Aviation Organization, *supra* note 73: "A Recommended Practice is any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which

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incorporated in the form of nineteen annexes to the *Chicago Convention*.⁷⁵ Such harmonization ensures predictability, coordination and safety across all international civil aviation operations,⁷⁶ and thus promotes the development and growth of international civil aviation in a *safe* and *orderly* manner.⁷⁷

Pursuant to the *Chicago Convention*, and following State practice for this matter,⁷⁸ ICAO Member States have a positive obligation⁷⁹ to collaborate in securing the *highest practicable degree of uniformity* with respect to SARPs.⁸⁰ Following the spirit of uniformity under articles 12 and 37 of the *Chicago Convention*, States are required to implement ICAO Annexes within their national legislation and align their safety regulations with ICAO SARPs, to the greatest extent possible. While a State can opt out from a SARP,⁸¹ SARPs and their subsequent amendments are deemed to be legally effective in each ICAO Member State, absent of any difference filed with ICAO.⁸²⁸³

The structure put in place by ICAO's founder is a watertight system: either States comply with the standards or they file differences. The Convention does not allow for a situation where States do not comply and do not file differences. It is a measure of the importance of aviation

is recognized as desirable in the interest of safety, regularity or efficiency of international air navigation, and to which Contracting States will endeavour to conform in accordance with the Convention".

⁷⁵ As per the *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57 at para 54(l).

⁷⁶ See Paul S Dempsey & Kuan-Wei Chen, "Aviation Safety and Security Requires Global Uniformity" (2013) 38 *Annals of Air and Space Law* 515–542 at 516–517.

⁷⁷ See *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57 at para 44(a), 44(h) & Preamble; Morten Hans Jakobsen & Peter Sand, "Chapter 26 - The Chicago Convention Article 83bis: Legal Considerations When Entering Into and Benefiting from Article 83bis Arrangements" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 345 at 346.

⁷⁸ See Ratajczyk, Mikolaj, *supra* note 8 at 23.

⁷⁹ International Civil Aviation Organization, *Safety Oversight Manual, Part B - The Establishment and Management of a Regional Safety Oversight Organization (Doc 9734 - AN/959)*, 2d ed (Montréal, QC: International Civil Aviation Organization, 2011) at para 2.1.1: "An ICAO Contracting State and its respective civil aviation authority are ultimately responsible for the implementation of ICAO SARPs within their State".

⁸⁰ *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57, s 37.

⁸¹ *Ibid* art 38.

⁸² Since Recommended Practices are not mandatory, States are only required to file a difference for a Standard they find impracticable to comply with. This requirement does not apply to the guiding nature of Recommended Practices, which are essentially industry "best practices" proposed by ICAO. See Anthony J Broderick & James Loos, "Government Aviation Safety Oversight - Trust, but Verify" (2002) 67:4 *Journal of Air Law and Commerce* 1035–1056 at 1038.

⁸³ See Isabelle Lelieur, "Airport Business and Regulation" in Dempsey, Paul S, Ram Jakhu & Charles E Schlumberger, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 114 at 127.

safety that the Council of ICAO is required, on the one hand, to help States and, on the other hand, to bring infractions of the Convention to the notice of Contracting States and the Assembly.⁸⁴

As Paul Dempsey argues, “ICAO’s [193] Member States have an affirmative obligation to conform their domestic law, rules and regulations to the international leveling of standards adopted by ICAO.”⁸⁵ However, as discussed *infra*, the *Chicago Convention* only applies—in theory—to international carriage, meaning that a country can apply inferior safety norms to domestic carriage and thus contribute to the emergence of *national State Factors*.

5. The Shortcomings of the *Chicago Convention*: The Origins of State Factors

Given the focus of this thesis, it is crucial to analyze how universal air safety norms are developed and governed by ICAO in accordance with the *Chicago Convention*. This is because no system is perfect, particularly under international legal frameworks where minute flaws can take on explosive proportions and contribute to systemic issues. In other words, systemic issues can arise from imperfections within the structural design of any legal system.

The following section will highlight some inherent strengths and defects within this treaty that can trigger industry-wide safety issues within individual countries. These are particularly relevant when investigating the role of States in the sequence of aviation accidents, as well as localized disparities within a country.

5.1 *The Chicago Convention’s Functionalist Approach to Sovereignty*

It has been suggested that sovereignty takes its roots from the *homo sapiens’* instinct as a territorial beast, hence why sovereignty is likely such an influential factor under international law.⁸⁶

⁸⁴ See A. Kotaite, “Sovereignty under Great Pressure to Accommodate the Growing Need for Global Cooperation” [December 1995] ICAO Journal at 20, reproduced in: Jiefang Huang, *supra* note 5 at 66.

⁸⁵ Paul Stephen Dempsey & Laurence E Gesell, *Public Policy and the Regulation of Commercial Aviation* (Chandler, AZ: Coast Aire Publication, 2013) at 693; Paul Stephen Dempsey, “Compliance and Enforcement in International Law: Oil Pollution of the Marine Environment by Ocean Vessels” (1984) 6 North Carolina Journal of International Law and Commercial Regulation 459 at 16–18.

⁸⁶ See Paul Stephen Dempsey, *supra* note 50 at 7.

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When considering the role of States in aircraft accidents, sovereignty has an important significance as it affirms the central responsibility of individual States, in their self-governing ability (and choice) to regulate air safety and prevent accidents within their respective jurisdictions. It must be acknowledged that States have tempered their nationalistic ambitions over the past century⁸⁷ by compromising on their sovereignty and engaging in the collaborative sharing of their national competencies, namely to advance global aviation safety, within the boundaries agreed upon under this treaty.⁸⁸

The concept of sovereignty now requires each state to be responsible for and conscious of its obligations to the international legal community. The sovereignty principle has therefore evolved into a cohesive system of coexistence by States which respect the exclusive rights of each State to sovereignty over its airspace. Mutual obligations have sprung up between States bringing as their corollary a deep respect for the principles of international law and the rights of individual states.⁸⁹ (emphasis added)

In other words, State sovereignty is not absolute anymore;⁹⁰ it “applies only in so far as it is not expressly restricted by other provisions of the Convention or by engagements entered into elsewhere.”⁹¹ While countries do retain their sovereignty, they must exercise it “in a manner that is consistent with the obligations they have subscribed to under the *Chicago Convention*.”⁹² Accordingly, it has been suggested that this evolution has contributed to a *functionalist* approach

⁸⁷ See generally SG Sreejith, “Legality of the Gulf Ban on Qatari Flights: State Sovereignty at Crossroads” (2018) 43:2 Air & Space Law 191–204.

⁸⁸ See Brendan Lord, “Chapter 29 - The Future of Sovereignty in International Civil Aviation” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 379 at 397; Roberto Cassar, “Chapter 28 - The Future of Sovereignty in International Civil Aviation: The Resurgence of Sovereignty Versus the Freedom of Flight” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 367 at 371.

⁸⁹ Abeyratne, *supra* note 18 at xxv.

⁹⁰ See Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 43; See also José Ignacio Garcia-Arboleda, “Chapter 20 - Bilateralism and Equality of Opportunity under Scheduled Services: Are Air Services Agreements the Sole and Absolute Source for Traffic Rights?” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 259 at 267.

⁹¹ Henri Wassenbergh, *Post-War International Civil Aviation Policy and the Law of the Air* (Dordrecht, Netherlands: Springer, 1962) at 100; reproduced in Ratajczyk, Mikolaj, *supra* note 8 at 23.

⁹² Schubert, Francis, *supra* note 32 at 160.

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to airspace sovereignty,⁹³ under which States maintain their complete autonomy in the governance of civil aviation safety, but relinquish certain functional responsibilities to ICAO in order to satisfy universal safety *needs*.⁹⁴

Sovereignty, for this purpose, can be defined as a perfectly rational paradox: it exists precisely in the fact that it can be given away. More than just a sporadic reaction to unknown future events, this new sovereignty expresses a theory of good governance or a modern *ordre publique*. Sovereignty in its new guise becomes sliced into sets of functional responsibilities where a collection action problem is met with a collective action response. The State does not simply surrender those functional responsibilities, however. Rather, in the very exercise of its sovereignty, the State relativizes, but does not abandon, its claim of sovereignty by delegating some of its responsibilities to other institutions. [...] That migration of responsibilities requires a proactive engagement with foreign actors, both fellow States and intergovernmental or nongovernmental organizations. Such an engagement is itself an exercise in sovereignty.⁹⁵

Over the past century, it could thus be argued that the *Chicago Convention* has contributed to a subtle constriction and delimitation in the way State sovereignty can be exercised under the normative framework of international air law,⁹⁶ given the interdependence among ICAO Member States, as well as their respective obligations towards each other under this new form of democratic governance in international aviation affairs.⁹⁷ As such, an international treaty, such as the *Chicago Convention*, resembles a form of marriage: it constitutes a sacred pact accompanied

⁹³ See Havel, Brian F, "Reflections on the ICAO, Sovereignty, and Supra-State Governance" in Armand de Mestral, Paul P Fitzgerald & Tanveer Ahmad, eds, *Sustainable Development, International Aviation, and Treaty Implementation* (Cambridge, UK: Cambridge University Press, 2018) 344 at 351.

⁹⁴ See Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 173; Schubert, Francis, *supra* note 32 at 152: "The preservation of the sovereign rights of the delegating State does not rely on a legal argument but on robust practical arrangements designed to ensure that that State retains its ability to exercise all of its sovereign prerogatives".

⁹⁵ Havel, Brian F, "Chapter 27 - Reflections on the 'New Sovereignty' and the Future of International Civil Aviation" in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty* Aerospace Law and Policy Book (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 355 at 359; Brian F Havel & Gabriel S Sanchez, "Restoring Global Aviation's Cosmopolitan Mentalite" (2011) 29:1 Boston University International Law Journal 1–40.

⁹⁶ See Konert, *supra* note 33 at 46–47: "The fact that the sovereignty of the State over its airspace is considered complete and exclusive does not mean that it should be absolute and free from any legal restrictions (*legibus soluta*)".

⁹⁷ See Bin Cheng, *supra* note 58 at 492; Ruwantissa Abeyratne, "Aviation and Diplomacy: The ICAO Role" (2003) 28 *Annals of Air and Space Law* 367–396 at 391–392.

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by a set of fundamental and well-entrenched rights, in exchange for mutual and evolving obligations (whose full scope may not always be completely discernible at the beginning).⁹⁸

In keeping with this analogy, a formal relationship between States or spouses does not put a definitive end to their respective sovereign autonomy, however, it does create a duty of commitment, cooperation, and reciprocity with respect to their pre-stipulated obligations.⁹⁹ In both scenarios, these prerequisites are prone to deviation, erosion and even utter failure, unless robust institutional (or conjugal) safeguards are established, well-maintained and modernized over time.¹⁰⁰ Even then, a perfect balance between these imperatives is unlikely and consequently, compliance issues and conflicts are inevitable, at varying levels of severity.

Disagreements and failures are, however, much more perilous in aviation; while spouses can file for divorce and typically move on somewhat unscathed when faced with irreconcilable differences,¹⁰¹ no one can divorce himself or herself from the inherent hazards of air transportation,¹⁰² hence why effective, meaningful and fully enforceable safety norms are crucial under international air law. The principle of State sovereignty—in the context of aviation—

⁹⁸ At the time of the *Chicago Convention's* adoption, its nineteen Annexes had not yet been developed and the Contracting States were arguably unaware of the extent of the obligations they were undertaking by signing on to this treaty.

⁹⁹ Correia, Vincent, *supra* note 24 at 21–22. As stated by Professor Correia: “[m]inor limitations to the sovereignty of States are a fair price to be paid to secure the uniformity of technical rules and hence to guarantee global safety. It is indeed at the heart of the internationalism, which always accompanied the creation and evolution of aviation law. In this respect, the main legacy of the *Paris Convention* is without a doubt the institutionalisation of the international co-operation and the original solutions adopted to ensure the continuous actualisation of aviation law that are still in force *mutatis mutandis* today”.

¹⁰⁰ See Pablo Mendes de Leon, “The Dynamic sovereignty and jurisdiction in international aviation law, in State, Sovereignty, and International Governance, ed., Gerard Kreijen (OUP, 2020) at 486: “Sovereignty of a State is subject to a dynamic evolution in the exercise of that sovereignty. In international aviation, the exercise of sovereignty is qualified an “requalified” according to trends pertaining to arrangements within a State, that is with autonomous entities, as well as between States and international or supra-national organizations, and is also subject to liberalization of air services and privatization of providers of such services”.

¹⁰¹ Alan J Stolzer, John J Goglia, & Carl D Halford, eds, *Implementing Safety Management Systems in Aviation*, Ashgate Studies in Human Factors for Flight Operations (Burlington, VT: Ashgate Publishing Company, 2011) at 191–192: “A Boeing statistic has concluded that an individual would have to live 3,500 years and fly every day of his life to be involved in a serious airplane accident. Further, one would still have a 50% chance of surviving such an accident. By way of comparison, someone would have to live only 700 years to run the risk of being shot by his or her spouse”.

¹⁰² René David-Cooper, “Landing Safety Management Systems (SMS) in Aviation: The Implementation of Annex 19 for Commercial Air Carriers in Canada” (2015) 30:1 *Annals of Air and Space Law* at 448.

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recognizes “the principle of unity in diversity that enables us to see sovereignty as a healthy and essential ecological phenomenon rather than merely a principle of exclusive jurisdiction of States.”¹⁰³ This is why States across the world have entrusted ICAO with the responsibility and leadership to govern civil aviation,¹⁰⁴ and its safety in particular:

The new sovereignty emphasizes interdependence, as sovereigns accept that national governments do not have the capacity, or even the will, to solve all problems solely by domestic efforts. [...] Sometimes the assignment of functions outside the State is simply a matter of path dependence, where an international or regional organization becomes a default repository for responsibilities that it has previously undertaken with enough success to avoid political friction.¹⁰⁵

Under its international governance model, ICAO has been relatively successful in neutralizing selfish and ethnocentric motivations among its membership,¹⁰⁶ thus fostering the sophistication and uniformization of safety norms, as well as a general progression in global safety levels. The sustained success of this functionalist approach is nonetheless vulnerable and periodically challenged by powerful nationalist variables. As discussed *infra*, the manner in which sovereignty is exercised collectively and individually by each of ICAO’s 193 Member States can substantially impact the level of unity and effectivity of SARPs.¹⁰⁷

We must therefore acknowledge that the *Chicago Convention*’s greatest strengths, namely its affirmation of State sovereignty in the air, as well as its balanced pursuit for consensus and uniformity, have paradoxically contributed to its most significant weakness, as each State has a sovereign ability to decide, in accordance with Article 38,¹⁰⁸ to what degree ICAO SARPs ought

¹⁰³ S Bhatt, “Contribution of Aerospace Law to the Evolution of Man and Global Society” (1980) 5 *Annals of Air and Space Law* 309–322 at 316.

¹⁰⁴ Jiefang Huang, *supra* note 5 at 64: “Every State is sovereign in its territory, but it is not able to regulate the safety of international civil aviation alone without the cooperation of others. A State may assure the quality of aircraft registered in its country and of airports located within its territory, but it may not do so for aircraft registered in other countries and airports located therein, which may also impact aviation in the former State. An international concerted action is necessary. For this reason, ICAO should assume the worldwide leadership in aviation safety”.

¹⁰⁵ Havel, Brian F., *supra* note 95 at 360.

¹⁰⁶ See Havel, Brian F., *supra* note 93 at 50.

¹⁰⁷ See Abeyratne, *supra* note 97 at 392.

¹⁰⁸ *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57.

to be implemented and enforced internationally and/or domestically.¹⁰⁹ Consequently, sovereignty also implies that States *can* and *will*—within the prescribed limits of international air law—behave differently, which arguably influences national safety levels and accident statistics.

Based on the frequent collision between unity and Article 1 of the *Chicago Convention*, sovereignty is both a boon and a bane under international air law.¹¹⁰ While sovereignty was conceptualized in the 20th century as a *sword* to advance aviation safety, it has also been relied upon as a *shield* against compliance with certain international norms. *State Factors* take their roots in these sovereign choices, which can be the catalyst for the heterogeneous implementation of SARPs and in turn, varying accidents statistics across the world, including Northern Canada.

5.2 *The Positive Effects: Sovereignty as a Sword for Advancing Safety*

Sovereignty provides the legal basis for international rulemaking and policies in civil aviation.¹¹¹ Indeed, “[t]he regulatory function is a core attribute of the complete and exclusive sovereignty of States, as recognized under Article 1 of the *Chicago Convention*.”¹¹² In particular, it provides States with the jurisdiction to prescribe, apply and enforce safety regulations within their respective jurisdictions.¹¹³ In order to be exercised appropriately and in accordance with international air law, sovereignty should ultimately “wane in the pursuit of those common [safety] benefits that invariably result in a State reducing their national competencies.”¹¹⁴ Of course, the flip side of the coin is that sovereign rights come with *sovereign responsibilities*. In a way, the

¹⁰⁹ See Ratajczyk, Mikolaj, *supra* note 8 at 21 & 30.

¹¹⁰ See Rajesh Singh, “Chapter 25 - Multilateral Approach to Market Access Expansion- What the Future Holds” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty Aerospace Law and Policy Book* (Alphen aan den Rijn, Netherlands: Kluwer Law International, 2019) 333 at 343.

¹¹¹ See Steven Truxal, “Chapter 22 - Airspace Sovereignty in the Chicago Regime: A Reality Check” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty Aerospace Law and Policy Book* (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 292 at 391.

¹¹² Schubert, *supra* note 2 at 183.

¹¹³ See Regula Detting-Ott, “Chapter 17 -” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty Aerospace Law and Policy Book* (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 223 at 224.

¹¹⁴ Lord, *supra* note 88 at 389.

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principle of sovereignty under the *Chicago Convention* presents itself as a double-edged sword; the recognition of this principle essentially grants States an absolute *power*, but also a sacred State *responsibility*,¹¹⁵ to ensure safety within their respective airspace, specifically by enforcing regulations that stipulate—in accordance with ICAO annexes—the conditions under which domestic and foreign aircraft ought to behave safely.¹¹⁶

Since the entire philosophy of air law is predicated on the concept of State sovereignty over its airspace,¹¹⁷ it must be emphasized that no State can be held accountable for the lack of regulation and oversight outside their own territory, should an accident occur abroad and involve a foreign aircraft. This national responsibility must be upheld and fulfilled by individual States across their respective jurisdictions, not only for the safety of their citizens, but also for the *universal* good of civil aviation whose benefits and risks are ultimately shared globally.¹¹⁸ While a State “cannot legally impose its will in any area to the exclusion of all other states if such area is outside its accepted and recognized territory,”¹¹⁹ it nonetheless has the jurisdiction and more importantly, the obligation to enforce safety requirements within the limits of its own domestic airspace,¹²⁰ otherwise defined as *internal* sovereignty.¹²¹

¹¹⁵ See *ICAO Assembly Resolution A29-13 (1992)*, “*Improvement of Safety Oversight*”, Doc 100075, I-98. This resolution further states that “[each] individual State’s responsibility for safety oversight is one of the tenets of the Convention”.

¹¹⁶ See International Civil Aviation Organization, *Safety Oversight Manual - Part A: The Establishment and Management of a State’s Safety Oversight System (Doc 9734 AN/959)*, 2d ed (Montréal, QC: International Civil Aviation Organization, 2006) at para 2.2.1.

¹¹⁷ See Abeyratne, *supra* note 18 at xix.

¹¹⁸ See Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 175–176.

¹¹⁹ Cooper, *supra* note 49 at 57.

¹²⁰ See Walulik, *supra* note 19 at 20; Schubert, Francis, *supra* note 32 at 153. See also *S.S. Lotus (Fr. v. Turk.)*, 1927 PCIJ (ser A) No. 10 (Sept. 7) at para 45: “Now the first and foremost restriction imposed by international law upon a State is that – failing the existence of a permissive rule to the contrary – it may not exercise its power in any form in the territory of another State. In this sense jurisdiction is certainly territorial; it cannot be exercised by a State outside its territory [p19] except by virtue of a permissive rule derived from international custom or from a convention”.

¹²¹ See Dejian Kong, “Chapter 13 - Sovereignty and GNSS: Connecting the Traditionnal Legal Concept with High Technology” in Pablo Mendes de Leon & Niall Buissing, eds, *Behind and Beyond the Chicago Convention: The Evolution of Aerial Sovereignty Aerospace Law and Policy Book* (Alphen aan den Rijn, Netherlands: Kluwer, 2019) 3 at 177.

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Conversely, the sovereignty of a State also extends to its nationally-registered and operated aircraft when travelling abroad¹²²—a form of *external* sovereignty,¹²³ under which each State must ensure that SARPs are followed by its national aircraft, aircrews, maintenance operations (etc.) wherever they may be in the world. As such, “within a State, sovereignty expresses the supremacy of the governmental institutions; on the other, outside a State, it expresses the supremacy of the State as a legal person.”¹²⁴

Based on the foregoing, sovereignty should—in theory—be utilized as a sword to advance air safety, both domestically and abroad, with a view of *equally* protecting the lives and wellbeing of the travelling public, as well as the aviation workforce. Considering the primitive and visceral roots of sovereignty, there is perhaps an additional incentive for individual States to actively pursue this approach domestically, given the elementary need (and perhaps State-centric) motivation to protect the safety of their own nationals first and foremost. Within their territorial jurisdiction, States must indeed strive to maintain the utmost compliance with ICAO SARPs throughout their territory to ensure that both national and foreign air carriers operate safely, particularly since a country’s nationals are more likely to be on the receiving end of a deadly occurrence.

Air carriers whose procedures, aircraft maintenance standards, aircrew training requirements (etc.) are misaligned or falling behind international norms obviously represent a hazard for any national air transportation network; they are indeed prone to more accidents that could endanger the lives of a country’s nationals on the ground, as well as those travelling to and from their home country onboard these foreign aircraft. Such concerns provide the rationale behind existing safety assessments and backlisting programs (e.g., ICAO’s Universal Safety Oversight Audit

¹²² *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57, s 12.

¹²³ See Kong, *supra* note 121 at 177.

¹²⁴ Cassar, *supra* note 88 at 369.

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Programme,¹²⁵ the International Air Transport Association's Operational Safety Audit (IOSA) Program,¹²⁶ the European Union's Air Safety List¹²⁷ and the FAA's International Aviation Safety Assessment),¹²⁸ where the compliance of States is assessed against international norms in order to *inter alia* validate the overall safety of foreign carriers. In some cases, States may respond to such assessments by prohibiting a foreign carrier's entry into its airspace pursuant to the *Chicago Convention*,¹²⁹ or nullify existing bilateral agreements, on the basis of safety concerns.¹³⁰ All Member States must therefore ensure that their national aircraft are operated abroad in continued compliance with ICAO SARPs to avoid a similar fate.

In a universalist setting such as ICAO, this tit-for-tat approach is remarkably effective in promoting meaningful cooperation between self-interested States.¹³¹ Adopting this *quid pro quo* vision, wherein sovereignty is wielded as a sword, arguably to protect national interests first and

¹²⁵ "Frequently Asked Questions about USOAP", (2024), online: *International Civil Aviation Organization* <<https://www.icao.int/safety/CMAForum/Pages/FAQ.aspx>>: "The Universal Safety Oversight Audit Programme (USOAP) is a programme through which ICAO monitors the fulfillment of the safety oversight obligations by Member States. The results of USOAP activities allow ICAO to assess a State's capability in providing safety oversight by assessing whether the State has effectively and consistently implemented the eight critical elements (CEs) of a safety oversight system, which enable the State to ensure the implementation of ICAO's safety-related Standards and Recommended Practices (SARPs) and associated procedures and guidance material".

¹²⁶ "IATA Operational Safety Audit (IOSA)", (2024), online: *International Air Transport Association* <<https://www.iata.org/en/programs/safety/audit/iosa/#tab-1>>: "The IATA Operational Safety Audit (IOSA) Program is an internationally recognized and accepted evaluation system designed to assess the operational management and control systems of an airline".

¹²⁷ "Questions and Answers: Commission adopts new EU Air Safety List", (25 November 2021), online: *European Commission* <https://ec.europa.eu/commission/presscorner/detail/en/IP_21_6268>: "The EU Air Safety List (ASL) is a list of air carriers from non-EU countries, which do not fulfil international safety standards. The carriers on the ASL are banned from operating to, in and from the EU. Carriers that do not operate to the EU can also be put on the ASL, in order to warn the public travelling outside of the EU about safety concerns. If the safety authorities of a third country are not able to fulfil their international safety oversight obligations, all the carriers of that country can be put on the ASL".

¹²⁸ "International Aviation Safety Assessment (IASA) Program", (2024), online: *Federal Aviation Administration* <<https://www.faa.gov/about/initiatives/iasa>>: "Under the International Aviation Safety Assessment (IASA) program, the FAA determines whether another country's oversight of its air carriers that operate, or seek to operate, into the U.S., or codeshare with a U.S. air carrier, complies with safety standards established by the International Civil Aviation Organization (ICAO)".

¹²⁹ *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57, arts 6, 12, 33, 37 & 38.

¹³⁰ Paul Dempsey, "Blacklisting: The Conflict Between National and International Safety Standards", (2008), online: *Institute of Air and Space Law - McGill University* <https://www.mcgill.ca/iasl/files/iasl/C10-Paul_Dempsey-Blacklisting.pdf>: "A typical, modern approach is found in the so-called "APEC Multilateral Agreement". It repeats Bermuda I's reciprocal recognition clause, but adds that such recognition is contingent on the requirements for such licensing or certification are at least as stringent as those set forth in the *Chicago Convention* and its Annexes, echoing Article 33 of the *Chicago Convention*".

¹³¹ See Peter Danielson, "The Moral and Ethical Significance of Tit For Tat" (1986) 25:3 *Canadian Philosophical Review* 449–470 at 449, 452.

foremost, is a key incentive for achieving the full uniformity and effectivity of SARPs, which in turn can vastly improve global aviation safety and prevent accidents worldwide. As such, a State's effectiveness in wielding this sword will inevitably have a positive effect (the *State Factor*) on its national safety, and *vice versa*. As discussed below, this theoretical aspiration is unfortunately thwarted by the uneven disposition of States to implement and enforce international safety norms.

5.3 *The Adverse Effects: Sovereignty as a Shield Against Compliance*

It has been stated that “[s]overeignty issues, economic obstacles, and allegations of unfair trade practices have precluded globalization of aviation safety.”¹³² Another key reason for this shortcoming lies with legal loopholes and ambiguities found under the *Chicago Convention*. Despite the importance of State sovereignty in the global efforts to maintain civil aviation safety worldwide, the *Chicago Convention*'s “sword” for advancing safety has become somewhat dulled over the past eighty years and at times lacks teeth to fully achieve its safety objectives. This is because sovereignty has, in some instances, been used as a shield against compliance, which adversely conditions the regulatory behaviour of Member States and contributes to an environment where each State can *legally* deviate from common safety rules.

It comes as no surprise to realize that aviation safety is policed in at least 193 different ways throughout ICAO's membership.¹³³ While ICAO Member States must ensure—to the greatest possible extent—compliance with all SARPs,¹³⁴ this obligation is not absolute. Even though “[i]t should be mandatory of the international community to implement the collective sovereign will of its Member States in its long journey to protect aviation,”¹³⁵ SARPs are not an integral part of the

¹³² Mark Lee Morrison, “Navigating the Tumultuous Skies of International Aviation: The Federal Aviation Administration's Response to Non- Compliance With International Safety Standards” 2 Southwestern University School of Law Southwestern Journal of Law and Trade in the Americas 621–642 at 623.

¹³³ Michael B Jennison, “The Chicago Convention and Safety after Fifty Years” (1995) 20 Annals of Air and Space Law 282–306 at 288 & 290–291.

¹³⁴ *Convention on International Civil Aviation*, 7 December 1944, *supra* note 57, art 12.

¹³⁵ Huang & Vaugois, *supra* note 7 at 66.

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Chicago Convention per se, due to the fact that they were solely adopted by the ICAO Council—in essence by 36 States¹³⁶—rather than being formally agreed upon and ratified by all 193 ICAO Member States.

Despite being grounded on a legitimate framework established under the *Chicago Convention* and in accordance to its provisions, SARPs are not considered as binding legal instruments under the international law of treaties,¹³⁷ and hence represent “guidance to desirable conduct of States rather than a formal legal obligation.”¹³⁸ Indeed, the *Chicago Convention*¹³⁹ provides for a legitimate legal mechanism under which Member States can file differences before ICAO and lawfully absolve themselves from SARPs or their subsequent amendments due to *impracticability*¹⁴⁰—a nebulous term which has not been formally defined under the *Chicago Convention*, nor by ICAO.¹⁴¹ Ultimately, “[e]ach contracting State has the sole authority to determine what is “practicable” and what is not. No State may be expected or forced to do what is not possible for it or not “practicable.”¹⁴² Even then, many States who do not to comply with certain SARPs fail to report it to ICAO.¹⁴³

¹³⁶ Michael Milde, *supra* note 7 at 171: “The Council of ICAO has a unique position and jurisdiction among the various bodies of the United Nations system. It has a function to adopt international standards and recommended practices aimed at worldwide applicable under specified conditions. In one specific case – the rules of the air over the high seas – the standards adopted by the Council are mandatory to all States without exception. This is a sole example that an executive body of an international organization is empowered to legislate with binding force over some 72% of the surface of the Earth”; *Convention on International Civil Aviation, 7 December 1944*, *supra* note 57, s 12: “Over the high seas, the rules in force shall be those established under this Convention”.

¹³⁷ *Vienna Convention on the Law of Treaties*, 23 May 1969 1155 UNTS 331 [Vienna Convention]; See also Abeyratne, *supra* note 18 at 14–20; Weber, Ludwig, *supra* note 56 at 20.

¹³⁸ Michael Milde, *supra* note 7 at 175; See also van het Kaar, *supra* note 22 at 25; Bin Cheng, *supra* note 58 at 70.

¹³⁹ *Convention on International Civil Aviation, 7 December 1944*, *supra* note 57, s 38.

¹⁴⁰ *Ibid*; See also Weber, Ludwig, *supra* note 56 at 20.

¹⁴¹ See Ahmad, *supra* note 58 at 225.

¹⁴² Michael Milde, *supra* note 7 at 174.

¹⁴³ International Civil Aviation Organization, *Doc 10055 - Manual on Notification and Publication of Differences*, 1st ed (Montréal, QC: International Civil Aviation Organization, 2019) at v: “[A]ccording to the results of activities conducted under both the Universal Safety Oversight Audit Programme (USOAP) and the Universal Security Audit Programme (USAP), the status of the notification and publication of differences has been far from satisfactory: more than 70 per cent of the States had not established an effective system for the identification and notification of differences to ICAO”.

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Accordingly, the State's *undertaking*¹⁴⁴ under Article 37 to comply with international norms to *the highest practicable degree of* uniformity (a vague and elastic notion that also has not been formally defined)¹⁴⁵ is significantly weakened by the “get out of jail free card” offered under Article 38. It is on this basis that scholars have acknowledged the “soft law”¹⁴⁶ attributes of SARPs given that they “are merely a desired level of performance established as a common State endeavour.”¹⁴⁷ Consequently, there are notable issues with SARPs, such as an imperfect level of implementation worldwide,¹⁴⁸ ICAO's inability to precisely track their level of adoption, and more concerning, ICAO's lack of authority to directly enforce them. In light of the heterogeneous adoption of SARPs worldwide,¹⁴⁹ the global community's confidence towards the effectiveness of the *Chicago Convention* has even been called into question:

Very low levels of response by States to amendments to annexes, completely inadequate response levels regarding the notification of differences to standards, and perhaps even

¹⁴⁴ Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 61: “To “undertake” is not the same thing as to “adhere,” nor is the imperative form “shall” present in the text. Even if “undertakes” is read strongly, the “undertaking” in question is only to “collaborate,” and not even (for example) to “follow”.

¹⁴⁵ See Md Tanveer Ahmad, “Achieving Global Safety in Civil Aviation: A Critical Analysis of Contemporary Safety Oversight Mechanisms” (2012) 37 *Annals of Air and Space Law* 81–124 at 86.

¹⁴⁶ Michael Milde, “Aviation Safety Oversight: Audits and the Law” (2001) 26 *Annals of Air and Space Law* 165–178 at 169; Matte, Nicolas Mateesco, “The Chicago Convention Where from and Where to, ICAO” (1994) 19 *Annals of Air and Space Law* 371–400 at 378; Paul Stephen Dempsey, *Public International Air Law* (Montréal, QC: McGill University Institute and Center for Research in Air and Space Law, 2008) cs 2-Safety Public International Air Law; Ruwantissa Abeyratne, “Outcome of the 39th Session of the International Civil Aviation Organization Assembly” (2017) 42:1 *Air & Space Law* 13–28 at 28; Georgios Leloudas & Louis Haeck, “Legal Aspects of Aviation Risk Management” (2003) 28 *Annals of Air and Space Law* 149–159 at 160; Dempsey, Paul S, “Blacklisting: Banning the Unfit from the Heavens” (2007) 32 *Annals of Air and Space Law* 29–64 at 36; Abeyratne, Ruwantissa, “Aviation and Climate Change: A Compelling Legal Challenge for a Toothless Tiger?” (2014) 1 *Journal of International and Comparative Law* 85–100 at 98; Stefan A Kaiser, “Infrastructure, Airspace and Automation Air Navigation Issues for the 21st Century” (1995) 20 *Annals of Air and Space Law* 447–458 at 44; Ermanno Napolitano, “The Chicago Convention as a Self-Contained Regime” (2018) 43 *Annals of Air and Space Law* 55–104 at 55; Michael Milde, *supra* note 7 at 175; Brian F. Havel & Gabriel S. Sanchez, *supra* note 37 at 12: “Soft law is generally not seen as having legal effect, although some international jurists have argued that soft law still has normative force and can be used to track State practice with respect to adducing customary international law”.

¹⁴⁷ René David-Cooper, *supra* note 102 at 472. See also International Civil Aviation Organization, *Resolution 36-13: Consolidated statement of continuing ICAO policies and associated practices related specifically to air navigation*, ICAO Assembly Resolution ATS/AIS/SAR SG/11 WP/19 (Montréal, QC: ICAO, 2007).

¹⁴⁸ See Ratajczyk, Mikolaj, *supra* note 8 at 21; *State of Global Aviation Safety*, by International Civil Aviation Organization, Safety (Montréal, QC: International Civil Aviation Organization, 2019) at 8. In 2010, the global level of implementation of SARPs was estimated at 57,7%. More recent data regard this issue could not be identified at the time of this writing. In 2019, the global level of implementation of SARPs for States audited by ICAO was estimated at 67,43%, however, this data does not include States that were not audited by ICAO.

¹⁴⁹ Olga Barreto, “Safety Oversight: Federal Aviation Administration, International Civil Aviation Organization, and Central American Aviation Safety Agency” (2002) 67:3 *Journal of Air Law and Commerce* 651–684 at 670.

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instances of misrepresentation of national regulatory provisions and responsibilities, evidence shortcomings of the present ICAO framework in the field of safety oversight.¹⁵⁰

Based on the foregoing, we can infer that State sovereignty can and does induce fluctuating levels of compliance throughout ICAO's 193-State membership, which are, as demonstrated *infra*, presumably linked to varying levels of safety and accident statistics in each country. This fragmentation is perhaps the most notable vulnerability under the *Chicago Convention*, as it effectively legitimatizes unsafe practices and allows them to persist, without any legal recourse or enforcement mechanism available at the ICAO-level. Consequently, the potential erosion of the uniformity of safety norms and this treaty's inherent flaws place the international aviation safety framework at risk:¹⁵¹

The existence of variations in the rules applied at national level raises concerns that reach far beyond academic considerations. First, differences between the national regulations of different countries create unnecessary uncertainties for the airspace users who will be required to apply them in practice. In an environment which requires rapid and accurate operational decisions, these uncertainties can generate confusion and unintentional infringements which will impact the safety of air navigation and generate operational inefficiencies.¹⁵²

The author must, however, concede that over time, non-compliance with ICAO SARPs is likely to eliminate or inhibit a State from any meaningful participation in international civil aviation,¹⁵³ as this would expose its national carriers to flight restrictions or bans in other countries.¹⁵⁴ In theory, non-compliance can also trigger State responsibility under international law should an accident occur,¹⁵⁵ hence why States *generally* strive to achieve compliance. As

¹⁵⁰ Roderick D Van Dam, "Recent Developments in Aviation Safety Oversight" (1995) 20 *Annals of Air and Space Law* 307–318 at 317.

¹⁵¹ See Ratajczyk, Mikolaj, *supra* note 8 at 24.

¹⁵² Schubert, *supra* note 2 at 187.

¹⁵³ See Michael Milde, "Aviation Safety and Security - Legal Management" (2004) 29 *Annals of Air and Space Law* 1–18 at 3.

¹⁵⁴ Ruwantissa Abeyratne, "Blacklisting of Airlines by the European Union and the Disclosure of Safety Critical Information" (2004) 2004–2008 *Issues in Aviation Law and Policy* 1135–1152.

¹⁵⁵ See Ratajczyk, Mikolaj, *supra* note 8 at 223–224: "...State responsibility is the basic principle of international law according to which every internationally wrongful act of a State entails the international responsibility of that State. [...] It essentially means that if a State breaches an obligation created by international law, this entails that State's responsibility and as a consequence an obligation of reparations. [...] This could be the case for example where a State has an obligation stemming from the Chicago Convention to adopt a rule, and does not fulfill this obligation in due time

such, the purpose of this (admittedly) pessimistic critique is solely to expose certain gaps in international air law where States are permitted to absolve themselves from complying with certain ICAO SARPs, thus paving the way for uneven levels of safety from one State to another.¹⁵⁶

While SARPs are not devoid of legal significance¹⁵⁷ and do normatively influence State behaviour,¹⁵⁸ this loophole directly contributes to a significant fracture in the principle of international uniformity in civil aviation. Indeed, each ICAO Member State has a relative discretion and sovereign choice whether to opt-out¹⁵⁹ from any SARP without being directly sanctioned by ICAO, effectively rendering such SARP non-binding within that country.¹⁶⁰ Sovereignty therefore empowers individual States to “customize” the way they regulate their own national air industry and shape their own national accident statistics.¹⁶¹ The variable behaviour of each country is one of the many underlying facets of the *State Factors*, as discussed *infra* in chapters 3 to 6.

5.4 *The Variability of State Safety Performances—Global Accident Statistics at a Glance*

Based on the previous subsection, we can understand why the adverse effects of sovereignty reflect a significant consideration when examining the visible cracks in the foundations of our modern international safety framework, as sovereignty can be invoked by overly State-centric, nationalist and/or lax governments, to bypass international safety norms. By analogy, this

or fulfils it incorrectly [...] For example when a State fails to transpose a particular ICAO SARP into its national legal order and does not notify a difference until Article 38 of the *Chicago Convention*.”

¹⁵⁶ See Schubert, *supra* note 2 at 185.

¹⁵⁷ SARPs “are not devoid of legal significance” and delinquent States are likely to suffer significant economic consequences. Putting aside the legal barriers protecting the uniformity of international safety norms, sovereign States can also refuse the entry of carriers registered in a non-compliant State, i.e., ban them from flying into their airspace pursuant to Article 33 of the *Chicago Convention*, and thus “eliminate the State concerned from any meaningful participation on international air navigation and air transport.” The risk of facing political or economic consequences as a result of filing a difference before ICAO and/or having a national carrier banned from operating in other countries is therefore a strong motivation for States to comply with ICAO SARPs in order to actively participate in the international civil aviation industry. See Michael Milde, *supra* note 7 at 175. See also *British Caledonian Airways Ltd. v Bond*, 665 F.2D 1153 (DC Cir, 1981).

¹⁵⁸ See Napolitano, *supra* note 146 at 67–70.

¹⁵⁹ See Peter Ateh-Afac Fossungu, “The ICAO Assembly: The Most Unsupreme of Supreme Organs in the United Nations System: A Critical Analysis of Assembly Sessions” (1998) 26:1 Transportation Law Journal 1–46.

¹⁶⁰ Bin Cheng, *supra* note 58 at 64–65.

¹⁶¹ Huang & Vaugeois, *supra* note 7 at 56: “Every State is sovereign, in the sense that it has the supreme power to independently deal with its internal and external affairs. It is supreme in its territory and independent vis-à-vis other States”.

tolerable variance is akin to allowing vehicle motorists to decide unilaterally whether they wish to follow the speed limits on public roads, more specifically, by providing a lawful mechanism under which they can inform the police ahead of time that they find it “impracticable” to follow certain rules under the highway safety code and in exchange, become exempt from any corresponding legal consequences. Such an irrational approach would ignore the rule of law by preferring a natural selection approach at the expense of human lives. Unfortunately, the latter scenario has already materialized to a certain extent, particularly in marginalized countries and regions infamous for poor safety management and oversight at the State-level, whose indirect role in accidents is undoubtedly reflected in their disproportionate occurrence statistics:

The growing number of aviation accidents in developing countries exposes loopholes in the legal framework and laxities in the enforcement of existing regulatory systems. According to IATA [International Air Transport Association], Africa accounts for only 4% of global aircraft and yet, its accident rate is at 25%, making it six times less safe than the world rate. Developing countries are quick to ratify international conventions on air travel, environmental protection, noise reduction and aviation safety but are seen to be doing very little to enforce the regulations and stipulations mandated by these treaties. [...] Local and regional enforcement mechanisms have simply not been developed and there are no effective deterrents or penalties for violating most international conventions.¹⁶²

We can thus understand why distinctive characteristics among sovereign ICAO Member States can translate into different accident statistics from one country to another, but also regionally (as noted in chapters 4 to 5). We must nonetheless remember that the corollary of State sovereignty under the *Chicago Convention* is accompanied by a principle of individual State responsibility for safety oversight,¹⁶³ meaning that poor safety records within a country, demonstrated by a repeated manifestation of preventable accidents, are often attributable to a State’s inadequate implementation of international safety norms (SARPs).

Although there were no comprehensive studies correlating accidents statistics with international SARP compliance available at the time of this writing, it is reasonable to infer that a

¹⁶² Naa Adoley Addy, “Aviation Safety & Security in West Africa: Legal and Regulatory Issues Inherent in Aerospace Activities - Focus on Nigeria” (2008) 33 *Annals Air & Space* 32–58 at 32–33.

¹⁶³ Ratajczyk, Mikolaj, *supra* note 8 at 65.

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State's idiosyncratic approach to safety oversight under international standards is more likely to be reflected in its long-term accident statistics and correspond to its degree of continued compliance with ICAO SARPs. As stated by Dr. Assad Kotaite: "Civil aviation is extremely safe. When accidents occur, however, it is often because the rules and procedures outlined in the SARPs and related guidance material developed by ICAO are not adhered to properly."¹⁶⁴

In IATA's 2019 Safety Report for instance,¹⁶⁵ the global accident rate for IATA members between 2015-19 averaged at 1.01 accidents, with a fatality risk of 0.17 per 1 million flights respectively.¹⁶⁶ In Africa, this figure jumped to 3.32 accidents (a multiple of approximately three), with a fatality risk of 0.76 deaths (a multiple of approximately five) per 1 million flights respectively.¹⁶⁷ By comparison, the accident rate in Europe was 0.96 accidents, with a fatality risk of 0.04 deaths per 1 million flights respectively.¹⁶⁸ In North America, the accident rate between 2015-19 was 1.00 accidents with a fatality risk of 0.07 deaths per 1 million flights.¹⁶⁹ In comparison with Europe and North America, a passenger in Africa was approximately three times more likely to be involved in an accident. Even more striking is that a passenger in Africa was nineteen times more likely to be killed in an aircraft accident in comparison with Europe, and eleven times more likely than someone in North America.

Similar inequalities were noted in ICAO's 2020 Safety Report, with Africa holding a share of 7.9% of accidents and 76.6% of fatalities worldwide, despite hosting only 2.9% of the global air

¹⁶⁴ "ICAO News Release / Implementing SARPs - The Key to Aviation Safety and Efficiency", (6 December 2000), online: *International Civil Aviation Organization* <https://www.icao.int/secretariat/SecretaryGeneral/aviation_day/2000/pio200012_e.pdf>.

¹⁶⁵ "Safety Report 2019", (April 2020), online: *International Air Transport Association* <<https://www.iata.org/content/assets/4d18cb077c5e419b8a888d387a50c638/iata-safety-report-2019.pdf>>. This section relies on pre-pandemic safety data, given that COVID-19 significantly disturbed the global air network and as a result, there were fewer accidents. As such, using more recent safety data would be less reliable in comparison with data compiled before the pandemic, when the civil aviation industry was fully operational and growing.

¹⁶⁶ *Ibid* at 49.

¹⁶⁷ *Ibid* at 88–89.

¹⁶⁸ *Ibid* at 94.

¹⁶⁹ *Ibid* at 100.

traffic.¹⁷⁰ Between countries, disparities in safety levels and accident statistics are not limited to aviation; the World Health Organization (WHO) has also reported that the risk of fatality in a road accident is significantly higher in Africa with 26.6 fatalities per 100,000 population, which contrasts with the lowest death rate found in Europe (of 9.3 fatalities per 100,000 population).¹⁷¹

So how can we explain such disparities and their relevance under the theme of this thesis? Recognizing that each country will experience—every year—a different number of accidents, injuries and deaths related to air transportation may be stating the obvious. Or perhaps we have simply grown accustomed and become insensitive to vastly inferior safety records in certain countries, or even regions within,¹⁷² suffering from poor socio-economic conditions. As it will be demonstrated in subsequent chapters, it becomes apparent that these national variations are inherently linked to each government's (in)effective regulation and safety oversight, as well as inadequate infrastructure. In both their respective studies, IATA and the WHO noted that a lack of government oversight, enforcement and adequate standards are often the culprits behind these compelling disparities. As such, recognizing the variability of State actions, or lack thereof, could very well explain the wavering accident statistics between countries across ICAO's membership.¹⁷³

6. The Nexus between the *Chicago Convention* and Northern Canada

6.1 *The Origins of the Asymmetric Regulation of Safety*

Based on the foregoing, how does ICAO's international *system* relate to the existence of safety disparities in Northern Canada's civil aviation network? The key takeaway from this chapter

¹⁷⁰ "2020 Safety Report", (2020), online: *International Civil Aviation Organization* <<https://libraryonline.erau.edu/online-full-text/icao-safety-reports/ICAO-Safety-Report-2020.pdf>> at 29.

¹⁷¹ *Global Status Report on Road Safety* (Geneva, Switzerland: World Health Organization, 2015) at 6.

¹⁷² For instance, the Kamchatka Peninsula, a very remote and underdeveloped region in Russia, has struggled with poor regional accident statistics. See Mansour Mirovalev, "Plane crash emphasises Russian poor safety record, regional woes", (8 July 2021), online: *Al Jazeera* <<https://www.aljazeera.com/news/2021/7/8/plane-crash-emphasises-russian-poor-safety-record-regional-woes>>.

¹⁷³ Ratajczyk, Mikolaj, *supra* note 8 at 5–7.

so far is that by virtue of its adherence to the *Chicago Convention*, Canada's national laws *should* mirror ICAO SARPS, which reflect the universal norms that ought to be followed to prevent accidents. *A contrario*, Canada's failure to follow some of these universally-recognized norms constitutes a *State Factor*, i.e., the root cause of several systemic safety issues that have disproportionately played a causal role in air accidents in Northern Canada, as discussed in the next chapters of this thesis.

By exercising their *internal* and *external* sovereignty in different shapes or forms under the *Chicago Convention*, individual States, such as Canada, indeed play a crucial role in either preventing accidents or tolerating safety deficiencies that can contribute to tragedies. This variability is illustrated internationally between countries; it can also occur within a country when the exercise of its *internal sovereignty* results in an asymmetric regulation between certain regions (e.g., Northern versus Southern Canada), which can lead to internal disparities stemming from State (in)action in specific areas of its national aviation *system*.

In fact, an obvious, yet underestimated gap under the *Chicago Convention's* international framework is that certain SARPs only apply to international carriage,¹⁷⁴ and may not be binding for purely domestic carriage within a country,¹⁷⁵ particularly if a regulated entity has no international nexus. In accordance with the sovereign boundaries established by public international air law, specifically under the *Chicago Convention*, ICAO Member States are—in

¹⁷⁴ *The possibility of introducing a kerosene tax on domestic flights in Germany - Legal Opinion Commissioned by the Federal Environmental Agency*, by Eckhard Pache (Germany: Federal Environmental Agency, 2005) at 20–21: "...it must be taken into account that the intention of the *Chicago Convention* is clearly to promote and facilitate international civil aviation, not domestic air transport. This is made clear both in the official title of the agreement ('*Convention on International Civil Aviation*') and in the wording of the preamble, which consistently makes reference to developing international aviation. Seen against the backdrop of this general intention of the treaty, it would seem appropriate in case of doubt to interpret its provisions in such a way that regulating domestic aviation is left as far as possible to the contracting States themselves".

¹⁷⁵ "Domestic Aviation Fuel Tax in the EU", (January 2019), online: *Transport & Environment* <https://www.transportenvironment.org/wp-content/uploads/2021/07/2010_01_Briefing_domestic_fuel_taxation_briefing.pdf> at 2: "...The *Chicago Convention* is an international treaty designed to promote and facilitate international civil aviation. [...] Therefore, only where specific provisions refer to domestic aviation should they be made applicable to domestic flights, neither of the articles referred to in this note do so and therefore it must be assumed that they apply only in relation to international aviation" (emphasis added).

theory—not required to impose SARPs onto carriers that are not involved in operations between Canada and another country, otherwise known as a domestic air service,¹⁷⁶ particularly if they do not coexist with other carriers operating internationally. Accordingly, systemic safety disparities are more likely to occur from within a country.

In Canada, most northern air carriers solely operate domestic services to/from remote communities, meaning that Canada is not required—by virtue of its internal sovereignty—to impose onto them the universal safety norms promulgated by ICAO. Also, most northern operators are insulated from international air networks and do not interact with international carriers, with the exception of feeder flights to/from major hubs in the South, effectively "segregating" northern air carriers from the international air transportation system governed by the *Chicago Convention*. Given this geographical divide, international carriers are, to a certain extent, immune from the potential risks associated with northern operations, hence why there is no legal requirement and necessity to have the latter group operating in strict accordance with ICAO SARPs.

Granted, the *Canadian Aviation Regulations* (CARs)—Canada's national set of civil aviation safety regulations—largely emulate the SARPs found across ICAO's nineteen annexes. Therefore, SARPs necessarily spill over into the domestic market's regulatory framework to ensure that uniform rules are followed across the skies of the Great White North, notwithstanding if aircraft are engaged in international or domestic operations. Generally speaking, core safety requirements (e.g., licensing standards, basic rules of the air, weather minima, air navigation procedures, etc.) will apply equally to all Canadian aircraft and operators—without discrimination.¹⁷⁷ In addition to protecting our wellbeing and maintaining a form of compatibility

¹⁷⁶ *Canada Transportation Act*, SC 1996, c 10 at ss 55(1). Under Canadian law, a domestic service is defined as "an air service between points in Canada, from and to the same point in Canada or between Canada and a point outside Canada that is not in the territory of another country."

¹⁷⁷ McGill University, *supra* note 3 at 262.

between both categories of operations, there are obvious legal and practical reasons why domestic carriers are subject to a common set of core safety rules also followed by international carriers:

The coexistence of two separate sets of standards, one for Canadian aircraft and personnel likely to engage in, or who are engaged in, international air navigation and a less demanding standard for Canadian aircraft and personnel not intending to engage in international air navigation, would be cumbersome, duplicative and impractical. [...] The existence of a lower standard would place in jeopardy the Canadian aircraft engaged in international air navigation. Furthermore, there is no demand for a parallel system as the second system would deny Canadian aircraft the fundamental quality of the aircraft, its mobility and its flexibility.¹⁷⁸

However, Part II of this thesis (Chapters 4 to 6) will demonstrate that when it comes to northern operators in Canada, there exist numerous regulatory and policy carve-outs exempting certain carriers, aeronautical infrastructure and even safety inspectors from conventional safety norms and oversight mechanisms that are otherwise applicable to international operations. These exemptions are mostly geared towards newer, more sophisticated SARPs that are deemed either too costly to implement or incompatible with the current realities of domestic northern operators. Yet, they preclude the latter category from critical safety benefits and effectively maintains the North under an antiquated safety regime "frozen" in time, where certain aircraft requirements, operating procedures, surveillance policies and infrastructure standards are well-below 21st century norms currently followed by reputable airlines worldwide. Over time, this asymmetric treatment has distanced the North away from contemporary regulatory and oversight regimes, thus widening the gap even further. This may explain why northern aviation still conducts some operations in rudimentary conditions akin to those that existed over half a century ago and why the North still faces ancient safety threats that were eradicated in the South a long time ago.

It has been noted that "lower standards may be justified by special circumstances, but the administration must be in a position to make it credible and dissuasive defense of the lower

¹⁷⁸ *Ibid* at 261–261.

standard."¹⁷⁹ There can indeed be various reasons why a State decides to apply a differential treatment to purely domestic carriers, namely to accommodate unique national or regional characteristics and challenges, as well as economic and efficiency imperatives.¹⁸⁰ For example, in non-safety settings, Canada has exempted smaller transportation service providers in Northern Canada (e.g., air carriers and airports) from specific requirements pertaining to accessible transportation and air passenger regulations,¹⁸¹ as well as environmental norms stemming from ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).¹⁸² These carve-outs are presumably designed to alleviate the financial burden and operational congruity issues that could arise from the implementation of these norms in smaller, remote and struggling markets, with a view of achieving sustainable transport.¹⁸³ Depending on one's perspective, these *legal* exemptions may be *morally* debatable,¹⁸⁴ as they can take on deadly proportions when applied to safety norms designed with the intent of preventing injuries and fatalities.

As such, failure to implement and enforce SARPs across a national air transportation system, with exclusions for northern domestic operators, can expose a civil aviation authority to considerable criticism.¹⁸⁵ This is because "the standards prescribed under the *Chicago Convention* are arrived at by a process of consensus between contracting States and as such are

¹⁷⁹ *Ibid* at 262.

¹⁸⁰ This asymmetry may not necessarily reflect a country's contempt against international norms; it may very well be an issue in their design which effectively disregards the unique reality of specialized aviation markets, for instance, "bush" operators servicing remote communities.

¹⁸¹ See "Discussion paper: Accessible Transportation Guidelines for Medium and Small Transportation Service Providers", (2 December 2020), online: *Canadian Transportation Agency* <<https://otc-cta.gc.ca/eng/discussion-paper-accessible-transportation-guidelines-medium-and-small-transportation-service?wbdisable=true>>; "Air Passenger Protection - Large and Small Airlines", (15 July 2019), online: *Canadian Transportation Agency* <<https://rppa-appr.ca/eng/large-and-small-airlines>>.

¹⁸² Transport Canada, "Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)", (5 May 2023), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/carbon-offsetting-reduction-scheme-international-aviation-corsia>>.

¹⁸³ *Moving on Sustainable Transportation (MOST)*, by Transport Canada (Ottawa, ON: Transport Canada, 1999): "The goal of sustainable transportation is to ensure that environment, social and economic considerations are factored into decisions affecting transportation activity" à; reproduced in Todd Litman, "Issues in Sustainable Transportation" (2006) 6:4 *International Journal of Global Environmental Issues* 331–347 at 333.

¹⁸⁴ See Upama Bhattacharjee & J Rakesh, "Chapter 1.3 - Air Transport System Emerging Environmental Issues" in Ram Jakhu, Sanat Kaul & Kuan-Wei Chen, eds, *Emerging Trends in Aviation and Space Applications: Legal, Safety and Policy Issues* Monograph Series II (Montréal, QC: Centre for Research in Air and Space Law, 2014) 39 at 43–44.

¹⁸⁵ McGill University, *supra* note 3 at 262.

a highly authoritative expression of what is the desirable level of safety."¹⁸⁶ However, even though ICAO's universal norms reflect an authoritative floor for safe and acceptable behaviour in civil aviation, and have a proven track record in mitigating risks worldwide, any State—including Canada—has the sovereign prerogative under international air law to exempt its purely domestic carriers from universally-accepted safety rules, if it wishes to do so. In other words, "what happens in Canada stays in Canada".

Yet, ICAO SARPs are often written in the blood of past tragedies with a view of preventing their reoccurrence.¹⁸⁷ Together, these norms aim to implement a zero-accident policy objective and reflect the baseline behaviour that ought to be followed within and between countries worldwide. Regardless of the carrier, not following SARPs by virtue of not being legally bound by them domestically erodes away safety margins designed to protect our wellbeing, meaning that any carve-outs exempting domestic carriers from universal norms will necessarily remove critical safety barriers and increase accident risks.¹⁸⁸

This brings us to the realization that in some circumstances, ICAO SARPs may be designed and implemented only to serve the interests of *international* carriers—not domestic ones. If one pushes this argument further, the express purpose of the *Chicago Convention* and ICAO SARPs, as documented by their historical origins, is *not* to protect small carriers servicing indigenous communities in Northern Canada, but rather to look after the "safe, regular, efficient and economical"¹⁸⁹ development of international air transportation.¹⁹⁰

¹⁸⁶ *Ibid.*

¹⁸⁷ See René David-Cooper, "Don't Drink and Drive, Smoke and Fly: A Clearance for Pilots to Get High?" (2014) 29 *Annals of Air and Space Law* 555 at 575.

¹⁸⁸ For example, the blacklisting of foreign carriers by other States on the basis of non-compliance with SARPs illustrates how operating below this floor is viewed as an increased threat and unacceptable risk serious enough to bar substandard operators from entering a country's airspace. This approach is grounded on the basis that any deviation from these universal norms is accompanied by heightened accident risks. See Md. Tanveer Ahmad, *supra* note 145.

¹⁸⁹ *Convention on International Civil Aviation, 7 December 1944, supra* note 57 at para 44(d).

¹⁹⁰ The universality of international air law, despite being a driving force in the advancement of global safety, has the adverse potential of disregarding minority interests whose aviation landscape is drastically different from mainstream aviation markets. International norms are arguably developed to accommodate dominant and major airlines flying to

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This structural asymmetry stems from the notion of sovereignty enshrined under the *Chicago Convention* where *externally*, States agree to follow uniform rules when flying from one country to another, but *internally* can dictate otherwise in their own backyards. The potential for differential treatment with domestic carriers highlights ICAO's inability under this treaty to compel its Member States to implement the safety benefits of SARPs both for international and domestic carriage. This zone of distinction—international vs domestic operators—resulting from the limited scope of ICAO's jurisdiction and the lack of enforceability of the *Chicago Convention* within countries for domestic operations can result in international carriers benefiting from universal norms, whilst potentially affording domestic air operators with inferior standards and exposing them higher accident risks. In Canada, this results in the division of the aviation market into two distinct systems—Northern and Southern Canada (see Chapters 4 and 5 *infra*), which simply does not make sense from a safety standpoint.

One can also assume that while ICAO Member States strive to meet and satisfy their international commitments, there is less incentive and no strict legal obligation to attain that same level of safety domestically, particularly in less-known, remote markets, where northern air accidents yield less public attention and are often anecdotally reported on in a side column at the back end of newspapers. The foregoing statements are not meant to argue that *all* domestic carriers are less safe than international carriers, but rather to highlight the potential drawbacks associated with the sovereign discretion that States have in extending ICAO SARPs internally to domestic operations. ICAO SARPs should be implemented equally to all nationally-registered carriers regardless of the type of operations they are involved in, but as described later in this thesis, smaller northern operators are exempted from crucial regulatory and oversight safeguards.

and from large airports, such as Dubai, Singapore, Los Angeles, Hong Kong, Paris and London; the reality in remote communities in Canada, such as Kuujuaq, Resolute Bay, Fort McPherson, Deline or Rankin Inlet, is likely not on ICAO's radar when SARPs are proposed and adopted.

This effectively divides Canada's civil aviation market into two castes: the privileged South and the marginalized North.

So why offer the golden safety standard to one category and not the other? Regardless of the geographical region, the existence of two regulatory regimes—one aligned with international norms and the other non-compliant—is irrational, impractical and *prima facie* discriminatory by design, as it precludes northern indigenous residents from attaining the same safety benefits afforded under law to the remainder of the Canadian population. On the one hand, this approach assumes that because a domestic carrier is not involved in international operations, it is not *legally* required to be captured by ICAO SARPs. Consequently, this approach prevents that carrier from ever conducting cross-border flights and over time, precludes it from having any meaningful participation in global civil aviation, which further increases its marginalization.

More importantly, it assumes that one group will follow and benefit from more stringent norms, while the other operates below an acceptable safety benchmark endorsed by 193 ICAO Member States. This conjecture accepts that the latter is more susceptible to accidents by virtue of being domestic and subjected to lower safety standards. The potential for two co-existing regimes may therefore explain the existence of localized safety disparities between international and domestic carriers, as illustrated by the differential treatment afforded to northern carriers in Canada versus international carriers that dominate southern markets. Applied to the context of this thesis, the built-in structural gaps under the *Chicago Convention* may explain why Northern Canada, which is almost exclusively serviced by domestic carriers, is exposed to higher safety risks by virtue of not being bound by ICAO SARPs.

The international governance of civil aviation therefore acts like a centrifuge, where a central force maintains dominant priorities at the core of its system and ejects weaker particles (minority interests) into the abyss. The resulting asymmetry (international vs domestic) under the *Chicago Convention* reflects a structural paradox, considering that one of the underlying

objectives under this treaty is to avoid discrimination in civil aviation. However, this principle solely applies between *Contracting States*, and again does not apply within a country (e.g., to marginalized populations inside that State).¹⁹¹ Accordingly, ICAO lacks jurisdiction to address the differential treatment of domestic air operations within a country, and is thus likely to turn a blind eye to discriminatory practices within an ICAO Member State, *unless* such practices actually threaten *international* civil aviation.

6.2 *The Government of Canada's Fiduciary Duty Over Northern Aeronautical Activities*

Faced with this potential legal vacuum, one must wonder if the Government of Canada is absolved from any public and legal responsibility towards the safety of northern indigenous residents who rely on air transportation? The apparent jurisdictional limitations under the *Chicago Convention* with respect to domestic air operations may indeed leave northern indigenous residents with weaker safeguards and thus exposed to inferior standards known to contribute to higher accident risks. For example (as discussed *infra* in Chapter 4), Canada has exempted smaller carriers, which predominantly operate in Northern Canada, from international norms requiring air carriers to implement a safety management system (SMS)—the cornerstone of ICAO's contemporary approach to safety and oversight under Annex 19 to the *Chicago Convention*. This prime example highlights how ICAO's tentacles have a limited reach within a country's national boundaries, namely in Northern Canada, seeing that the *Chicago Convention* cannot compel national governments from applying *all* elementary principles of safety and oversight to purely domestic matters.

However, in the author's opinion, there may exist a counterweight to this asymmetry that could be argued under Canadian public law, wherein the Government of Canada owes an equal

¹⁹¹ *Convention on International Civil Aviation, 7 December 1944, supra* note 57 at para 44(g): "The aims and objectives of the Organization are to develop the principles and techniques of international air navigation tins- to foster the planning and development of international air transport so as to (...) Avoid discrimination between contracting States."

duty of safety towards northern indigenous residents, specifically in the measures it takes to govern aeronautical activities up North. Given the importance of air transportation for the survival of northern indigenous populations, it could be argued that when exercising its safety mandate, the MOT stands in a special fiduciary duty relationship with indigenous communities that rely on air transportation for their survival.¹⁹²

The SCC has stated that a fiduciary duty can be established *inter alia* from an express or implied undertaking to “act in the best interests of the alleged beneficiary or beneficiaries.”¹⁹³ Such an undertaking can be established in situations where there exists “a defined person or class of persons vulnerable to the fiduciary’s control (the beneficiary or beneficiaries),” and “a legal or substantial practical interest of the beneficiary or beneficiaries that stands to be adversely affected by the alleged fiduciary’s exercise of discretion or control.”¹⁹⁴

In Northern Canada, local indigenous populations depend on air services for their survival, i.e., to access essential services (e.g., medical treatment) and obtain basic goods (e.g., food, fuel, clothing, etc.). Accordingly, a novel undertaking could be established by arguing that (1) the MOT is the sole provider of regulatory and enforcement activities; (2) the safety of northern indigenous residents is dependent on the MOT’s (in)action over the regulation and oversight of northern carriers; and (3) there is an interest of the northern indigenous residents which stands to be adversely affected by the exercise of the MOT’s discretion and control over civil aviation, namely their wellbeing and safety.¹⁹⁵ The latter consideration is particularly important given the MOT’s discretion to apply or deviate from universal safety norms in the context of northern air operations,

¹⁹² *Manitoba Metis Federation Inc. v Canada (Attorney General)*, 2013 SCC 14 at para 49: “In the Aboriginal context, a fiduciary duty may arise as a result of the “Crown [assuming] discretionary control over specific Aboriginal interests”: *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73, [2004] 3 S.C.R. 511, at para. 18. The focus is on the particular interest that is the subject matter of the dispute: *Wewaykum Indian Band v. Canada*, 2002 SCC 79, [2002] 4 S.C.R. 245, at para. 83. The content of the Crown’s fiduciary duty towards Aboriginal peoples varies with the nature and importance of the interest sought to be protected: *Wewaykum*, at para. 86.”

¹⁹³ *Ibid.*

¹⁹⁴ *Ibid.*

¹⁹⁵ See *Canada (Attorney General) v Nasogaluak*, 2023 FCA 61 at para 58.

which increases the vulnerability of local indigenous populations, i.e., their exposure to higher risks and less reliable air transportation services.

It is undeniable that the MOT has a very broad latitude in how it funds, delivers and/or maintains equality in the provisioning of its infrastructure, regulatory, policy and enforcement services in Northern Canada. Moreover, the Government of Canada has a responsibility to act in the best interest of northern indigenous residents, particularly by virtue of having federal jurisdiction over the three territories up North,¹⁹⁶ which are mainly populated by indigenous residents. Accordingly, northern indigenous populations are vulnerable to the MOT's exercise of, or failure to exercise, its discretion and authority in the field of civil aviation. As the promoter¹⁹⁷ and guardian of civil aviation safety, the MOT ultimately bears the responsibility of maintaining substantively equal access to safe and reliable methods of transportation, through the laws, policies and administrative decisions it issues and implements in the field of civil aviation.

In the context of Nunavut, a *heightened fiduciary duty* could also be established "as a result of the Crown assuming discretionary control over specific Aboriginal interests."¹⁹⁸ The SCC has stated that "where the Crown administers lands or property in which Aboriginal peoples have an interest, such a duty may arise if there is (1) a specific or cognizable Aboriginal interest, and (2) a Crown undertaking of discretionary control over that interest."¹⁹⁹ In the context of Nunavut, this federal territory was created following the ratification of the *Nunavut Land Claims Agreement*

¹⁹⁶ Under section 91(1A) of the *Constitution Act, 1867*, 30 & 31 Vict, c 3, a territory is a creature of the federal government, deriving its existing from a federal statute and thus subject to the exclusive jurisdiction of the Government of Canada. Unlike provinces, territories in Canada do not have inherent jurisdiction and only possess the powers delegated to them by the federal government. As Parliament has granted the Governor in Council the ultimate control over the exercise by a territorial government of its legislative power, territories do not have the legal status of a province and therefore have no powers under the *Constitution Act*. See *Fédération Franco-ténoise v Canada (C.A.)*, 2001 FCA 220 at paras 39-43; André Braën, *Le statut des langues autochtones au Canada : Le cas de l'inuit au Nunavut*, 2009 87-3 *Revue du Barreau canadien* 741 at 742

¹⁹⁷ See *United States v Varig Airlines*, 467 U.S. 797 (1984), where the U.S. Supreme Court stated that the Secretary of Transportation and the Federal Aviation Administration, the equivalent of Canada's MOT, had "the duty to promote safety in air transportation by promulgating reasonable rules and regulations governing the inspection, servicing, and overhaul of civil aircraft" (emphasis added).

¹⁹⁸ *Manitoba Metis Federation Inc.*, *supra* note 192 at para 208.

¹⁹⁹ *Ibid.*

(NLCA), under which the Government of Canada settled land claims, i.e., the aboriginal interests at stake, made by the Inuit under Section 35 of the *Constitution Act*.²⁰⁰ Given the federal authority over "Indians, and lands reserved for the Indians,"²⁰¹ there is an apparent Crown undertaking of discretionary control over Nunavut's aboriginal interests, which should encompass a duty to ensure the safety of air transportation services that operate in that territory.

For both types of relationships mentioned above, it could be argued that a fiduciary duty is owed towards northern indigenous populations who rely on air transportation, which in practice should translate into *equal* safety standards and benefits under law, equivalent to what is provided to the rest of Canada and thus in line with ICAO SARPs. The *Chicago Convention* may not be binding *per se* for northern air carriers operating domestically, however, such a fiduciary duty could be established and interpreted as a means to ensure that this treaty's safety norms are equally applied in the North, by virtue of the dependence of its indigenous residents towards civil aviation and their vulnerability to State (in)action.

The existence of such a fiduciary duty remains a theoretical aspiration that has not been tested in court; in fact, similar arguments have failed to succeed recently in analogous cases involving the public safety and policing of northern communities.²⁰² However, the law of fiduciary duties towards indigenous groups is a fast-evolving area in Canadian jurisprudence, therefore this proposed fiduciary duty in the field of aviation safety may offer an interesting path of reflection for future research. Exploring this proposal further unfortunately falls outside the scope of this thesis, but it nonetheless offers an additional lens through which we can consider the safety issues discussed later in this thesis.

²⁰⁰ The NLCA was given legal effect through the federally enacted *Nunavut Land Claims Agreement Act*, SC 1993, c 29. It is also interesting to note that section 49 of the *Nunavut Act*, SC 1993, c 28, uses the same wording found in the *Indian Act*, RSC 1985, c I-5, for land titles, and specifies that unless sold/disposed of, land in Nunavut "remains vested in Her Majesty in right of Canada", i.e. federal land. Nunavut therefore constitutes a federal territory covered by an aboriginal land claim settlement.

²⁰¹ *Constitution Act*, 1867, 30 & 31 Vict, c 3, ss 91(24).

²⁰² See *Nasogaluak*, *supra* note 195.

7. Chapter 2—Summary & Key Takeaways

Based on the foregoing, we can conclude that *State Factors* (as defined in Chapter 3) can exist both on the international scene, i.e., the variance in safety records between States, and domestically, i.e., within a country where there can exist a form of uneven regulation between operator categories and/or geographical regions (e.g., Northern Canada). As we will see in Part II of this thesis (Chapters 4-5-6), the asymmetrical regulation and oversight of domestic carriers in Canada is particularly prevalent in the North, which may explain the existence of localized safety phenomena that are inexistent in the South. Whether intended or not, the effects of this differential treatment disproportionately affects northern indigenous communities.

More broadly, the purpose of this chapter was to demonstrate how the *Chicago Convention's* inherent gaps and limitations can contribute to irregularities in a State's safety performance, a fundamental characteristic of the *State Factor*, which will be further defined and analyzed in Chapter 3. The resulting conclusions of this chapter also suggest that the dual aspect of sovereignty (internal/external) undoubtedly fuels the variability and global disparities in the implementation of SARPs, or in other words, legitimizes instances of non-compliance at the State-level, which can in turn contribute to varying accident statistics both internationally and domestically. It is apparent from the foregoing conclusions that the nationalistic nature of an individual State's sovereign decision to implement (or not) ICAO SARPs is likely reflected in its distinct safety statistics and consequently, may also be tied to the causation of accidents. While "safety" should be independent from any national, geographical or ethnic interest, particularly given its *erga omnes* nature, it can be tainted by the variable exercise of sovereignty by individual ICAO Member States through their distinct behaviour and actions.

We can thus conclude that "safety" has a distinct "nationality" in each State: it is regulated and overseen differently by 193 unique ICAO Member States. By doing so, each country effectively confers a distinct national character to its overall safety performance, which—as we will see in

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Chapter 3—reflects the basis for the State's unique causal role in certain accidents. But as noted in Chapters 4 & 5, *State Factors* can also have regional manifestations within a country, in part due to the limited jurisdictional applications of the *Chicago Convention* over domestic air operations.

Therefore, the findings presented in this chapter will be invaluable building blocks in the following chapters, in order to establish the existence of *State Factors*; assess their relationship with the safety issues experienced by indigenous; and confirm whether there exists a form systemic discrimination within the regulatory framework governing the Canadian aviation industry.

CHAPTER 3 – DEFINING STATE FACTORS IN CIVIL AVIATION

1. Introduction

Chapter 1 highlighted the central role of States in the regulation and oversight of air safety at the dawn of aviation. Chapter 2 demonstrated how under international air law, this central role is exercised pursuant to each State's sovereign rights and responsibilities, which are circumscribed under the *Chicago Convention*. Chapter 2 also noted how this treaty's framework enables some countries to depart from international safety norms and produce uneven levels of compliance, thus reflecting a distinctive national character to aviation safety in each State. Chapter 3 will consider how the combination of these considerations can induce governance errors at the State-level that ultimately contribute to higher risks and a disproportionate number of aircraft accidents in the North.

In order to make the argument later in this thesis that uneven safety levels in the North constitute a form of systemic discrimination, one must first demonstrate how impugned laws and/or State (in)action on their face or in their *impact*, create a distinction based on enumerated or analogous grounds, and impose burdens or deny a benefit in a manner that has the effect of reinforcing, perpetuating, or exacerbating a disadvantage towards indigenous people.¹ Accordingly, there must be a relationship between the personal characteristics and the adverse treatment, i.e., a link between the affected group (northern indigenous populations) and the State's adverse treatment.² The SCC has noted that this exercise implies the identification of protected characteristics that are "causally" linked to the adverse treatment:

¹ See *Fraser v Canada (Attorney General)*, 2020 SCC 28 at para 27; *British Columbia v Crockford*, 2006 BCCA 360 at para 49: "A complaint of systemic discrimination is distinct from an individual claim of discrimination. Establishing systemic discrimination depends on showing that practices, attitudes, policies or procedures impact disproportionately on certain statutorily protected groups."

² See *Vancouver Area Network of Drug Users v Downtown Vancouver Business Improvement Association*, 2018 BCCA 132.

[175] ... A search for impact is a search for causation. The inquiry here is into whether the gap in outcomes is fully explained by pre-existing disadvantage or whether state conduct has contributed to it. In other words, s. 15 is concerned with state conduct that contributes to—that is, *augments*—pre-existing disadvantage [...]

[176] Further, the analysis is directed to “the effects of the challenged law or action on the claimant group” [...] While disadvantage may persist with or without the impugned law or state action, a demonstration that it has the *effect* of contributing to that disadvantage is necessary.³

Such a connecting link must go beyond conjectural findings (for example, based on the correlation of various information and coincidental factors): there must be a connexion between a defined State (in)action and the alleged disadvantage,⁴ in our case being the MOT’s adverse impact on safety risks that disproportionately affect northern indigenous populations who rely on air transportation services. Systemic discrimination is often unintentional,⁵ but so are tragic errors made by aircrews, airline management, aircraft manufacturers, etc. Similarly, government decision-makers are often not conscious that their (in)actions can produce unintended effects on the safety of civil aviation: State governments, like private enterprises and individuals, can each play a role in the chain of events leading up to a crash. *Intentional* choices made by politicians and government officials (e.g. decisions to not allocate funds, assign State resources, regulate and intervene) can contribute to *unintentional* results, such as higher risks, tragic accidents and systemic safety issues.

In light of the above, the key question we must ask ourselves is whether repeated failures at the State-level, which disproportionately affect a group of individuals, can be the basis for a breach under the *Charter*? If State (in)action forms part of the constellation of factors that lead to an adverse effect, i.e. increased safety risks and accident statistics in Northern Canada, then we

³ *Fraser*, *supra* note 1.

⁴ See *Québec (Commission des droits de la personne et des droits de la jeunesse) v Bombardier Inc. (Bombardier Aerospace Training Center)*, 2015 SCC 3; *Coast Mountain Bus Company Ltd. v National Automobile, Aerospace, Transportation and General Workers of Canada (CAW-Canada), Local 111*, 2010 BCCA 447 at para 61; see also *Law Society of Ontario v Henry*, 2022 ONLSTH 142.

⁵ *Chopra v Health Canada*, 2008 CHRT 39 at para 255.

may indeed have sufficient evidence to establish a *prima facie* case of systemic discrimination,⁶ this is precisely what will be argued *infra* in Part II of this thesis.

To do so, Chapter 3 will define what are *State Factors* and how they play a causal role in civil aviation accidents, in order to argue in the following chapters how these factors contribute to higher safety risks in Northern Canada and expose local indigenous populations to higher risks. It must be noted that in traditional literature, much emphasis has been allocated to the role of *technical, human and organizational factors*⁷ in the sequence of events leading up to accidents: this is usually where the train stops in accident investigations and subsequent litigation proceedings.⁸ States are usually not included in the post-accident causation analysis of aviation accidents, nor are they held accountable for their potential role; this restrictive and archaic approach must be revisited and will therefore be challenged throughout Chapter 3.

Indeed, high-profile 21st century occurrences, such as the downing of Flight MH17⁹ and Flight PS752,¹⁰ as well as the negligent role of air traffic control—a mandatory State function

⁶ Elizabeth A Sheehy, "Causation, Common Sense, and the Common Law: Replacing Unexamined Assumptions with What We Know about Male Violence against Women or from Jane Doe to Bonnie Mooney" (2005) 17:1 Canadian Journal of Women and the Law 87–116 at 113.

⁷ These factors will be explained *infra* in Section 3.3.

⁸ Virgil Moshansky & Donald L Van Dyke, "The Role of the Judiciary in Aviation Safety the inside Story and Legacy of Dryden Revisited" (2012) 37 Annals of Air and Space Law 47–80 at 60: "During the Dryden hearings, the question of who speaks for the public in aviation safety issues was often raised. The public still continues to be without direct representation in aviation concerns. When the system breaks, the executive branch of government determines causality and identifies violations of legislative branch requirements. No one accountable to the public acts to establish the basis and appropriateness of these requirements and as to whether executive branch actions are sufficient and competently performed".

⁹ See Dutch Safety Board, *Crash of Malaysia Airlines Flight MH17 - Hrabove, Ukraine, 17 July 2014* (The Hague, Netherlands: Dutch Safety Board, 2015).

¹⁰ See Motjaba Eshraghi Arani, "The Downing of Ukraine International Airlines Flight 752 in Iran: A Legal Analysis of the Compensation that Iran Should Pay to the Victims' Relatives" (2020) 45:1 Annals of Air and Space Law 105–132; *Flight PS752 Accident Investigation - Final Report*, by The Aircraft Accident Investigation Board of the Islamic Republic of Iran (Tehran, Iran: The Aircraft Accident Investigation Board of the Islamic Republic of Iran, 2021); Transportation Safety Board of Canada, "Air transportation safety investigation A20F0002, Missile Strike, Boeing 737-800, Ukraine International Airlines near Tehran Imam Khomeini International Airport, Tehran, Iran, 8 January 2020", (18 March 2021), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2020/a20f0002/a20f0002.html>>.

under the *Chicago Convention*—in the 2002 Überlingen mid-air collision,¹¹ clearly demonstrate that negligent (in)action by State entities,¹² can contribute to major tragedies.¹³ This is also true for a State's indirect, yet deadly contribution in recent accidents, such as the FAA's flawed certification process for the Boeing 737-MAX.¹⁴ Each of these accidents was rooted in and caused by government actions (or lack thereof), i.e. *State Factors*. As such, if governments can play a role in accidents, then we could have sufficient evidence in certain circumstances to argue that State (in)action in civil aviation can also contribute to forms of systemic discrimination.

Chapter 3 will push the traditional boundaries of air accident causation models and demonstrate that State (in)action constitutes a fourth distinct element—the *State Factor*—that also plays a role in aviation occurrences. It will be argued that a breakdown in governance, such as States failing to take action or making flawed decisions,¹⁵ should also be included and examined in contemporary accident causation models. As such, Chapter 3 introduces a fourth

¹¹ *Investigation Report, Accident, 1 July 2002 (near) Ueberlingen/Lake of Constance/Germany, Boeing B757-200 & Tupolev TU154M*, by German Federal Bureau of & Aircraft Accidents Investigation, AX001-1-2/02 (Braunschweig, Germany: Bundesstelle für Flugunfalluntersuchung, 2004).

¹² In both accidents (MH17 and PS752), the State of occurrence failed to close down its airspace in the midst of active military activities. That being said, it is easy to blame Ukraine and Iran for not closing their airspaces during their respective conflicts in 2014 and 2020. We must remember, however, that Malaysia Airlines knowingly operated MH17 over an active warzone, where many aircraft had been shot down. The same applies to Ukraine, who allowed Ukraine International Airlines to operate to and from Iran during an unstable period when military activities were anticipated in the region. In addition to the State of Occurrence, the States of registry for both downed aircraft must also accept their share of responsibility for allowing their national airlines to fly across an active warzone.

¹³ Adejoke O Adediran, "States' Responsibility concerning International Civil Aviation Safety: Lessons from the Malaysia Airlines Flight MH17 Air Crash" (2015) 14:2 *Issues in Aviation Law and Policy* 313–338 at 330: "An advice to Ukraine on the safety of its airspace might have prompted it to close the affected airspace instead of restricting it to 32,000 feet. Even though Ukraine had the duty to prevent the incident by ensuring that its airspace was safe enough for flights, the principle of responsible sovereignty requires from each State a sense of responsibility toward other States and the international community at large. In this situation, States owe the international community the duty to contribute toward ensuring the safety of global air transportation. A full closure of the airspace over the area where the armed conflict was taking place would be appropriate and would have prevented the incident".

¹⁴ Democratic Staff of the House Committee on Transportation and Infrastructure, "The Boeing 737 MAX Aircraft: Costs, Consequences, and Lessons from its Design, Development, and Certification -Preliminary Investigative Findings", (March 2020), online: *House Committee on Transportation and Infrastructure* <https://www.govinfo.gov/content/pkg/GOVPUB-Y4_T68_2-fb0f3812fefe3515ebcf3f4170fce64b/pdf/GOVPUB-Y4_T68_2-fb0f3812fefe3515ebcf3f4170fce64b.pdf> at 12: "... the FAA's certification review of Boeing's 737 MAX was grossly insufficient and that the FAA failed in its duty to identify key safety problems and to ensure that they were adequately addressed during the certification process. The combination of these problems doomed the Lion Air and Ethiopian Airlines flights".

¹⁵ Barak Orbach, "What Is Government Failure?" (2013) 30 *Yale Journal on Regulation* 44–66 at 46.

factor in the field of aviation safety—*State Factors*—which are an essential foundation for establishing later in this thesis how the uneven regulation and oversight of northern aeronautical activities by the MOT contribute to patterns of systemic discrimination.

2. “Accidents Are Caused by Pilot Error”: Breaking the Myth

No accident occurs without a cause,¹⁶ hence why it is crucial to identify its source(s) from knowledge of the effect,¹⁷ in order to rectify safety deficiencies. In the early days of civil aviation, blame and liability were often exclusively placed on aircrews following accidents.¹⁸ But blaming “pilot error” is an outdated philosophy in the field of air safety investigations,¹⁹ particularly since it omits to recognize how many accidents were avoided and how many lives were saved as a result of favourable human interventions.²⁰ It also falsely implies that removing the “bad apple” from the equation, i.e., the culpable pilot(s), will fix the system and that no further remedy is necessary.²¹

In reality, a single cause of failure in commercial aviation, i.e., a pilot’s wrong and/or negligent decision,²² rarely contributes on its own to an accident.²³ Air accidents always build upon a series of sequential events spanning over several minutes, hours, days and sometimes even years,²⁴

¹⁶ James E Hall, “Aviation Safety in a Congested Environment” (2001) 2001–2004 Issues in Aviation Law and Policy 1051–1060 at 1056.

¹⁷ Erik Hollnagel, David D Woods & Nancy Leveson, *Resilience Engineering* (Burlington, VT: Ashgate Publishing Company, 2006) at 28.

¹⁸ See generally Robert Cohn, *They Called It Pilot Error: True Stories Behind General Aviation Accidents* (New-York, NY: Tab Books, 1994).

¹⁹ Safety Regulation Group, “CAP 719 - Fundamental Human Factors Concepts”, (15 February 2002), online: *United Kingdom Civil Aviation Authority* <<http://publicapps.caa.co.uk/docs/33/CAP719.PDF>> at 1: “The term “pilot error” is of no help in accident prevention. In fact, it is often counterproductive because, although this term may indicate WHERE in the system a breakdown occurs, it provides no guidance as to WHY it occurs. An error attributed to humans in the system may have been design-induced or stimulated by inadequate training, badly designed procedures or the poor concept or layout of checklists or manuals. Further, the term “pilot error” allows concealment of the underlying factors which must be brought to the fore if accidents are to be prevented”.

²⁰ Jose Sanchez-Alarcos Ballesteros, *Improving Air Safety through Organizational Learning Consequences of a Technology-led Model* (Burlington, VT: Ashgate Publishing Company, 2007) at 39.

²¹ Sidney Dekker, *The Field Guide to Understanding Human Error* (Burlington, VT: Ashgate Publishing Company, 2006) at 10–11.

²² See for example, *R v Tayfel (M.)*, 2009 MBCA 124.

²³ *Ibid* at 80.

²⁴ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 2–3.

and stem from a multifaceted set of deeply rooted issues²⁵ going beyond a single person's unfortunate error(s).²⁶ For these reasons, modern-day aircraft accidents are now examined with a broader perspective that excludes any tunnel-vision approach wherein accidents are deemed to have been caused by a single and fateful act. In this day and age, particularly with the modernization of civil aviation technology and the sophistication of regulations, there is rarely a single and isolated event or point of failure, which can on its own trigger an accident.²⁷

On the surface, it may appear obvious that a pilot's incorrect decision, e.g., attempting to land in a violent storm below weather minima or without functioning aircraft instruments, constitutes the only discernible cause of an accident. For members of the public, significant blunders and palpable regulatory deviations can be shocking at first, difficult to rationally comprehend and lead us to believe that the aircrew were obviously negligent and fully responsible. Who else could possibly be to blame for such brazen and careless acts, despite being prohibited by clear procedures, regulations, and/or training?

Even today, mainstream media and Internet sleuths will often misinterpret accident reports and disseminate the misleading conclusion that an accident was caused by "pilot error".²⁸ This approach is fallacious; not only does it falsely assign the entire responsibility to pilots, but it also ignores the distinct nature of various factors that come into play in commercial aircraft accidents. It is true that human actions and inaction are often the only visible triggers in accidents, as *human performance* is admittedly cited as a recurring factor in approximately 90% of aviation accidents.²⁹

²⁵ E.g. technical, human and organizational factors, as discussed *infra*.

²⁶ Ronnie Gipson, "The Chicago Convention Should Not Be Used to Create Criminals" (2017) 42 *Annals of Air and Space Law* 83–113 at 91.

²⁷ See generally René David-Cooper, *Implementing Safety Management Systems in Aviation: The Legal Impact on Canadian Commercial Air Carriers* McGill University - Institute of Air and Space Law, 2015) [unpublished].

²⁸ See for instance "Pilot error likely caused fatal Air India Express crash, report finds", (13 September 2021), online: *Reuter* <<https://www.cnn.com/2021/09/12/asia/pilot-error-air-india-crash-intl-hnk/index.html>>; "Addison Plane Crash That Killed 10 Was Pilot Error, NTSB Says", (18 May 2021), online: *NBC* <<https://www.nbcdfw.com/news/local/addison-plane-crash-that-killed-10-was-pilot-error-ntsb-says/2635615/>>.

²⁹ James Reason, "Understanding Adverse Events: Human Factors" (1995) 4:2 *Int J Qual Health Care* at 80.

However, “this is not surprising since pilots’ actions are more easily tied to the occurrence of an accident, whereas organizational factors are generally far removed in time and space from an accident, making them difficult to link to an accident during an investigation.”³⁰

Indeed, the contribution of one factor does not exclude the possible role of different external factors, which may be responsible for inducing such considerable variations in human performance.³¹ In fact, accidents often represent only the tip of the iceberg, since below an observable event, there is usually a much larger construct of earlier occurrences and factors whose deadly potential remained submerged and imperceptible until tragedy struck.³² Human error is thus usually a symptom of a more complex ailment.³³

Air tragedies are akin to chemical reactions: most substances are harmless and inert when in isolation but can have explosive effects when combined under the right conditions, namely with the introduction of unstable elements, such as human performance. Except for isolated occurrences,³⁴ no pilot wakes up one morning with the intention of crashing an aircraft. Unsafe decisions or behaviour by frontline staff are usually the by-product of a combination of pre-existing factors which end up clashing in a chain reaction that leads up to a tragic outcome. There is indeed a myriad of factors that can explain why a pilot ends up making a fatal decision

³⁰ Terry von Thaden, Douglas Wiegmann & Scott Shappell, *Organizational Factors in Commercial Aviation Accidents (1990-2000)* (Fairborn, Ohio: Wright State University, 2005) at 802.

³¹ International Civil Aviation Organization, *Doc 9859 - Safety Management Manual (SMM)*, fourth ed (Montréal, Canada: International Civil Aviation Organization, 2018), s 2.2.7; René David-Cooper, “Protecting the Health and Safety of Pilots: A Critical Analysis of Flight and Duty Time Regulations in Canada” (2016) 41 *Annals of Air and Space Law* 81–126 at 85.

³² According to Heinrich’s Law: “in a workplace, for every accident that causes a major injury, there are 29 accidents that cause minor injuries and 300 accidents that cause no injuries” Herbert William Heinrich, *Industrial Accident Prevention, A Scientific Approach* (New-York, New-York: McGraw-Hill book Company, 1931); See also “Heinrich’s Accident Pyramid”, (2024), online: SKYbrary <<https://skybrary.aero/articles/heinrich-pyramid>>: “Heinrich’s law is based on probability and assumes that the number of accidents is inversely proportional to the severity of those accidents. This is commonly depicted as a pyramid”.

³³ Dekker, *supra* note 21 at 4.

³⁴ See for example: Bureau d’Enquêtes et d’Analyses pour la sécurité de l’aviation civile, “Final Report - Accident on 24 March 2015 at Prads-Haute-Bléone (Alpes-de-Haute-Provence, France) to the Airbus A320-211 registered D-AIPX & Operated by Germanwing”, (2015), online: *Ministère de l’Ecologie, du Développement durable et de l’Energie* <https://bea.aero/uploads/tx_elydbrapports/BEA2015-0125.en-LR.pdf>; “Pilot ‘Deliberately Crashed’ Mozambique Plane”, (22 December 2013), online: *BBC News* <<https://www.bbc.com/news/world-africa-25482083>>.

unintentionally. Many of these factors go beyond the individual skills, personality and background of each pilot. Aircrews are often influenced but also at the mercy of their operational environment,³⁵ including their company's safety culture,³⁶ financial health and management style; the working order, maintenance and design of their aircraft; the availability of critical resources to support an operation; as well as the general economic landscape and domestic legal framework under which industry participants must routinely function.

Safety, defined as “the state in which risks associated with aviation activities, related to, or in direct support of the operation of aircraft, are *reduced* and *controlled* to an acceptable level,”³⁷ is indeed a dynamic variable³⁸ influenced not only by human behaviour, but also by a multitude of previous events and external factors involved in some shape or form in the sequence of a doomed flight. One must go beyond the mere decisions taken by individual pilots to understand the broader factors that shape accidents and materialize into tragic outcomes. Pilot behaviour is only one ingredient among a variety of other elements in the complex recipe that leads to an aviation occurrence. As it will be argued *infra*, one of those ingredients often lies at the State-level.

3. Understanding Aircraft Accident Causation

3.1 Scientific Approaches

In aviation, there is no such thing as luck, coincidences or misfortunes as a means to explain why and how an accident occurred. Such events “result from an alignment of conditions and occurrences each of which is necessary, but none alone is sufficient.”³⁹ Humans often play in the

³⁵ Dekker, *supra* note 21 at 159.

³⁶ Alan Waring, *Safety Management Systems* (London, United Kingdom: Chapman & Hall, 1996) at 44–50.

³⁷ *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices - Second Edition*, AN14 2016, International Standards and Recommended Practices at 1–2.

³⁸ International Civil Aviation Organization, *supra* note 30, s 2.1.3.

³⁹ *Revisiting the “Swiss Cheese” Model of Accidents* (Brussels, Belgium: EUROCONTROL, 2006) at 17.

final act of a catastrophe, but the script is usually written and directed by other individuals behind the scenes, with the State often being the lead author of many modern Greek tragedies.

According to Murphy's Law, anything that can go wrong will go wrong: "if there's more than one way to do a job and one of those ways will end in disaster, then somebody will do it that way."⁴⁰ This well-known theory, despite being rudimentary, is still relevant in the 21st century, as it highlights how the presence of one or many gaps in a system has the potential for disaster. Indeed, if individuals are able and/or permitted to do things in more than one way, human nature is likely to take the path of least resistance,⁴¹ i.e., the one with the highest return on investment to save time and money,^{42,43} which may at times disregard safety considerations.⁴⁴ We could even argue that air carriers are like humans under Maslow's theory:⁴⁵ they will often instinctively seek to acquire *money*—their equivalent of air, water and food—before attending their secondary *safety* needs.⁴⁶ It is the sequence of these choices in relation with a multitude of other considerations that allows investigators to understand how an aircraft fell out of the sky.

In practice, air safety investigators must construct causality⁴⁷ following a three-step approach: 1) "the cause must be prior in time to the effect,"⁴⁸ 2) "cause and effect must be contiguous in time and space,"⁴⁹ and 3) "there must be a necessary connection between them, i.e., that there is, or has been, a constant coincidence of cause and effect such that the same cause always has the same effect."⁵⁰ Under this generic method (which shares similarities with the previously mentioned

⁴⁰ See Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 11.

⁴¹ Ballesteros, *supra* note 20 at 5–6.

⁴² Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 147–148.

⁴³ Hollnagel at 147–148.

⁴⁴ Kendal Van Wagner, "Cutting Costs and Cutting Corners - The Safety Risks Associated with Outsourcing Aircraft Maintenance and the Need for Effective Safety Oversight by the Federal Aviation Administration" (2007) 72:3 Journal of Air Law and Commerce 631–658 at 171: "...where there is freedom, there is risk".

⁴⁵ See Chapter 1 *supra*.

⁴⁶ See Waring, *supra* note 35 at 134–135.

⁴⁷ Dekker 76–77

⁴⁸ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 41.

⁴⁹ *Ibid.*

⁵⁰ *Ibid.*; See also Waring, *supra* note 35 at 164.

nexus required when arguing *Charter* violations), there exists various accident causation models that assist experts in the precise identification and examination of the roots causes of accidents,⁵¹ for instance, the SHELL model,⁵² the Functional Resonance Accident Model (FRAM),⁵³ the Accident Evolution Barrier model⁵⁴ and the Swiss Cheese model, all of which can be used to carry out the “*post-mortem* autopsy” of an accident depending on the stated purpose and depth necessary for the investigation in question. These models are *scientifically* based and must not be confused with legal causation theories utilized in civil and criminal law proceedings,⁵⁵ which rely on distinct *legal* principles and are often driven by conflicting motivations to assign blame and liability,⁵⁶ in contrast with the fundamental purposes of an air safety investigation.⁵⁷ That being

⁵¹ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 20: “An accident can be defined (...) as an unforeseen event or occurrence, which results in serious property damage or injury, possibly even loss of life”.

⁵² *Ibid* at 49; SKYbrary, “ICAO SHELL Model”, (2024), online: SKYbrary <<https://skybrary.aero/articles/icao-shell-model>>: “the ICAO SHELL Model, as described in ICAO Doc 9859, Safety Management Manual, is a conceptual tool used to analyse the interaction of multiple system components. It also refers to a framework proposed in ICAO Circular 216-AN31. The concept (the name being derived from the initial letters of its components, Software, Hardware, Environment, Liveware) was first developed by Edwards in 1972”.

⁵³ Wulin Tian & Carlo Caponecchia, “Methodologies for the Analysis and Prevention of Aviation Safety Occurrences” (2020) *Journal of Advanced Transportation* 1–14: “FRAM is a system-based analysis methodology [...] FRAM’s scope has been expanded from an accident model to a more general analysis method, termed the functional resonance analysis method. The gaps between [“work as done”, WAD] and how the work is supposed to be done [“work as imagined”, WAI] generate variabilities in the daily working procedure. Any single instance of variability alone is not able to lead to the accident/incident. However, under specific conditions, these variabilities may lead to functional resonance, causing an undesired outcome or even crashing down the entire system. See also “The Functional Resonance Accident Model” Erik Hollnagel & Orjan Goteman, University of Linköping [2004].

⁵⁴ *Accident Analysis and Barrier Function (AEB) Method - Manual for Incident Analysis*, by Ola Svenson, SKI Report 00:6 (Stockholm University, Department of Psychology, Stockholm, Sweden & Netherlands Institute for Advanced Study in the Humanities and Social Sciences, Wassenaar, The Netherlands, 2000) at 4: “The Accident Evolution and Barrier Function AEB model provides a method for analysis of incidents and accidents that models the evolution towards an incident/accident as a series of interactions between human and technical systems (Svenson, 1991). The interaction consists of failures, malfunctions or errors that could lead to or have resulted in an accident. The method forces analysts to integrate human and technical systems simultaneously when performing an accident analysis starting with the simple flow chart technique of the method”.

⁵⁵ Bruce Campbell, *The Lac-Mégantic Rail Disaster - Public Betrayal, Justice Denied* (Toronto, Ontario: James Lorimer & Company Ltd. Publishers, 2018) at 47: “Criminal law has a very individualistic sense of causation: that every person makes their own choices — free and rational — and therefore they ought to answer for these choices when they lead to bad things. The law ignores a lot of things that make choices less free—in particular, those things that constrain individual choices [...] in ways that suit the prevailing power structures in a neoliberal economy”.

⁵⁶ See Lee S Kreindler, “Our Tort System and Aviation Safety” (1968) 34:3 *Journal of Air Law and Commerce* 497–505; René David-Cooper, “Opening Pandora’s Black Box - Recent Developments in the Statutory Privilege of Cockpit Voice Recorders under Canadian Law” (2023) 22:2 *Issues in Aviation Law and Policy* 249–286.

⁵⁷ *Annex 13 to the Convention on International Civil Aviation - Accident and Incident Investigation (12th Edition) - Standards and Recommended Practices*, AN13 2020, s 3.1: “In aviation, the sole purpose of accident investigations is to prevent the reoccurrence of such accidents. It is not the purpose of aircraft accident investigations to apportion blame or liability”. See also *Canadian Transportation Accident Investigation and Safety Board Act*, SC 1989, c 3 at ss 7(2): “In making its findings as to the causes and contributing factors of a transportation occurrence, it is not the function of the

said, the evidence relied upon by air safety investigators is regularly introduced in legal proceedings⁵⁸ and could therefore be relevant for the purpose of establishing a *Charter* breach, as discussed later in this thesis.

3.2 The Swiss Cheese Model

While each model has its own unique value and relies on distinct schools of thought,⁵⁹ this thesis will rely on James T. Reason's Swiss Cheese model. Although some have questioned this accident model's ability to exhaustively investigate the interlinkage of each contributory element as well as their origins,⁶⁰ this sequential model is particularly suitable to characterize—for the purpose of this study—the *nature* and *effect* of the State's (in)action in the high-level sequence of northern air accidents, hence why it will be relied upon throughout this thesis. Moreover, this model has a proven track record and has even been formally endorsed by ICAO since its inception over three decades ago:

The "Swiss-Cheese" (or Reason) Model, developed by Professor James Reason and well known to the aviation industry, illustrates that accidents involve successive breaches of multiple defences. These breaches can be triggered by a number of enabling factors such as equipment failures or operational errors. The Swiss-Cheese Model contends that complex systems such as aviation are extremely well defended by layers of defences (otherwise known as "barriers"). A single-point failure is rarely consequential. Breaches in safety defences can be a delayed consequence of decisions made at the higher levels of the organization, which may remain dormant until their effects or damaging potential are activated by certain operating conditions (known as latent conditions). Under such specific circumstances, human failures

Board to assign fault or determine civil or criminal liability, but the Board shall not refrain from fully reporting on the causes and contributing factors merely because fault or liability might be inferred from the Board's findings".

⁵⁸ See René David-Cooper, "Thinking Outside the Black Box: The Legal Status of Emerging Flight Recorder Technologies in Canada" (2023) 48:3 Air & Space Law.

⁵⁹ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 44.

⁶⁰ *Revisiting the "Swiss Cheese" Model of Accidents* (Brussels, Belgium: EUROCONTROL, 2006) at 21: "From this perspective, and from the above comments, the [Swiss Cheese Model] has an indisputable value as a means of communication, as a heuristic explanatory device. It has had a significant influence on the understanding of accidents, and therefore also on the practical approach to accident analysis and prevention. It has successfully been applied as a means of accident analysis and proactive measurements, although the level of resolution does not go as far as for other models. On balance this is, however, not necessarily a disadvantage since increased precision of analysis often is associated with reduced certainty of results. The SCM does not provide a detailed accident model or a detailed theory of how the multitude of functions and entities in a complex socio-technical system interact and depend on each other. That does not detract from its value as a means of communication, but may limit its use in analysis and as a support for proactive measurements. On the other hand, the SCM was never developed to be a detailed model in this sense, and it is therefore hardly justified to criticise it for that".

(or “active failures”) at the operational level act to breach the final layers of safety defence. The Reason Model proposes that all accidents include a combination of both active failures and latent conditions.⁶¹

James Reason developed the Swiss Cheese Model in the 1990s with the rationale that “while human error reduction and containment is a worthwhile goal, human error is a fundamental part of the human condition and is inevitable.”⁶² Aimed at depicting “an essentially cognitive psychological account of the nature, varieties, and the mental sources of human error,”⁶³ this model illustrates how crucial it is to manage the external factors that influence human behaviour. Under this model, it is “recognized that accidents in complex systems occur through the concatenation of multiple factors, where each may be necessary but where they are only jointly sufficient to produce the accident.”⁶⁴ In Figure 1 below, the Swiss Cheese Model illustrates how accidents are caused by successive breaches in multiple system defences, such as equipment failures, operational planning errors, inadequate procedures, and even mistakes made at the management level earlier in the sequence of events.⁶⁵

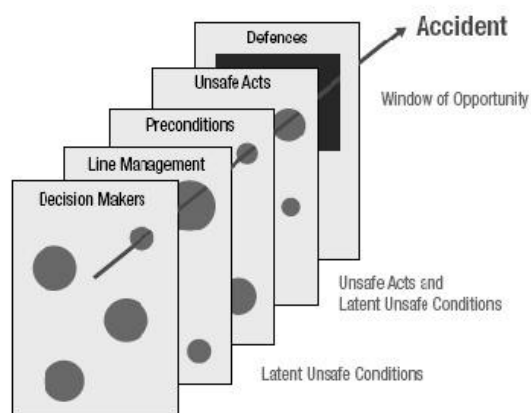


Figure 1—James Reason’s Swiss Cheese Model⁶⁶

⁶¹ International Civil Aviation Organization, *supra* note 30, s 2.3.1.

⁶² James Reason, *Managing the Risks of Organizational Accidents* (Farnham, United Kingdom: Ashgate Publishing Company, 1997) at 22.

⁶³ *Revisiting the “Swiss Cheese” Model of Accidents* (Brussels, Belgium: EUROCONTROL, 2006) at 4.

⁶⁴ *Revisiting the “Swiss Cheese” Model of Accidents* (Brussels, Belgium: EUROCONTROL, 2006) at 2.

⁶⁵ Hall, *supra* note 16 at 1056.

⁶⁶ Source of Figure 1: Transport Canada, “Chapter 5: Safety Management Systems”, (9 July 2009), online: <https://www.tc.gc.ca/eng/tcss/RSA_review/chapter5-392.htm>.

This model assimilates each air operation as a *system* composed of multiple functional layers, whose defences are portrayed as individual cheese slices. In Figure 1, the holes in the Swiss Cheese represent vulnerabilities in the safety *system* of an air carrier, which can ultimately materialize into the causes and contributing factors of an accident. Every system has gaps varying in size, number and severity.⁶⁷ Usually, a single failure may make its way through a hole in one of the slices, but usually gets stopped in its tracks by adjacent defence layers, hence why a single-point failure should not contribute to the complete failure of a system. An accident is therefore composed of a multilayered sequence of various breakdowns, composed of *latent* and *active* failures that—when perfectly aligned—can lead to adverse occurrences.⁶⁸

*Active failures*⁶⁹ occur during the immediate planning or execution phase of a flight operation (e.g., actions or inaction, including errors, slips, lapses and violations by frontline personnel) and usually trigger immediate and discernable consequences. For example, an active failure can occur when a pilot omits to verify the weight and balance of an aircraft and attempts to takeoff beyond the aircraft's maximum authorized weight and/or centre-of-gravity limits,⁷⁰ thus leading to manoeuvrability issues or worse, the inability to gain altitude upon liftoff.

*Latent conditions*⁷¹ are system-wide preconditions that lie dormant in the organizational system of an air operation, without an immediate effect, sometimes years before a damaging

⁶⁷ Dekker, *supra* note 21 at 77.

⁶⁸ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 34.

⁶⁹ International Civil Aviation Organization, *supra* note 30, s 2.3.2: "Active failures are actions or inactions, including errors and rule-breaking, that have an immediate adverse effect. They are viewed, with the benefit of hindsight, as unsafe acts. Active failures are associated with front-line personnel (pilots, air traffic controllers, aircraft maintenance engineers, etc.) and may result in a harmful outcome".

⁷⁰ See Transportation Safety Board of Canada, "Aviation Recommendation - A04-01 & A04-02 (A04H0001)", (6 October 2004), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/recommandations-recommendations/aviation/2004/rec-a04h0001.html>>.

⁷¹ International Civil Aviation Organization, *supra* note 30, s 2.3.3: "Latent conditions can exist in the system well before a damaging outcome. The consequences of latent conditions may remain dormant for a long time. Initially, these latent conditions are not perceived as harmful, but under certain conditions may become clear when the operational level defences are breached. People far removed in time and space from the event can create these conditions. Latent conditions in the system may include those created by the safety culture; equipment choices or procedural design; conflicting organizational goals; defective organizational systems; or management decisions".

outcome is experienced,⁷² until they are triggered by active performance deviations.⁷³ Latent failures include negligent and complacent management by an air carrier, inadequate pilot training, flawed procedures, budgetary cutbacks, substandard maintenance, etc.⁷⁴ As such, active failures often “awake dormant and hazardous latent conditions, creating a perfect recipe for disaster.”⁷⁵ In recent history, the flawed design and the negligent certification process of the Boeing 737-8 MAX aircraft is perhaps the most compelling example of a latent failure; its deadly consequences materialized years after this aircraft type was first designed, manufactured and approved by the FAA, when two back-to-back fatal accidents occurred in different parts of the globe in a span of only four months.⁷⁶

When *latent* and *active* gaps in a system become exposed due to a lack of a barrier (e.g., redundant aircraft systems, company procedures, regulatory oversight, training, etc.) and align in a specific sequence, they create a “trajectory of accident opportunity.”⁷⁷ Frontline personnel (e.g., aircrews, aircraft maintenance personnel, airport staff, etc.) are almost always involved in the final actions that contribute to the overall failure of a system, i.e., an accident. That being said, it is important to highlight that such acts are often preceded, but also shaped and conditioned by a layer of pre-existing failures. At the end of the accident sequence, these failures become interlinked and produce a deadly chain reaction that places frontline staff in a volatile situation where only a single spark is needed for the accident to occur.⁷⁸ Accidents are therefore the by-

⁷² René David-Cooper, “Landing Safety Management Systems (SMS) in Aviation: The Implementation of Annex 19 for Commercial Air Carriers in Canada” (2015) 30:1 *Annals of Air and Space Law* at 464: “Latent conditions might not generate accidents immediately, but these can erode an airline’s existing safety defences over time if they stand uncorrected”.

⁷³ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 55–56.

⁷⁴ Van Wagner, *supra* note 43 at 632–634.

⁷⁵ René David-Cooper, *supra* note 71 at 465.

⁷⁶ William Langewiesche, “What Really Brought Down the Boeing 737 Max?”, (18 September 2019), online: *New-York Times* <<https://www.nytimes.com/2019/09/18/magazine/boeing-737-max-crashes.html>>.

⁷⁷ SKYbrary, “James Reason HF Model - Swiss Cheese Model”, (25 May 2016), online: <https://www.skybrary.aero/index.php/James_Reason_HF_Model>.

⁷⁸ James Reason, *Human Error* (Cambridge, UK: Cambridge University Press, 1990) at 4; Dekker, *supra* note 21 at 43; René David-Cooper, *supra* note 71 at 465: “Active failures can awake dormant and hazardous latent conditions, creating a perfect recipe for disaster. Like holes in a Swiss cheese, hazards differ in size and in location; some align

product of a series of intricate and distinct events within a system that ultimately become interconnected and culminate in a final act—the accident itself.⁷⁹ As discussed *infra*, the relationship between these contributory factors falls under a complex system that goes beyond individual organizations and is deeply rooted in each State's governance over civil aviation.

3.3 *The Evolution of Aviation Safety: Understanding Technical, Human & Organizational Factors*

Safety, in all aspects of our society, is regulated by means of a *system*, which can be defined as “the deliberate arrangements of parts (e.g., components, people, functions, subsystems) that is instrumental in achieving specified and required goals.”⁸⁰ Conceptualizing safety as a system necessarily requires the interaction of key elements, hence why understanding the sequence of aircraft accidents requires a multidisciplinary approach, particularly with the growing complexity and technology of modern-day air operations.⁸¹ When investigating an accident, it is important to examine each factor that contributes to total failures (i.e., accidents) within the civil aviation system. Traditionally, *technical*, *human* and *organizational* factors have been the key elements studied under the lens of aviation safety, thus why these concepts will be analyzed before further addressing the role of States in aircraft accidents.

and some do not. When these holes align and breach all available defences, the risk of a serious outcome increases significantly. This is known as the ‘trajectory of accident opportunity’, where humans can contribute to the failure of complex systems (e.g. large passenger airliners).” Similar to the Domino Theory, one single active failure can spark a series of delayed active and latent failures leading to a serious outcome. Unless this dangerous trajectory is stopped in its tracks by a safety defence, this scenario may potentially result in a catastrophic situation such as a runway incursion, fuel starvation, missed IFR approach on landing, mid-air collision, runway overshoot, controlled flight into terrain (CFIT), etc.”

⁷⁹ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 28.

⁸⁰ *Ibid* at 6.

⁸¹ Paul Stephen Dempsey, “Independence of Aviation Safety Investigation Authorities: Keeping the Foxes from the Henhouse” (2010) 75 Journal of Air Law and Commerce 223–284 at 226–227; Sarah Jane Fox, “Mobility and Movement Are Our Fundamental Rights Safety & Security - Risk, Choice & Conflict” (2017) 17:1 Issues in Aviation Law and Policy 7–44 at 18: “Taken from a safety standpoint, air transport is viewed as a particularly complicated system for assessing risks, with numerous interlinked factors involving human operation and the interaction of procedural and technical systems.”^{3 4} Therefore, unlike other transport modes, aircraft accidents involve added assessment complexities, due to the fact that flying takes place over long distances, is global, and therefore often involves the crossing into/over various other countries and continents”.

4. Technical Factors

In the early days of civil aviation, nascent aircraft technology was relatively embryonic and primitive by today's standards. It is not surprising to note that most accidents at the time were attributable to aircraft design flaws, structural issues, and mechanical failures,⁸² as unversed pioneers, industry participants and regulators were unacquainted to the novel risks associated with powered flight.⁸³ In the absence of SARPs, experimental aviation technology, basic structural engineering, engine propulsion prototypes and theoretical aerodynamic principles were being developed, tested and deployed in the skies for the first time, sometimes at the expenses of lives, hence why the technical aspects of aviation were particularly prone to failure or malfunction.⁸⁴

Until the late 1960s, the focus of technological research, safety regulations and accident investigations were mostly geared towards the analysis and improvement of *technical factors* (e.g., aircraft airworthiness, manufacturing standards, aircraft design, etc.),⁸⁵ after which technological advancements dramatically improved aeronautical technology and aircraft reliability,⁸⁶ and contributed to a progressive decline in accidents caused by technical failures.⁸⁷ While technical factors still play a role in modern-day aircraft accidents,⁸⁸ they are increasingly

⁸² Andrew Hale & Michael Baram, *Safety Management: The Challenge of Change* (Oxford, United Kingdom: Pergamon - Elsevier Science Ltd., 1998) at 2.

⁸³ Louis E Black, "Uniformity in Air Safety Regulation: Cooperative Federalism Applied" (1948) 15:2 Journal of Air Law and Commerce 181–200 at 181; Ronald Schnitker & Dick van het Kaar, *Safety Assessment of Foreign Aircraft Programme: A European Approach to Enhance Global Aviation Safety*, Essential Air and Space Law 11 (The Hague, Netherlands: Eleven International Publishing, 2013) at 81.

⁸⁴ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 29.

⁸⁵ For example, "two British de Havilland Comet airliners crashed in 1954, two years after their introduction in commercial flight. The cause turned out to be the weakening of a metal part due to repeated cyclical movement such as bending or twisting. Since then, the technology has improved to the extent that metal fatigue has almost disappeared from sight". *Ibid* at 33.

⁸⁶ René David-Cooper, *supra* note 71 at 449.

⁸⁷ International Civil Aviation Organization, *supra* note 30, s 2.1.4.

⁸⁸ See for instance *Main Gearbox Malfunction/Collision with Water, Cougar Helicopters Inc., Sikorsky S-92A, C-GZCH, St. John's, Newfoundland and Labrador, 35 nm E, 12 March 2009*, Aviation Investigation Report, by Transportation Safety Board of Canada, Aviation Investigation Report A09A0016 (Gatineau, QC: Transportation Safety Board of Canada, 2013); Transportation Safety Board of Canada, "Air transportation safety investigation report A98H0003, In-flight fire leading to collision with water, Swissair Transport Limited McDonnell Douglas MD-11, HB-IWF, Peggy's Cove, Nova Scotia 5 nm SW, 02 September 1998", (27 March 2003), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/1998/a98h0003/a98h0003.pdf>>.

attributable to software issues,⁸⁹ e.g., the Traffic Alert and Collision Avoidance System (TCAS)⁹⁰ and Maneuvering Characteristics Augmentation System (MCAS), whose effects can be either contained or exacerbated by human performance. Nowadays, purely technical occurrences are relatively less frequent and most accidents are usually attributable to predominant human and/or organizational influences at some point in the chronology of events. In fact, we could even argue that most technical failures in our current era stem from human and/or management error(s) in various periods of an aircraft's lifecycle, be it during the design, manufacturing, certification or maintenance phases, hence why the study of *human* and *organizational factors* gained some importance during the latter part of the 20th century.

5. Human Factors

The variability in human performance and behaviour is a fascinating and mystifying issue, particularly in aviation where it is cited as a causal factor in the majority of accidents.⁹¹ For instance, the flight performance of a well-trained and experienced airline pilot can be flawless today, but may be significantly degraded tomorrow, and lead to an accident tomorrow despite flying under similar circumstances. How can we explain this variation? It has been stated that “[t]he human element is the most flexible, adaptable and valuable part of the aviation system, but it is also the most vulnerable to influences which can adversely affect its performance.”⁹² Since the mid-1900s, regulators around the world have recognized that the social and personal skills (e.g., communication and decision-making) of frontline personnel are conditioned by, and at the

⁸⁹ See for instance: *Aircraft Accident Report - Controlled Flight Into Terrain, Korean Air Flight 801, Boeing 747-300, Nimitz Hill, Guam, August 6, 1997*, by National Transportation Safety Board, PB00-910401-NTSB/AAR-00/01-DCA97MA058 (Washington, DC: National Transportation Safety Board); Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 33; Dekker, *supra* note 21 at 80.

⁹⁰ See German Federal Bureau of & Aircraft Accidents Investigation, *supra* note 11.

⁹¹ Safety Regulation Group, *supra* note 19 at vii.

⁹² *Ibid* at 1.

mercy of, a myriad of external variables, which explains the adaptability and flexibility of human performance:

How people think about their responsibilities towards safety and how they interact with others to perform their tasks at work significantly affects their organization's safety performance. Managing safety needs to address how people contribute, both positively and negatively, to organizational safety. Human factors is about understanding the ways in which people interact with the world, their capabilities and limitations, and influencing human activity to improve the way people do their work.⁹³

The study of human factors therefore aims to understand and optimize “the relationships between people and their activities through the systematic application of the human sciences, integrated within the framework of system engineering.”⁹⁴ The purpose of human factors is to provide civil aviation participants with the “tools which take account of human strength and limitations”⁹⁵ based on personal, medical and biological considerations.⁹⁶

Drawing upon scientific knowledge of the human body and mind,⁹⁷ this multidisciplinary field seeks to understand and continues to examine why psychological and physiological considerations influence human behaviour, and how human capabilities can positively and adversely affect flight performances and safety.⁹⁸ Given that humans function based on “a set of basic structures and associated processes” which can fail and lead to accidents,⁹⁹ much attention has been invested in understanding why frontline staff in civil aviation sustain performance

⁹³ International Civil Aviation Organization, *supra* note 30, s 2.2.1.

⁹⁴ Federal Aviation Administration, “Introduction to Aviation Human Factors”, (10 September 2014), online: *Federal Aviation Administration* <https://www.faa.gov/other_visit/aviation_industry/designees_delegations/designee_types/ame/media/Section%20II.8.1%20Introduction%20to%20Aviation%20Human%20Factors.doc>; Safety Regulation Group, *supra* note 19 at 2.

⁹⁵ *Human Factors in Air Traffic Control*, by International Civil Aviation Organization, No.8 ICAO Circular 241-AN/145 (Montréal, QC: International Civil Aviation Organization, 1993) at 1; Dekker, *supra* note 21 at 93.

⁹⁶ *Human factors Digest #1: Fundamental Human Factors Concepts*, Circular, by International Civil Aviation Organization (ICAO), Circular 216-AN/131 (Montréal, QC: International Civil Aviation Organization, 1989) at 2.

⁹⁷ Safety Regulation Group, *supra* note 19 at 2; Ballesteros, *supra* note 20 at 39–47.

⁹⁸ René David-Cooper, *supra* note 71 at 450; Safety Regulation Group, *supra* note 19 at 2: “The measures and movements of the body – essential in optimizing the design and layout of controls, and other workplace characteristics of the flight deck and cabin – call upon anthropometry and biomechanics. Biology and its increasingly important sub-discipline, chronobiology, are needed to understand the nature of the body's rhythms and sleep, and their effects in night flying and time-zone changes. Finally, no proper analysis or presentation of data from surveys or studies is possible without some basic understanding of statistics”.

⁹⁹ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 30.

variations in their workplace,¹⁰⁰ i.e., in the context of flight operations,¹⁰¹ and how such variations can be mitigated by regulations.¹⁰²

For these reasons, human factors made a significant impact between the 1970s and 1990s on the development of air safety regulations, enforcement policies and oversight mechanisms aiming to establish and maintain acceptable benchmarks for optimal human performance in civil aviation¹⁰³ (e.g., comprehensive medical standards and examinations,¹⁰⁴ drug and alcohol rules,¹⁰⁵ flight and duty time regulations to combat fatigue,¹⁰⁶ crew resource management,¹⁰⁷ etc.). However, it soon became obvious that aircrew performance was deeply influenced by the organizational design of their workplace environment, hence why the science of aviation safety would once again evolve even further.

¹⁰⁰ Common human (pre)conditions that can act as precursors to occurrences include a lack of communication, distractions, lack of resources, stress, complacency, lack of teamwork, pressure, lack of awareness, insufficient knowledge, fatigue, lack of assertiveness and norms. See SKYbrary, “The Human Factors ‘Dirty Dozen’”, (2024), online: SKYbrary <<https://skybrary.aero/articles/human-factors-dirty-dozen>>; Airports Council International, “Twelve Common Human Error Preconditions”, (2024), online: *Online Learning Centre* <<https://olc.aero/twelve-common-human-error-preconditions/>>; Waring, *supra* note 35 at 42–43.

¹⁰¹ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 30.

¹⁰² Safety Regulation Group, *supra* note 19 at 2: “Human Factors is about people in their living and working situations; about their relationship with machines, with procedures and with the environment about them; and also about their relationships with other people. In aviation, Human Factors involves a set of personal, medical and biological considerations for optimal aircraft and air traffic control operations”.

¹⁰³ See Richard Johnstone, “Putting the Regulated Back into Regulation” (1999) 26:3 *Journal of Law and Society* 378–390.

¹⁰⁴ See for example Transport Canada, “Standard 424 – Medical Requirements – Canadian Aviation Regulations (CARs)”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/acts-regulations/list-regulations/canadian-aviation-regulations-sor-96-433/standards/standard-424-medical-requirements-canadian-aviation-regulations-cars>>; Felicia Schneggenburger, “Flying With Insulin-Treated Diabetes - Is the Sky Still the Limit?” (2020) 45 *Annals of Air and Space Law* 171–198.

¹⁰⁵ See René David-Cooper, “Don’t Drink and Drive, Smoke and Fly: A Clearance for Pilots to Get High?” (2014) 29 *Annals of Air and Space Law* 555.

¹⁰⁶ See René David-Cooper, *supra* note 30; René David-Cooper, “Pilot Fatigue - A Study on the Effectiveness of Flight and Duty Time Regulations for Professional Pilots in Canada” (2019) *Quebec Journal of International Law* 117–146; “Overview of the new regulations on flight crew fatigue management”, (12 December 2018), online: *Government of Canada* <<https://www.canada.ca/en/transport-canada/news/2018/12/overview-of-the-new-regulations-on-flight-crew-fatigue-management.html>>; International Air Transport Association, *Fatigue Management Guide for Airline Operators - Second Edition* (International Air Transport Association, 2015).

¹⁰⁷ Transport Canada, “Advisory Circular (AC) No. 700-042: Crew Resource Management (CRM)”, (14 March 2020), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/reference-centre/advisory-circulars/advisory-circular-ac-no-700-042>>: “Crew Resource Management (CRM): is the effective utilization of all resources including crew members, aircraft systems, supporting facilities and persons to achieve safe and efficient operations. The objective of CRM is to enhance communication, interaction, human factors and management skills of the crew members concerned. Emphasis is also on the non-technical aspects of crew performance”.

6. Organizational Factors

Near the end of the 20th century, civil aviation experts realized that even though safety levels had dramatically improved over the recent decades, the curve progression for global safety levels was starting to peak and flatten. This was deeply concerning, as it meant that at equal levels of safety, any increase in air traffic would be met by a corresponding parabolic increase in accident statistics.¹⁰⁸ Faced with a rapid growth in aviation activities across the globe,¹⁰⁹ the *status quo* would thus lead to more accidents, injuries and fatalities every year. This alarming realization warranted a different approach in the global governance of aviation safety.¹¹⁰

Concurrently, countries around the world had experienced tragic accidents in various industries (e.g., nuclear power plants, space exploration, transportation and storage of dangerous good, etc.),¹¹¹ as mentioned *supra* in Chapter 1. Understanding how these tragedies transpired was difficult to grasp at first: these were accidents that occurred in highly regulated, complex and well-organized industries, which relied on state-of-the-art technology.¹¹² It nonetheless became apparent that although technical and human factors played a role in these tragedies, another

¹⁰⁸ See Ballesteros, *supra* note 20 at 12–13; Kathleen Fox, *How has the implementation of Safety Management Systems (SMS) in the transportation industry impacted on risk-management and decision-making?* (Thesis, Lund University, 2009) [unpublished] at 12.

¹⁰⁹ Michael B Jennison, “The Chicago Convention and Safety after Fifty Years” (1995) 20 *Annals of Air and Space Law* 282–306 at 304

¹¹⁰ See Evan P Singer, “Recent Developments in Aviation Safety: Proposals to Reduce the Fatal Accident Rate and the Debate over Data Protection” (2002) 67:2 *Journal of Air Law and Commerce* 499–544 at 501.

¹¹¹ von Thaden, Wiegmann & Shappell, *supra* note 29 at 801; Waring, *supra* note 35 at 11.

¹¹² René David-Cooper, *supra* note 71 at 450–451: “In the late 20th century, several major disasters occurred in high technology industries around the world, prompting a change of mentality in safety regulation. There was a public outcry to increase the regulation of hazardous activities after a number of high profile accidents, such as the Chemical Disaster at Seveso, the Bhopal Gas Tragedy, the Chernobyl Nuclear Disaster, the Piper Alpha Oil Rig Explosion, the London Underground Fire, the Sinking of the Herald of Free Enterprise and the Exxon Valdez Oil Spill. All of these accidents shared a common denominator: these were complex organisations which had experienced persistent success. The management believed to be safely managed by well developed, highly bureaucratic safety systems and were characterised as ‘High-Reliability Organizations’ (HROs). These organisations had developed a tendency to underestimate the amount of risk involved, creating an illusion of artificial safety”.

pernicious factor was also influencing the performance of the hardware¹¹³ and liveware¹¹⁴ involved in these accidents.¹¹⁵

Various industries quickly came to understand that *organizational* decisions made by company executives in boardrooms, far away from the field operations and employees they managed, could eventually trigger a chain reaction that would lead to tragic outcomes.¹¹⁶ More shocking was the realization that in most industrial accidents witnessed during the 20th and 21st centuries, frontline personnel were placed in impossible situations as a result of negligent organizational decisions (e.g., related to investments in critical infrastructure and basic resources, maintenance budgets, inadequate training, operational pressures, weak safety cultures,¹¹⁷ etc.) often seeking to reduce costs and maintain a competitive position in the market.¹¹⁸ In these accidents, the odds and risks were often stacked against frontline personnel and in many situations, none of them could have interrupted the deadly chain of events in which they would, unbeknownst to them, play the final act. For these reasons, “the analysis of safety [in aviation] slowly shifted towards organisational characteristics as a contributory factor to accidents”:¹¹⁹

The notion of an “organizational accident” was introduced. This perspective considered the impact of such things as organizational culture and policies on the effectiveness of safety risk controls. Additionally, routine safety data collection and analysis using reactive and proactive methodologies enabled organizations to monitor known safety risks and detect emerging safety trends. These enhancements provided the learning and foundation which lead to the current safety management approach.¹²⁰

¹¹³ Hardware refers to machines and equipment. International Civil Aviation Organization, *supra* note 30, s 2.2.6.

¹¹⁴ Liveware refers to “humans at the front line of operations”. *Ibid*, s 2.2.6-2.2.7.

¹¹⁵ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 46.

¹¹⁶ *Ibid* at 55–56.

¹¹⁷ A good safety culture is defined as the: “assembly of characteristics and attitudes in organizations and individuals, which establishes that, as an over-riding priority, operational safety issues receive the attention warranted by their significance” *Summary Report on the Post Accident Review Meeting on the Chernobyl Accident*, by International Atomic Energy Agency (IAEA), 75-INSAG-1 (Vienna, Austria: International Atomic Energy Agency (IAEA), 1986) at 20.

¹¹⁸ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 55–56; See Terry von Thaden, Douglas Wiegmann & Scott Shappell, “Organizational Factors in Commercial Aviation Accidents (1990-2000)” (2006) 16:3 *International Journal of Aviation Psychology* 239–261 at 240.

¹¹⁹ René David-Cooper, *supra* note 71 at 451.

¹²⁰ International Civil Aviation Organization, *supra* note 30, s 2.1.4.

The field of organizational factors is predicated on the notion that all company decisions are influenced *inter alia* by economic and operational constraints,¹²¹ which interact in a complex organizational system, and produce positive and negative safety externalities.¹²² In other words, it is axiomatic that any business decision has the potential to positively or negatively influence safety, and *vice versa*. Safety therefore has a cost for air carriers, who are faced with a constant conundrum when seeking to carefully balance commercial interests and profitability, against safety imperatives,¹²³ otherwise referred to by ICAO as the *management dilemma*:

In any organization engaged in the delivery of services, production/profitability and safety risks are linked. An organization must maintain profitability to stay in business by balancing output with acceptable safety risks (and the costs involved in implementing safety risk controls). Typical safety risk controls include technology, training, processes and procedures [...] The safety space is a metaphor for the zone where an organization balances desired production/profitability while maintaining required safety protection through safety risk controls. For example, a service provider may wish to invest in new equipment. The new equipment may simultaneously provide the necessary efficiency improvements as well as improved reliability and safety performance. Such decision-making involves an assessment of both the benefits to the organization as well as the safety risks involved. The allocation of excessive resources to safety risk controls may result in the activity becoming unprofitable, thus jeopardizing the viability of the organization. On the other hand, excess allocation of resources for production at the expense of protection can have an impact on the product or service and can ultimately lead to an accident. It is therefore essential that a safety boundary be defined that provides early warning that an unbalanced allocation of resources exists, or is developing.¹²⁴

When faced with a difficult financial situation, some air carriers may indeed begin, consciously or subconsciously, to cut corners on safety. That being said, no airline president or executive decides to take safety-related shortcuts with the express intent of contributing to accidents;¹²⁵ they

¹²¹ James Reason, *supra* note 28 at 80.

¹²² *Human factors Digest #7: Investigation of Human Factors in Accidents and Incidents*, by International Civil Aviation Organization (ICAO), 240-AN/144 (Montréal, QC: International Civil Aviation Organization, 1993) at para 1.9.

¹²³ Waring, *supra* note 35 at 40.

¹²⁴ International Civil Aviation Organization, *supra* note 30, s 2.4.1-2.4.3. In other words, we could say that money buys safety, but safety also allows a company to continue making money.

¹²⁵ Francis Schubert, "Legal Barriers to a Safety Culture in Aviation" (2004) 19 *Annals of Air and Space Law* 25 at 40: "In the overwhelming majority of incidents and accidents reported, where human factors were involved, the operators concerned were neither conscious of the probable outcome of their actions, neither willing to endanger the safety of air navigation. It has thus been correctly noted that 'the majority of aviation incidents and accidents are not caused by intentional noncompliance by aviation professionals, [...] such incidents and accidents are more likely to be attributable

often do so with a short-sighted mindset to remain competitive and meet their financial targets.¹²⁶

Financial and safety considerations therefore form the basic prerequisites for the sustainability of any airline, however, safety should, in theory, always prevail against economic interests.

Yet, challenging market conditions and aggressive industry competition, along with the systemic economic strain commonly faced by air carriers,¹²⁷ can deeply influence an organization's managerial decisions. For example, a company may decide to: operate older aircraft,¹²⁸ rather than upgrading their fleet with more reliable assets; hire low-time pilots to reduce salary expenses; defer maintenance programs and improvements; optimize the use of their assets by favouring on-time flight performance over safety, etc. We can thus assume that financially healthy airlines are more likely to have healthier safety records, while struggling airlines are more prone to accidents in their desperate scramble for profitability.¹²⁹ For these reasons, civil aviation regulators and experts started examining the *organizational* roots of aircraft accidents.

to a complex culmination of systemic factors', with the pilot or air traffic controller "merely being the last causative link in the chain".

¹²⁶ James Boyd White, "Economics and Law: Two Cultures in Tension" (1986) 54 Tennessee Law Review 161–202 at 176. As stated by White, "the universe is populated by a number of discrete human actors, each of whom is competent, rational, and motivated solely by self-interest".

¹²⁷ Generally, airlines generate a net profit margin hovering around 1%, however, this margin can quickly plunge in the negative, as airlines are quite susceptible to political, economic and social disturbances, as shown by past recessions, the 9/11 terrorist attacks and by pandemics. See Paul Stephen Dempsey, "The Financial Performance of The Airline Industry Post-Deregulation" (2008) 45 Houston Law Review 421 at 424–427; "Why airlines make such meagre profits", (23 February 2014), online: *The Economist* <<http://www.economist.com/blogs/economist-explains/2014/02/economist-explains-5>>.

¹²⁸ See Naa Adoley Addy, "Aviation Safety & Security in West Africa: Legal and Regulatory Issues Inherent in Aerospace Activities - Focus on Nigeria" (2008) 33 Annals Air & Space 32–58 at 38; Jennifer Ann Urban, "International Civil Aviation Organization Initiatives versus Industry Initiatives: A Look at How Commercially Motivated Transactions Increase Aviation Safety" (2016) 81:4 Journal of Air Law and Commerce 683–706 at 697: "Even though the accident rate increases when operating older aircraft, with proper maintenance it is possible to safely operate these aircraft. Many aircraft operators in these developing States lack financial resources to keep older aircraft in adequate shape to be safely used".

¹²⁹ Robert G Evans, Karen Cardiff, & Sam Sheps, "High Reliability versus High Autonomy: Dryden, Murphy and Patient Safety" (2006) 1:4 Healthcare Policy 12 at 15.

7. Air Ontario Flight 1363: A Case Study on Organizational Factors



Figure 2—Air Ontario Flight 1363 Wreckage Site¹³⁰

7.1 Legacy and Importance

The study of organizational factors made its entry in civil aviation in the 1990s following a lengthy investigation into the crash of Air Ontario Flight 1363 in Dryden, Ontario, on March 10, 1989. The Dryden experience represents both a tragedy and a significant milestone in the global advancement of aviation safety. The Dryden accident would become a seminal case worldwide for studying and regulating organizational factors in commercial air transportation. It also presents a useful set of facts for demonstrating not only the influence of organizational factors, but also the role that States can play in aircraft accidents. Moreover, it is a particularly pertinent case study for the purposes of this thesis, as the town of Dryden falls within the geographic boundaries of Northern Canada (as defined previously in the Introduction of this thesis).

¹³⁰ Source of Figure 2: Jeff Walters, "Dryden Air Crash still raw in rescuer's minds thirty years later", (11 March 2019), online: *CBC News* <<https://www.cbc.ca/news/canada/thunder-bay/dryden-air-crash-30-years-later-1.5050597>>.

7.2 Summary of Facts

Air Ontario Flight 1363, a Fokker F-28 Mk1000 (F-28), was a scheduled flight from Thunder Bay (Ontario) to Winnipeg (Manitoba) via Dryden,¹³¹ a small pulp and paper town in Northwestern Ontario. On the day of the crash, the aircrew was facing yet another typical Canadian winter scenario: a snowstorm was rumbling through northern Ontario, with heavy wet snow falling, low cloud ceilings, and freezing rain predicted in the deteriorating forecast for that day.¹³² When Flight 1363 made a planned stop at the Dryden Regional Airport, a complete “whiteout” was reported by witnesses.¹³³

Throughout that fateful day, the aircrew would be confronted with a series of difficult decisions stemming from poor company management and planning. During the course of their journey, the aircrew experienced multiple delays with an underlying company pressure to remain on schedule. After realizing in Thunder Bay that the flight was overbooked, some passengers had to be disembarked and the departure of Flight 1363 was delayed. Upon arrival in Dryden, Flight 1363 had to be refuelled before the next leg in order to comply with fuel endurance regulations.¹³⁴ However, the F-28’s auxiliary power unit (APU)¹³⁵ was defective and there was no alternative ground-start equipment¹³⁶ available in Dryden to restart the turbine engines. Moreover, the crew

¹³¹ *Commission of Inquiry into the Air Ontario Crash at Dryden, Ontario (Canada) - Final Report*, Commission of Inquiry - Government of Canada, by The Honourable Justice Virgil P. Moshansky, Commission of Inquiry - Government of Canada (Ottawa, ON: Minister of Supply and Service Canada, 1992) at 3.

¹³² *Ibid* at 15.

¹³³ *Ibid* at 65. See also at xx — Glossary: “Whiteout: Loss of orientation with respect to the horizon, caused by uniform light conditions from sky and snow”.

¹³⁴ *Ibid* at 15, 15 & 464.

¹³⁵ *Ibid* at xii, 17 & 459–460: “A small turbine engine installed in some aircraft to provide pressurized air and electrical power. [...] The APU normally provides compressed air and electrical power to various aircraft systems while the aircraft is on the ground. A flow of compressed air is required to start the F-28 main engines, and this flow is usually supplied by the APU. After one main engine is started with the APU, that engine can generate its own compressed air to start the other engine via a cross-bleed start. An independent source of compressed air such as an air compressor or an “air bottle” can be used to start the aircraft’s main engines whether or not an APU is functioning”.

¹³⁶ *Ibid* at 459: “Second, a ground air cart can be used. This is the method most often used at large airports. A ground air cart normally contains a small turbine engine from which compressed air can be bled to start an aircraft turbine engine. Finally, in the absence of an air bottle or an air cart, another turboprop or turbojet aircraft can supply compressed air to an aircraft by way of a ‘buddy-start’ method. The already running jet engines can be connected, with appropriate hoses and couplings, to an engine of another aircraft to provide the necessary compressed air for startup.

was aware that time spent in Dryden transferring passengers, refuelling the aircraft and taxing for takeoff would inevitably lead to a considerable accumulation of wet snow on the wings. Conversely, de-icing aircraft surfaces was prohibited while the engines were running, as this could produce toxic fumes in the aircraft cabin. This meant that the aircrew had three options:

- 1) The aircrew could shut down the engines to refuel and de-ice the wings, meaning that the aircraft would be grounded, and passengers would need to be flown out later on a different flight.¹³⁷ This decision would be costly for the airline: Flight 1363's passengers would likely spend the night in Dryden and others would miss their flight connections in Winnipeg—in both cases at the airline's expense.¹³⁸
- 2) Alternatively, the aircrew had the option of overflying Dryden, but it did not have sufficient fuel to reach its final destination. Consequently, the aircraft would have to be diverted to another airport to be refuelled,¹³⁹ many passengers would need to be rerouted back to Dryden at a later time, while others would not make their flight connections on time.
- 3) Finally, the aircrew could keep the engines running while being refuelled and attempt to takeoff without de-icing the aircraft, meaning that aerodynamics and lift would be adversely affected due to wing contamination.¹⁴⁰

Such hoses and couplings are not usually carried on board the aircraft and were not available to the crew of C-FONF at Dryden".

¹³⁷ *Ibid* at 464.

¹³⁸ See Robert Helmreich, *Human Factors Aspects of the Air Ontario Crash at Dryden, Ontario: Analysis and Recommendations to the Commission of Inquiry Into the Air Ontario Crash at Dryden, Ontario* (Washington, DC: NASA/University of Texas Aerospace Crew Performance Project, 1990) at 341.

¹³⁹ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 721–722.

¹⁴⁰ Transport Canada, "Guidelines for Aircraft Ground - Icing Operations - TP 14052", (2004), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/publications/guidelines-aircraft-ground-icing-operations-tp-14052>>: "A very small amount of roughness, in thickness as low as 0.40 mm (1/64 in.), caused by ice, snow or frost, disrupts the air flow over the lift and control surfaces of an aircraft. The consequences of this roughness is severe lift loss, increased drag and impaired manoeuvrability, particularly during the takeoff and initial climb phases of flight. Ice can also interfere with the movement of control surfaces or add significantly to aircraft weight. There is no such thing as an insignificant amount of ice".

Operational efficiency¹⁴¹ and economic constraints were thus clashing with safety imperatives; the aircrew ultimately chose the third option and the rest is history.¹⁴² The aircraft started its takeoff roll in Dryden on a snow-covered runway and struggled to become airborne, skipping back and forth on the ground, before finally lifting off with a high angle of attack, presumably when the aircrew realized that only 300-feet of runway distance remained.¹⁴³ Wing contamination, caused by the accumulation of ice and snow on the wings, disturbed the airflow above the aircraft surfaces,¹⁴⁴ which adversely affected its overall lift and performance.¹⁴⁵ Flight 1363 was then seen by witnesses waddling through the air at approximately 15 feet above the ground, before striking trees as it descended below the horizon. Forty-nine seconds after liftoff, the aircraft impacted the ground and a fireball erupted.¹⁴⁶

7.3 The Commission of Inquiry—Scope and Purpose

In all, there were 24 fatalities onboard Flight 1363, including both pilots, one flight attendant and 21 passengers. Almost immediately, bad weather, icing and pilot decision-making were the apparent culprits, however, the ensuing investigation would unearth deep-rooted issues

¹⁴¹ Ballesteros, *supra* note 20 at 160: "Efficiency is a two-way street: while it creates the means to speed up normal operations, it also creates the means to speed up the consequences of a failure".

¹⁴² Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 18 at 147–148: "On the one hand people genuinely try to meet their (internalised) goals, i.e., they try do to what they are supposed to [...] On the other hand they try to do this as efficiently as possible".

¹⁴³ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 23: "Runway 11/29 at Dryden Municipal Airport is aligned in a general east/west direction. It is 6000 feet long and 150 feet wide with an asphalt surface". Accounts vary, but one witness reported that the aircraft left the runway at the 5700-foot mark of the runway, meaning that 300 feet of runway was left".

¹⁴⁴ See Transport Canada, "Chapter 1 - Air Law, The Clean Aircraft Concept", (20 May 2010), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/publications/when-doubt-small-large-aircraft-aircraft-critical-surface-contamination-training-tp-10643/chapter-1-air-law-clean-aircraft-concept>>.

¹⁴⁵ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 91: "There was an accumulation of at least one-half inch of wet, layered snow on the wings of the F-28 as it began its takeoff roll. The snow on the forward part of the wings of the F-28 aircraft, the area most critical to aircraft lift, froze and crystallized to form dull, greyish opaque ice, of a rough sculptured-carpet texture, during the takeoff roll, while some of the snow on the back part of the wings was blown off".

¹⁴⁶ *Ibid* at 93, 94 & 100: "After contacting the first treetop, the aircraft continued another half kilometre, striking more treetops and leaving a trail of wreckage before hitting a substantial number of trees while clearing the top of a wooded knoll. Fire broke out on the left side of the aircraft as it descended beyond the knoll, and its left side struck the ground first. It came to a stop against a stand of trees, breaking into three pieces [...] The fire gutted the fuselage from the interior of the cockpit back to the rear pressure bulkhead, but left part of the right side of the fuselage in place, with the exterior paint scheme charred but recognizable".

stemming from the carrier and the MOT. Despite a defective APU and other non-contributory maintenance defects, the F-28 involved in the crash was in relatively good functioning order,¹⁴⁷ therefore, technical factors were ruled out as primary causes. Based on the traditional methodology and school of thought at the time, only human factors were left to consider, however this preliminary path of reflection would later be rebuffed.

At first, the aircrew's decision to takeoff with contaminated wings baffled investigators.¹⁴⁸ Flight 1363 was operated by a highly experienced crew, composed of a captain and first officer who had a combined flight experience of more than 30,000 hours.¹⁴⁹ So why did these experienced pilots make such a reckless decision and what safeguards could have prevented this tragedy?¹⁵⁰ It soon became obvious that Flight 1363 was not simply caused by isolated human and technical failures; this tragedy was caused by multifaceted failures within Canada's air transportation system that went beyond Flight 1363's individual liveware and hardware, with systemic roots spanning across the entire industry.¹⁵¹

Prior to Dryden, air carrier management happily accepted that pilots shoulder blame for up to 90% of accidents. This position—embraced commonly by industry and the regulatory authority—tended to shield airline operations from regulatory scrutiny. However, the Captain's reputation as a careful and competent pilot made it difficult to understand his ill-fated decision to take off in those circumstances. This triggered the notion that other factors within the aviation system were involved and ought to be investigated. [...] Thus, the flawed decision to take off with contaminated wings, clearly a pilot error, became only the starting point of the Dryden Inquiry. Intensive public hearings over 20 months literally tore apart the Canadian aviation system. Contributing factors were found not only in the cockpit but also in the carrier's Boardroom and its operations, the offices of the regulator as well as in faulty and inconsistent government policies. The Dryden Inquiry was one of the first large-scale applications of a systemic organizational approach to the investigation of an aviation accident.¹⁵² (emphasis added)

¹⁴⁷ *Ibid* at 271–272.

¹⁴⁸ *Ibid* at 650.

¹⁴⁹ *Ibid* at 686–687.

¹⁵⁰ See *ibid* at 1097.

¹⁵¹ *Ibid* at 1102.

¹⁵² Moshansky & Van Dyke, *supra* note 8 at 50.

The complexity of this accident and the ensuing trauma shared by the industry as a whole warranted a comprehensive examination. A commission of inquiry was instigated and led by Justice Virgil P. Moshansky¹⁵³ with the support of a multidisciplinary team of investigators and experts. Justice Moshansky's intent, as per the Inquiry's terms of reference,¹⁵⁴ was to look beyond the actions that immediately preceded the crash in order to focus on the overall industry context and operational environment that conditioned and influenced the aircrew's decisions:

Modern air transportation is a complex enterprise. Similarly complex are the causes of aircraft accidents [...] To assess all of the contributing factors and causes of this accident and to make recommendations in the interest of future accident prevention, this Commission adopted an analytical and a "system" approach to facilitate a methodical and thorough investigation of the accident. The system approach identifies the main components of the air transportation system and calls for an assessment of the performance of each of these components.¹⁵⁵

The Inquiry acknowledged early on that even though aircrews and aircraft are often the focal points of accident investigations, "[t]he serviceability of the aircraft, the operational control of a particular flight, and the overall operational and flight safety ethic within which the crew functions are the products of air carrier management."¹⁵⁶ For this reason, the Inquiry went beyond the pilots' performance "to include corporate and regulatory management levels that, although not directly involved in the operation of the flight, may well have had a significant influence on events and circumstances surrounding the flight."¹⁵⁷

7.4 Key Findings and Conclusions

After a 3-year inquiry, Justice Moshansky's Final Report was published in 1992. It remains one of the most comprehensive investigations into an aircraft accident in the history of aviation,

¹⁵³ *Order in Council PC 1989-532 dated the 29th of March, 1989.*

¹⁵⁴ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 4 & 8.

¹⁵⁵ *Ibid* at 4–5.

¹⁵⁶ *Ibid* at 6.

¹⁵⁷ *Ibid* at 1099.

not only in Canada but arguably worldwide.¹⁵⁸ Composed of three volumes, nearly 2,000 pages in length and 191 recommendations, the report introduced for the first time the notion of *organizational* factors as another key link in the causes-effect relations of aircraft accidents.¹⁵⁹

7.4.1 The Auxiliary Power Unit

As part of his key findings, Justice Moshansky concluded that the occurrence aircraft should not have been dispatched by Air Ontario with a knowingly defective APU, particularly to an airport where no ground start equipment was available.¹⁶⁰ It was revealed during the Inquiry that Air Ontario had considered purchasing an APU in Dryden, however, the cost of purchasing this equipment had deterred the airline from doing so.¹⁶¹ By prioritizing financial interests over safety, the airline had effectively placed the burden on Flight 1363's aircrew to make difficult decisions, i.e., whether to ground an aircraft or fly their passengers to their destination on time.¹⁶² As stated by Justice Moshansky, "[a] number of Air Ontario's flight operations and overall management practices increased the potential for operational error."¹⁶³

¹⁵⁸ *Ibid* at xxi–xxii: "My Commission staff, in the course of their investigation of the Air Ontario accident at Dryden, interviewed hundreds of potential witnesses and reviewed thousands of potential documentary exhibits. In the end the witness list was pared to 166 witnesses who were called to testify, and the exhibits were reduced to 1343 in number, most of them being documents, many containing hundreds of pages. Evidence was taken under oath in a public forum, subject to cross-examination, for a total of 168 hearing days. This Report is a synthesis of both the testimony of those 166 witnesses, contained in 168 volumes of transcript totalling some 34,000 pages, and of the contents of the documentary exhibits totalling more than 177,000 pages. The public hearings of this Commission, held in Dryden, Thunder Bay, and Toronto over a period of 20 months, from June 1989 to January 1991 inclusive, disclosed numerous safety-related deficiencies and failings within the carrier, Air Ontario, specifically; within the aviation industry generally; and in the regulatory domain of Transport Canada. These shortcomings, their causes, and their relationship to the accident at Dryden were closely scrutinized during the hearings".

¹⁵⁹ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 30–31.

¹⁶⁰ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 526–527 & 533.

¹⁶¹ *Ibid* at 530: "It was not as a result of an oversight that there was no ground start at Dryden. Evidence presented before this Inquiry indicated that prior to making application to amend the operating certificate, Air Ontario had indeed considered, and decided against, acquiring ground-start equipment for Dryden [...] In his testimony before the Commission, Mr Syme recalled that the cost of acquiring a ground-start unit for Dryden, along with the operational considerations discussed below, had been a factor in the decision not to furnish Dryden with ground-start equipment"; See also *Reducing the risk of policy failure: challenges for regulatory compliance*, by Christine Parker, Volume 8/No. 77 (Paris, France: Organisation for Economic Co-operation and Development, 2000) at 16; Waring, *supra* note 35 at 85.

¹⁶² The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 532.

¹⁶³ *Ibid* at 1105.

7.4.2 Canada's Deregulation of Air Transportation in the 1980s

Broader systemic factors were also at play. Drawing upon the U.S. approach,¹⁶⁴ Canada had recently deregulated its commercial aviation network, which was previously administered by granting air carriers quasi-exclusive rights over specific markets through the strict allocation of air routes and bases of operation.¹⁶⁵ In 1984, the Canadian government had announced its new domestic air policy, appropriately termed "Liberalization of the Canadian Air Transportation Industry,"¹⁶⁶ which effectively removed entry barriers with a view of increasing market efficiency.¹⁶⁷

By opening the door to new air carriers, this policy led to fierce competition between legacy carriers and new players, unleashed price wars and sent many air carriers scrambling for cost-saving opportunities.¹⁶⁸ While safety was not deregulated *per se*,¹⁶⁹ the economic deregulation adversely influenced the organizational behaviour and safety ethics of many air carriers, especially those operating on the fringe of insolvency.¹⁷⁰ In many instances, business decisions

¹⁶⁴ See Paul S Dempsey, "European Aviation Regulation: Flying through the Liberalization Labyrinth" (1992) 15:2 Boston College International and Comparative Law Review 311–374 at 313–314.

¹⁶⁵ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 821: "Prior to deregulation in Canada, carriers wishing to compete with an existing licence holder for the right to provide a commercial air service on a particular route could apply to the regulator for a licence to do so. However, the applicant would be under an onus to prove to the commercial regulators that its proposed service met the test of 'public convenience and necessity' in order to be granted a licence"; See also Tae Hoon Oum & Michael Tretheway, "Airline Deregulation in Canada and Its Economic Effects" (1991) 30:4 Transportation Journal 4–22; Statistics Canada, *Aviation in Canada - Historical and Statistical Perspectives on Civil Aviation* (Ottawa, ON: Ministry of Supply and Services of Canada, 1986) at 169.

¹⁶⁶ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 870.

¹⁶⁷ See Leonard A Ceruzzi, "Quasi-Regulation of a Deregulated Industry by a Safety Agency" (1989) 54:4 Journal of Air Law and Commerce 889–926 at 892–893.

¹⁶⁸ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 825; See also Ronald John Lofaro & Kevin M Smith, "Rising Risk - Rising Safety - The Millennium and Air Travel" (1997) 25:2 Transportation Law Journal 205–222 at 213.

¹⁶⁹ Waring, *supra* note 35 at 27–28; Ruwantissa Abeyratne, "Competition in Air Transport - The Need for a Shift in Focus" (2005) 33:1–2 Transportation Law Journal 29–110 at 32; Michael B Jennison, "The Future of Aviation Safety Regulation: New US-EU Agreement Harmonizes and Consolidates the Transatlantic Regime, but What is the Potential for Genuine Regulatory Reform?" (2013) 38:4 & 5 Air & Space Law 333–350 at 346: "Deregulating safety is a controversial notion. Protecting the health and welfare of the populace is a core function of the sovereign and governments take seriously their responsibility for ensuring safe operation of transportation systems. At the same time, it is unlikely that the complex aviation safety regime – national, regional, or global – is anywhere near optimal. Safety regulation should seek to promote economic growth and development by operating efficiently and cost-effectively and by encouraging economic and technological innovation. It must, however, preserve the gold standard, the core function of safety".

¹⁷⁰ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 939–940; Campbell, *supra* note 54 at 28; Andrew R Goetz & Paul S Dempsey, "Airline Deregulation Ten Years After: Something Foul in the Air" (1989) 54:4 Journal of Air Law and Commerce 927–964 at 928, 958 & 959.

across the Canadian aviation industry were being made at the expense of safety¹⁷¹ (e.g., budgetary cutbacks for aircraft maintenance and upgrades, increased propensity to deviate from regulations, operational pressure to maintain consumer bases, etc.).¹⁷²

7.4.3 Air Ontario

In addition, the late-1980s was a particularly volatile period for Air Ontario.¹⁷³ This company had recently merged with another carrier, triggering numerous executive reorganizations, a high turnover of key personnel,¹⁷⁴ issues with the integration of new aircraft operations and training programs,¹⁷⁵ as well as a prolonged pilot strike a year before the crash occurred.¹⁷⁶ As a result, meaningful operational management had eroded away, corporate knowledge and resources were significantly depleted,¹⁷⁷ and serious deficiencies emerged within Air Ontario's operational control practices.¹⁷⁸ These were all destabilizing factors, which contributed to the organization's inability over time to safely manage its flight operations.¹⁷⁹

¹⁷¹ See Paul Stephen Dempsey, "Turbulence in the Open Skies: The Deregulation of International Air Transport" (1987) 15:2 Transportation Law Journal 305–388; Ian Hampson, Doug Fraser & Michael Quinlan, "The Uncertain Oversight of Offshore Aircraft Maintenance: The Case of Australia" (2016) 81:2 Journal of Air Law and Commerce 225–250 at 229: "Following airline deregulation in the United States beginning in 1978, substantial restructuring took place in the airline industry, including the growth of low cost carriers and the outsourcing and offshoring of maintenance. A number of high profile incidents followed, including the loss of ValuJet Flight 597 in June 1995".

¹⁷² The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 821: "An important point to note at the outset is that the policy of deregulation was to apply only to the commercial or 'marketplace' side of the industry and not to the operational side. Transport Canada was to maintain its regulatory responsibility over the safety of air transportation. That is, the licensing of pilots and aircraft maintenance engineers, the granting of operating certificates, the certification of aircraft types, and all of the traditional safety-related functions of the regulators were to remain the responsibility of Transport Canada. It was, in short, the government's intention that safety obligations were not to be compromised under the new policy".

¹⁷³ *Ibid* at 944.

¹⁷⁴ *Ibid* at 434.

¹⁷⁵ *Ibid* at 786–787.

¹⁷⁶ *Ibid* at 418, 426 & 434.

¹⁷⁷ *Ibid* at 406–407.

¹⁷⁸ See *ibid* cs 7-Human Factors.

¹⁷⁹ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 55–56.

7.4.4 *Transport Canada's Lack of Oversight*

Despite these factors culminating in several instances of non-compliance with applicable safety regulations and standards, many critical safety shortcomings with Air Ontario remained unnoticed by the regulator—Transport Canada (TC). For instance, Air Ontario had outdated company and aircraft manuals and procedures;¹⁸⁰ it allowed the pairing of low “time-on-type” captains and first officers;¹⁸¹ it provided inadequate training to its personnel;¹⁸² it tolerated known deficiencies in flight operation procedures;¹⁸³ and it did not address the lack of adequate company de-icing equipment and procedures.¹⁸⁴ Consequently, the regulator was ineffective in identifying and addressing serious safety issues that eventually played a role in the crash of Flight 1363.

7.4.5 *Flight 1363: The Compounded Effect of Multiple Failures*

Based on these factors, the Inquiry concluded that Flight 1363 “was not the result of one cause but of a combination of several related factors”,¹⁸⁵ including Air Ontario’s failure to fulfill its organizational safety responsibilities.¹⁸⁶ Flight 1363 was the sequential result of a breakdown in Air Ontario’s *operations control*,¹⁸⁷ particularly since its management—not the aircrew—was responsible for initially scheduling Flight 1363 to fly “with an unserviceable [APU] into a station with no ground-support facilities, under conditions of forecasted freezing rain.”¹⁸⁸ The Inquiry also concluded that “this accident was the result of a failure in the air transportation system,”¹⁸⁹ rather

¹⁸⁰ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 583–584.

¹⁸¹ *Ibid* at 633.

¹⁸² *Ibid* at 738–741.

¹⁸³ *Ibid* at 635.

¹⁸⁴ *Ibid* at 661–663.

¹⁸⁵ *Ibid* at 5.

¹⁸⁶ *Ibid* at 854.

¹⁸⁷ *Ibid* at 688–689.

¹⁸⁸ *Ibid* at 687.

¹⁸⁹ *Ibid* at 6.

than simple human failures. To support a total of 191 recommendations,¹⁹⁰ the report concluded *inter alia* that:

Captain Morwood, as the pilot-in-command, must bear responsibility for the decision to land and to take off in Dryden on the day in question. However, it is equally clear that the air transportation system failed him by allowing him to be placed in a situation where he did not have all the necessary tools that should have supported him in making the proper decision [...].¹⁹¹

The facts derived from the Inquiry into the crash of Air Ontario flight 1363 are indicative of an operational environment that allowed an experienced captain to reach a flawed decision regarding the safety of takeoff during a heavy snowfall with accumulating contamination on the aircraft's wings [...].¹⁹²

Air Ontario's efforts in the area of safety management in the critical months of the company's restructuring prior to the accident received little or no priority and can best be described as cosmetic [...].¹⁹³

A lack of understanding existed within the aviation industry in general and within Air Ontario in particular with respect to both safety and accident-prevention management, with a resultant lack of Air Ontario management attention and commitment to these important areas prior to the Dryden accident [...].¹⁹⁴

The senior management of Air Ontario failed to ensure that commercial risk did not translate into operational risk [...].¹⁹⁵

The global legacy of this Inquiry rests with Justice Moshansky's recognition that organizational factors do play a role in civil aviation accidents. Moreover, his report recommended that commercial aviation companies be required to implement a safety program approach,¹⁹⁶ under

¹⁹⁰ See «Volume III, Part Nine—Consolidated Recommendations » *ibid* at 1203–1244.

¹⁹¹ *Ibid* at 1131.

¹⁹² *Ibid* at 1137.

¹⁹³ *Ibid* at 1138.

¹⁹⁴ *Ibid*.

¹⁹⁵ *Ibid*.

¹⁹⁶ *Ibid* at 785–786: “It appears from the evidence that the establishment of a company flight safety organization has the potential to enhance flight safety. With the advent of inexpensive information management systems, it cannot be considered an extraordinary burden on a carrier to set up at least an occurrence-reporting and investigating system and an information dissemination system. Considering the safety implications, it cannot be considered overly burdensome for an air carrier to appoint a flight safety officer with appropriate compensation for the work performed to oversee whatever flight safety organization is put in place. [...] Another fundamental aspect of a successful flight safety organization is direct and unfettered access to senior corporate management, including the president. This direct access means direct action at an effective management level with respect to the oversights and failings of managers and supervisors at all levels”.

which they would largely be responsible—as organizations—for managing internal risks and ultimately preventing accidents.¹⁹⁷ Under this novel approach, he recommended that airline executives become accountable for the safety of their organizations rather than solely bestowing this burden onto frontline personnel and the regulator.¹⁹⁸ This would pave the way for the regulation of organizational factors not only in Canada, but globally under the leadership of ICAO.

8. ICAO Annex 19

8.1 Safety Management Systems (SMS)

The Dryden Inquiry, as well as other aviation accidents in other jurisdictions,¹⁹⁹ forced the aviation industry to acknowledge that organizational decisions made by high executives and management in the aviation sector could positively and negatively affect flight safety. Given their demonstrated role in past accidents, these factors had to be regulated with a comprehensive approach commensurate with the unique size and nature of various air operations. To address the effects of organizational factors, the concept of SMS was introduced in civil aviation, first by Canada in the early 2000s,²⁰⁰ with mixed results at first,²⁰¹ and then formally implemented

¹⁹⁷ *Ibid* at 744–745 & 788–789.

¹⁹⁸ *Ibid* at 746–747: “An air carrier’s professed commitment to flight safety, as reflected in company policy documents and procedures manuals, its actual commitment to flight safety, as reflected in the example set by its senior management, its safety program, and the acts of its employees all make up what I have termed an air carrier’s flight safety ethic. What I have found, having considered the evidence before me, is that the single most significant determinant of an air carrier’s flight safety ethic is the actual commitment of the air carrier to flight safety as reflected in the example set by senior management”.

¹⁹⁹ See for instance the crash of Continental Express Flight 2574 in the US on September 11, 1991. *Aircraft Accident Report - Britt Airways Inc., d/b/a Continental Express Flight 2574, In-Flight Structural Breakup, EMB-120RT, N33701, Eagle Lake, Texas, September 11, 1991*, by National Transportation Safety Board, NTSB/AAR-92104 (Washington, DC: National Transportation Safety Board, 1992) at v: “Contributing to the cause of the accident was the failure of the Continental Express management to ensure compliance with the approved maintenance procedures, and the failure of FAA surveillance to detect and verify compliance with approved procedures”.

²⁰⁰ See *Flight 2005: A Civil Aviation Safety Framework for Canada*, by Transport Canada, TP 13521 (Ottawa, ON: Transport Canada, 1999) At the time of this writing, SMS was governed under the *Canadian Aviation Regulations* (see 107.01 – Subpart 7, 302.500 - Division V — Safety Management System; 573.30— Division II — Safety Management System; 604.148— Safety Management System Training; 604.202— Division XII — Safety Management System; 705.151— Division X — Safety Management System; 706.15— Safety Management System; 805.01— Subpart 5 — Safety Management System).

²⁰¹ See Ren  David-Cooper, “The Transition to Safety Management Systems (SMS) in Aviation: Is Canada Deregulating Flight Safety?” (2016) 81:1 *Journal of Air Law and Commerce* 33–64.

worldwide under ICAO Annex 19 in 2013.²⁰² SMS is defined as a “systematic approach to managing safety, including the necessary organizational structures, accountability, responsibilities, policies and procedures”.²⁰³ More specifically:

Safety management seeks to proactively mitigate safety risks before they result in aviation accidents and incidents. Through the implementation of safety management, States can manage their safety activities in a more disciplined, integrative and focused manner. Possessing a clear understanding of its role and contribution to safe operations enables a State, and its aviation industry, to prioritize actions to address safety risks and more effectively manage its resources for the optimal benefit of aviation safety.²⁰⁴

Drawing inspiration from traditional risk management principles,²⁰⁵ the purpose of SMS is to proactively identify operational hazards, assess their underlying risks early before they materialize into accidents, and determine how an organization, in its corporate, business and financial decisions, can influence safety but more importantly, take corrective actions in a timely manner to prevent such risks from materializing into accidents.²⁰⁶ Under ICAO Annex 19, air service providers are specifically required to (1) establish a safety policy and corresponding objectives; (2) develop and maintain a process to identify hazards and manage safety risks; (3) implement a safety assurance program to verify the safety performance of the organization and validate the effectiveness of its SMS; and (4) operate a safety training program.²⁰⁷

²⁰² *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices*, AN14 2013, International Standards and Recommended Practices.

²⁰³ *Ibid*, ss 1–2; see also Waring, *supra* note 35 at 17.

²⁰⁴ International Civil Aviation Organization, *supra* note 30, s 1.1.1.

²⁰⁵ Georgios Leloudas & Louis Haeck, “Legal Aspects of Aviation Risk Management” (2003) 28 *Annals of Air and Space Law* 149–159 at 153: “Risk management can be defined as a process by which an entity attempts to identify and then control or manage risks in such a way that they will be least likely to occur, or in the event of occurrence they will cause least harm, whether caused by loss, damage, disruption, dislocation or inconvenience. Risk management is not merely an act of purchasing insurance coverage, but constitutes a logical, continuous and developing step-by-step procedure to protect and consequently to minimize risks to the firm’s property, interests and employees. It includes the following five stages: (a) risk identification; (b) risk measurement; (c) treatment of risk by: elimination, reduction, transfer, retention; (d) implementation of the selected treatments; and (e) the monitoring of results and considerations of changes in exposures”.

²⁰⁶ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 55–56.

²⁰⁷ See *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices*, *supra* note 201 app 2.

8.2 State Safety Programme

Under ICAO Annex 19, ICAO Member States also have corresponding safety management obligations (SARPs) with respect to the governance of their national civil aviation industry. More specifically, States are required to establish and maintain a State Safety Programme (SSP),²⁰⁸ which is an “integrated set of regulations and activities aimed at improving safety,”²⁰⁹ whose primary purpose is to *inter alia* address safety risks proactively and reinforce the government’s safety role in managing safety domestically.²¹⁰ From a high-level perspective, SPP obligations are analogous to those imposed onto air service providers.²¹¹ Governments are required to integrate proactive safety management principles in their departmental planning and decision-making processes at the State-level,²¹² in accordance with four key pillars similar to those found under SMS requirements at the operator-level.²¹³

- **State safety policy, objectives and resources:** States are required to implement (1) a primary aviation legislation,²¹⁴ (2) operating regulations,²¹⁵ (3) a State safety system with

²⁰⁸ See, for example, Canada’s SPP. *State Safety Program (SSP) For Civil Aviation in Canada*, by Transport Canada, TP 15462-E (Ottawa, ON: Transport Canada, 2021).

²⁰⁹ *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices*, *supra* note 201 at 1–3. See also para 3.1.

²¹⁰ Transport Canada, *supra* note 207 at 15.

²¹¹ International Civil Aviation Organization, *supra* note 30, s 4.1.5.1 & 8.1.1.

²¹² *Ibid*, s 4.1.5.2.

²¹³ *Ibid*.

²¹⁴ *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices*, *supra* note 201, s 3.2.1.1 & Appendix 1 at para 11: “States shall promulgate a comprehensive and effective aviation law, commensurate with the size and complexity of their aviation activity and consistent with the requirements contained in the *Convention on International Civil Aviation*, to enable the oversight and management of civil aviation safety and the enforcement of regulations through the relevant authorities or agencies established for that purpose”.

²¹⁵ *Ibid*, s 3.2.2.1 & Appendix 1 at para 2: “States shall promulgate regulations to address, at a minimum, national requirements emanating from the primary aviation legislation, for standardized operational procedures, products, services, equipment and infrastructures in conformity with the Annexes to the *Convention on International Civil Aviation*”.

corresponding functions,²¹⁶ and (4) employ qualified technical personnel to carry out the SSP's functions.²¹⁷

- **State safety risk management:** requires, among other licensing, certification, authorization and approval obligations,²¹⁸ the implementation of a State safety risk management framework,²¹⁹ including the obligation to proactively identify hazards with individual operators or systemically across the industry; assess safety risks; and resolve safety issues in a timely manner.²²⁰
- **State safety assurance:** requires States to “develop and maintain the means to verify the safety performance of the organization and to validate the effectiveness of safety risk controls.”²²¹ This is specifically achieved by conducting surveillance,²²² i.e., “activities through which the State proactively verifies through inspections and audits that aviation licence, certificate, authorization or approval holders continue to meet the established requirements and function at the level of competency and safety required by the State.”²²³

²¹⁶ *Ibid*, s 3.2.3.1 & Appendix 1 at para 3.1: “States shall establish relevant authorities or agencies, as appropriate, supported by sufficient and qualified personnel and provided with adequate financial resources for the management of safety”.

²¹⁷ *Ibid*, s 3.2.4.1 & Appendix 1 at para 4.1: “States shall establish minimum qualification requirements for the technical personnel performing safety-related functions and provide for appropriate initial and recurrent training to maintain and enhance their competence at the desired level”.

²¹⁸ International Civil Aviation Organization, *supra* note 30, s 8.4.6.

²¹⁹ *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices*, *supra* note 201, s 3.3.

²²⁰ *Ibid*, s 3.3.4 & 3.3.5.

²²¹ International Civil Aviation Organization, *supra* note 30, s 9.5.1.

²²² *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices*, *supra* note 201, s 3.4.1; International Civil Aviation Organization, *Safety Oversight Manual, Part B - The Establishment and Management of a Regional Safety Oversight Organization (Doc 9734 - AN/959)*, 2d ed (Montréal, QC: International Civil Aviation Organization, 2011), s 7.5.16: “The surveillance function should be accomplished on a continuing basis, performed at specified times or intervals or conducted in conjunction with the renewal of a licence, certificate, authorization or approval. Scheduled inspections must be augmented by random inspections of all aspects of the operation. In the case of an air operator or maintenance organization, regardless of the method used for surveillance, all significant aspects of the air operator’s or maintenance organization’s procedures and practices should be evaluated and appropriate inspections conducted regularly, with sufficient monitoring in order to ensure that safety risk management and corrective actions are being achieved”.

²²³ *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices*, *supra* note 201 at 1–3.

- **State safety promotion:** requires States to put in place mechanisms to collaboratively share key safety data internally and externally with civil aviation participants, with a view of fostering a healthy safety culture across all components of the State’s national air transportation system.²²⁴

Ultimately, the global effectivity of ICAO Annex 19 is dependent on each State’s ability to implement and maintain its SSP responsibilities, more precisely by carrying out active oversight to identify safety deficiencies and when needed, take appropriate and timely corrective measures (e.g., enforcement action). Safety oversight is therefore a key State function, which aims “to ensure that individuals and organizations performing an aviation activity comply with safety-related national laws and regulations.”²²⁵ The obligation to carry out safety oversight, including onsite inspections and audits, is indeed a corollary of the sovereign rights of a State—internally over its airspace and externally for its nationally-registered aircraft operating abroad. Oversight enables a country to satisfactorily discharge its international safety responsibilities under articles 12 and 37 of the *Chicago Convention*,²²⁶ namely by ensuring the effective implementation of ICAO SARPs in order to maintain national safety norms equal to or superior to those mandated under ICAO’s nineteen annexes.²²⁷

8.3 ICAO’s Total System Approach

Based on the foregoing, it is apparent that the effectivity of a State’s SPP will largely influence the overall safety performance and compliance of its national air carriers, including their respective SMS. The State’s commitment, funding and policies devoted towards its SPP will

²²⁴ International Civil Aviation Organization, *supra* note 30, s 8.6.

²²⁵ *Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices*, *supra* note 201 at 1–3.

²²⁶ International Civil Aviation Organization, *supra* note 221 at ii; Moshansky & Van Dyke, *supra* note 8 at 74–75.

²²⁷ International Civil Aviation Organization, *Safety Oversight Manual, Part A - The Establishment and Management of a State’s Safety Oversight System (Doc 9734 - AN/959)*, 2d ed (Montréal, QC: International Civil Aviation Organization, 2006), s 2.1.1; See also Adediran, *supra* note 13 at 321–322.

necessarily dictate the long-term safety performance of its national aviation industry. In their predominant role over safety, States deeply influence the corporate behaviour of their national air carriers, as well as their ability, willingness, and disposition to comply with air safety regulations. In this context, ICAO recently introduced its vision for a “Total System” approach in the global implementation of Annex 19. With respect to the integration of SMS at the operator-level and its interaction with the SPP at the State-level, ICAO has stated that:

[a]ll service providers, and their systems for the management of safety, are considered as sub-systems. This allows a State to consider the interactions, and cause and effect, throughout the whole system. It is often impossible or impractical to build all safety systems in the same way. Therefore, a primary concern for States and service providers is how to best manage the interfaces between dissimilar interacting systems. (emphasis added)²²⁸

Under this relatively new concept,²²⁹ it is acknowledged that “[a] State’s safety programme, combined with the SMS of its service providers, systematically addresses safety risks, improves the safety performance of each service provider, and collectively, improves the State’s safety performance.”²³⁰ The definition for this “Total System” implies that *nationally*, each air service provider is one subcomponent among several others, which are mutually interactive and whose safety performances are largely influenced by their respective relations with the State, who is at the helm of this system.

In this cooperative setting, we can observe that both safety management regimes (operator SMS versus State SPP) function in symbiosis, hence why their mutual safety benefits are interdependent. Yet, the success of a State’s SPP is particularly crucial, as the organizational benefits of SMS for each individual air carrier can only be achieved through an effective implementation of a State’s SPP, meaning that safety issues contributing to accidents may, at

²²⁸ International Civil Aviation Organization, *supra* note 30, s 1.2.1.2.

²²⁹ Upon verification, this concept was not included in previous ICAO guidance regarding Annex 19 (published in 2013) and was only introduced in the fourth version of ICAO’s 2018 Safety Management Manual. See International Civil Aviation Organization, *Doc 9859 - Safety Management Manual (SMM)*, third ed (Montréal: International Civil Aviation Organization, 2013) Safety Management Manual.

²³⁰ International Civil Aviation Organization, *supra* note 30, s 1.1.2.

times, stem from one or many deficiencies within a State's SPP. As such, a deficient State SPP has the potential to trigger multiple systemic failures across its national air transportation system, whereas the consequences of an individual SMS breakdown with a single air carrier will usually be limited to the scope of its operations. In other words, organizational failures by one air carrier are less likely to affect other industry stakeholders, while systemic institutional failures by a civil aviation authority (CAA) may remove system-wide defences (i.e., in the Swiss Cheese) across the entire national air transportation system, allow systemic deficiencies to emerge and lead to a trajectory of opportunity for multiple occurrences staggered over an extended period of time.

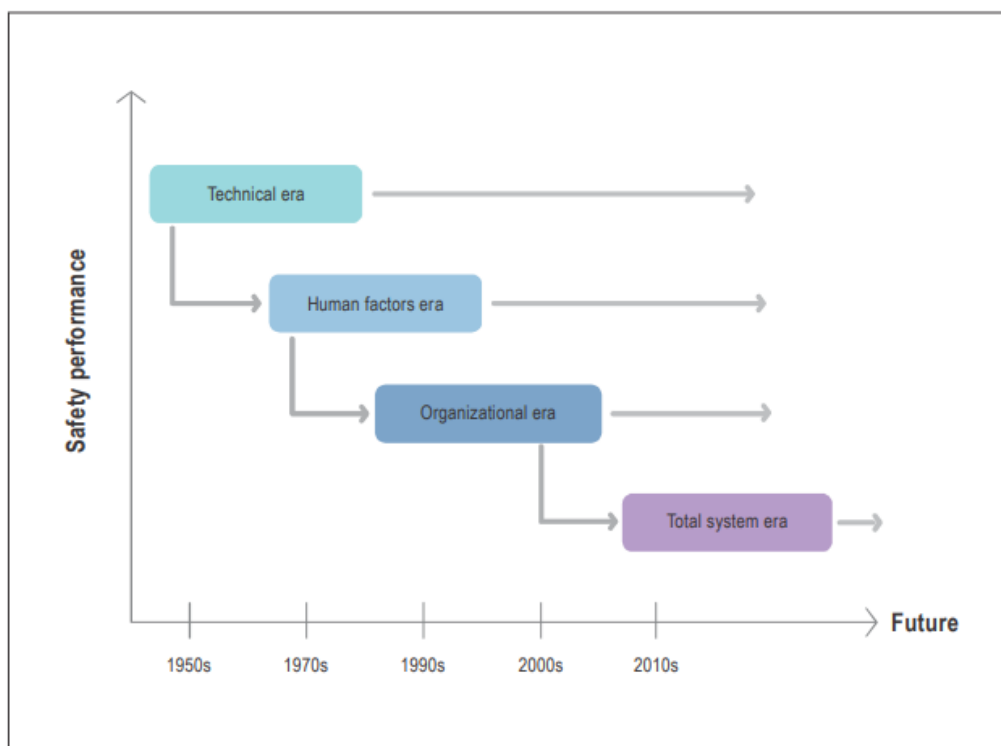


Figure 3 — The Evolution of Safety

Under ICAO's Total System approach, the behaviour and safety performance of air service providers is thus significantly influenced by a regulatory interface designed, managed and enforced by the State. If we interpret the relationship between the State and air service providers under ICAO Annex 19, the Total System approach implies that the operational effects and resulting risks of *technical*, *human* and *organizational* factors are the result of a dynamic

interaction between the State and air service providers within a *system*, which is ultimately established and governed by government bodies. The fundamental evolution towards a Total System approach (see Figure 3 above)²³¹ implies that States are a central *factor* in the field of aviation safety, since they are the entities that ultimately regulate and dictate—within their respective jurisdictions—how air carriers ought to manage the risks associated with these three factors.

At the core of the Total System lies the State, whose SPP has the overarching objective of overseeing and positively influencing each interconnected subcomponent of the air transportation system. The recognition of the Total System approach is thus a key element to highlight, as it recognizes that government entities can, despite functioning outside an individual air operation, significantly influence the air carriers' ability to mitigate technical, human and organizational factors, as well as their general inclination to perform safely. As show in Figure 4 below, one could therefore argue that under the Total System approach, *technical*, *human* and *organizational* factors are individually and nationally shaped by a predominant factor at the very core of this system, i.e., the safety performance of the CAA entrusted with the State's SPP.

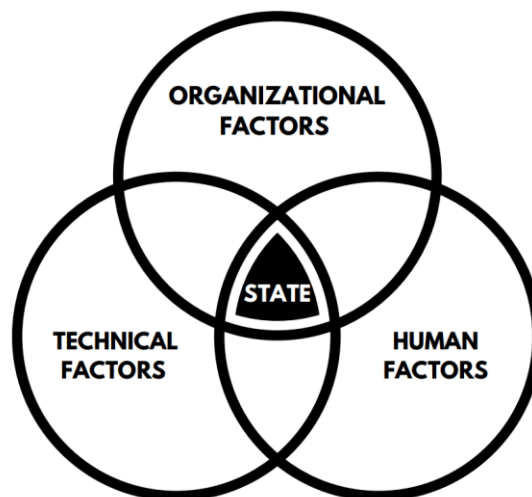


Figure 4 — The Central Influence of the State

²³¹ Source: *ibid* at 2–2.

Chapter 3—Defining State Factors in Civil Aviation

Although it does not *explicitly* recognize individual governments in the chain of events leading up to accidents, ICAO's Total System approach does emphasize that States have a key responsibility—similar to other stakeholders subject to SMS requirements (aircraft manufacturers, air traffic controllers, air carriers and frontline personnel)—in managing safety risks in aviation. This raises an interesting question: if the failure in an operator's SMS can contribute to accident, can the same be said about the failure of a State's SPP?

This question must be answered in the affirmative. As argued *infra*, certain aircraft accidents are the consequence of compounded failures within this national air safety system—the SPP, whose resilience or vulnerabilities ultimately dictate national air safety levels. If we rely on ICAO Annex 19's rationale that aircraft accidents are the result of failures within the air transportation system, and that States not only participate in that system but are also responsible under their SPP for its design and governance, then it can be concluded that a failure in a State's SPP can also contribute to an accident. An accident could therefore be interpreted as the consequence of an SPP's inability to adequately address safety deficiencies within its system in a timely manner before they materialize into tragic events. If we push this logic even further, one could also argue that a deficient, poorly managed, underfunded and inadequately staffed SPP is at risk of compromising safety on a national level and create an adverse operational environment conducive to more accidents. Given the palpable influence that individual States have on aviation safety, as well as the potential variability in their ability to implement and manage their SPP, it will be argued *infra* that a fourth variable—*State Factors*—ought to be considered as an added lens when examining the key elements that shape safety levels and contribute to accidents.

9. State Factors in Civil Aviation

9.1 Background

As the guardian of public safety,²³² the State has a crucial responsibility in protecting our wellbeing,²³³ namely by taking positive measures to prevent accidents. As one of the most regulated industries,²³⁴ the Federal Court of Appeal of Canada (FCA) has stated that “[t]he flying public has no protections against avaricious airlines, irresponsible or inadequately trained pilots, and defective aircraft if not the Department of Transport, and must rely on it for enforcement of the law and regulations in the interest of public safety.”²³⁵ The primary mandate of a national CAA is thus to provide an essential safety net across its aviation industry.²³⁶ Accordingly, if technical and human failures stem from poor air carrier management,²³⁷ then it can be logically inferred that organizational failures at the operator-level can be the by-product of *government failures*:²³⁸

“Government failure” as a concept in regulation refers to substantial imperfection in government performance. Such imperfections are comprised of inadequate actions and unreasonable inactions. The scope of the imperfection is related to the level of a disregarded risk, inadequacy of cost-benefit analysis, deviation from popular normative expectations, and magnitude of misallocated resources.²³⁹

²³² Campbell, *supra* note 54 at 123.

²³³ See Jennison, *supra* note 168 at 350; Henri Wassenbergh, “Safety in Air Transportation and Market Entry - National Licensing and Safety Oversight in Civil Aviation” (1998) 23:2 Air & Space Law 74–81.

²³⁴ Roger Harris, “Aviation Insurance in Canada: Current Regulatory Issues / Luftfahrtversicherungen in Kanada: Gegenwärtige Themen der Regulierung / L’Assurance d’Aviation au Canada: Aspects Actuels de Réglementation” (1995) 44:2 Annals Air & Space 197–202 at 197.

²³⁵ *Swanson Estate v Canada*, 1991 CanLII 8226 (FCA), [1992] 1 FC 408 at 424. See also John Parnell, “Review and Appeal in Civil Aviation De-Licensing Regimes: A Comparative Study of New Zealand, Australia and Canada” (2013) 11:3 New Zealand Journal of Public and International Law 623–660 at 644.

²³⁶ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 1048.

²³⁷ *Ibid* at 6.

²³⁸ Susan Dodd, *The Ocean Ranger - Remaking the Promise of Oil* (Halifax, Nova Scotia: Fernwood Publishing, 2011) at 146: “Corporations are responsible to their shareholders, so they turn the opportunities afforded by their environments into profits for people who often do not live in, or near, the areas most effected by the risks taken by industrial development. The shareholder’s risk is strictly a financial one as they are protected by a ‘corporate veil’ of limited liability. Government’s job is to define those opportunities [...] At the very minimum, governments are responsible for securing our lives from any reasonably foreseeable threat”.

²³⁹ Orbach, *supra* note 15 at 56.

P. Paul Fitzgerald has stated that “[i]n many cases, when an [aviation] accident does occur, it is due in part to regulatory failure, typically a lack of proper oversight by the regulator.”²⁴⁰ A study has also previously concluded that 25% of Canadian air accidents are attributable to a lack of regulatory supervision.²⁴¹ Considering the government’s regulatory capability to leverage control over its national air carriers and exercise authority across its sovereign airspace, States possess the operative powers to make key decisions aimed at positively conditioning and enhancing the safety performance of each subcomponent under ICAO’s Total System. When there are breakdowns in State governance, “[r]egulatory failure will occur when there is no regulator to regulate, or when the regulator is less vigilant and/or competent than the regulatee.”²⁴² An air carrier’s overall ability to effectively contain technical, human and organizational factors within its respective operation is evidently reliant on, but more importantly, susceptible to a predominant and central authority—the State, specifically in the latter’s (in)ability to support its national air service providers with the necessary regulations, resources and infrastructure to collaboratively achieve acceptable air safety levels.²⁴³ The good order of civil aviation is thus ultimately ensured through the State’s ability to carry out its national air safety mandate and discharge its international safety responsibilities under the *Chicago Convention*.

That being said, each country is unique in its geographical size, national priorities, history, demographics, economy, as well as their political, social and religious beliefs, hence why each ICAO Member State is structured with a distinct legal framework and governed in accordance

²⁴⁰ Paul P Fitzgerald, “Questioning the Regulation of Aviation Safety” (2012) 37 *Annals of Air and Space Law* 1–46 at 30.

²⁴¹ Standing Committee on Transport, Infrastructure and Communities, “Testimony - Mr. Hugh Danford (Former Civil Aviation Inspector, Transport Canada, As an Individual)”, (14 May 2007), online: *Open Parliament* <<https://openparliament.ca/committees/transport/39-1/51/hugh-danford-1/only/>>; see also Moshansky & Van Dyke, *supra* note 8 at 71.

²⁴² Fitzgerald, *supra* note 240 at 135.

²⁴³ International Civil Aviation Organization, *supra* note 30 at vii: “Acceptable level of safety performance (ALoSP)—The level of safety performance agreed by State authorities to be achieved for the civil aviation system in a State, as defined in its State safety programme, expressed in terms of safety performance targets and safety performance indicators”.

with its individual characteristics. From a global perspective, it becomes apparent that State governance is not a static element, as each country functions and performs differently.

Even within individual countries, major leadership, societal, economic, and political shifts (e.g., armed conflicts, pandemics, elections, recessions, natural disasters etc.), can suddenly occur and trigger detectable fluctuations in the level of involvement and commitment towards aviation safety. Or in some cases, a State's safety performance may improve or deteriorate over time, depending on the country's commitment to safety and ability to keep up with emerging issues. A good example of this is ICAO's recent assessment of Canada's civil aviation regime, which received a C grade—down from an A+ previously.²⁴⁴

Various internal considerations can also explain why some States do not, or cannot, fully comply with their international safety responsibilities under the *Chicago Convention*.²⁴⁵ Moreover, each country has distinctive skills, resources, and willpower to comply with their international responsibilities, hence why there are heterogeneous implementation rates for SARPs.²⁴⁶ Given the variability in the safety performance and governance approach from one country to another, we can confidently conclude that not every country benefits from the same degree of regulatory

²⁴⁴ Christopher Reynolds, "Flight safety in Canada is plummeting, a confidential UN agency report finds", (7 December 2023), online: *BNN Bloomberg* <<https://www.bnnbloomberg.ca/flight-safety-in-canada-is-plummeting-a-confidential-un-agency-report-finds-1.2008768#:~:text=Canada%20has%20received%20a%20C,from%20a%20United%20Nations%20agency.>>; Eric Atkins, "Canada scores poorly in UN aviation agency safety oversight audit", (7 December 2023), online: *The Globe and Mail* <<https://www.theglobeandmail.com/business/article-canada-scores-poorly-in-un-aviation-agency-safety-over-sight-audit/>>.

²⁴⁵ There are indeed two categories of non-compliance: States who are willing but unable to comply with international air law safety requirements (i.e., States who do not and cannot possess the necessary resources and infrastructure to do so), and States who are able but are unwilling to comply with the same requirements for various other reasons. See Md Tanveer Ahmad, "Achieving Global Safety in Civil Aviation: A Critical Analysis of Contemporary Safety Oversight Mechanisms" (2012) 37 *Annals of Air and Space Law* 81–124 at 112–113.

²⁴⁶ Jimena Blumenkron, "A Prospective Analysis of the Evolution of ICAO's Universal Safety Oversight Audit Programme beyond 2010" (2010) 35 *Annals Air & Space* 297–322 at 302; Roderick D Van Dam, "Recent Developments in Aviation Safety Oversight" (1995) 20 *Annals of Air and Space Law* 307–318 at 309–310: "The problem of an insufficient level of compliance with, or the notification of differences from international standards by contracting States has troubled ICAO for quite some time. Since 1950, the ICAO Council as well as the ICAO Assembly have regularly expressed their concerns about the effective implementation of standards".

sophistication and effectiveness in oversight.²⁴⁷ In light of the foregoing, there is an apparent relationship between domestic air safety levels and the interface of a State SPP,²⁴⁸ which can lead to adverse outcomes when a government has not taken the necessary measures to address certain risks.²⁴⁹ Accordingly, a fourth consideration—the *State Factor*—ought to be included as a root cause²⁵⁰ in the sequential examination of aviation accidents.

9.2 State Factors - Definition

The author proposes to define a *State Factor* as the positive or adverse effects of a State's interventions aimed at establishing, improving, and maintaining the effectiveness and quality of safety risk controls and infrastructure within its air transportation system, namely by means of active oversight strategies implementing corrective and proactive safety measures, direct enforcement actions, sufficient resources and adequate regulatory standards and policies. Accordingly, effectively managing State Factors can provide the aviation industry with additional defences against the existing and emerging safety risks to ensure the effectivity of present laws.²⁵¹

This definition is perhaps best illustrated by John F. Kennedy's historic speech concerning the United States' efforts in space exploration, in which he committed, on behalf of the U.S., to "achieving the goal, before this decade is out, of landing a man on the moon and returning him

²⁴⁷ Paul Stephen Dempsey, "Compliance & Enforcement in International Law: Achieving Global Uniformity in Aviation Safety" 30 North Carolina Journal of International Law and Commercial Regulation 1–71 at 20–21: "The system of universal trust and mutual recognition established by the Chicago Convention was jeopardized by the fact that many states were not conforming to the SARPs. Some states were too poor to establish comprehensive air navigation and safety agencies or, if established, to fund them sufficiently so that they could properly fulfill their mandate. Others had not promulgated laws and regulations to fulfill their obligations under the SARPs. In some states, civil aviation does not receive the attention governmental leaders accord other ministries and agencies deemed "more important".

²⁴⁸ René David-Cooper, *supra* note 30 at 119.

²⁴⁹ Orbach, *supra* note 15 at 53.

²⁵⁰ Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 51: "The root cause "Just as there must be a first domino that makes the others tumble, so there must be a first event or occurrence that makes the accident happen. [...] The root cause is usually defined as the combinations of conditions and factors that underlie accidents or incidents, or even as the absolute beginning of the causal chain".

²⁵¹ See René David-Cooper, *supra* note 30 at 119.

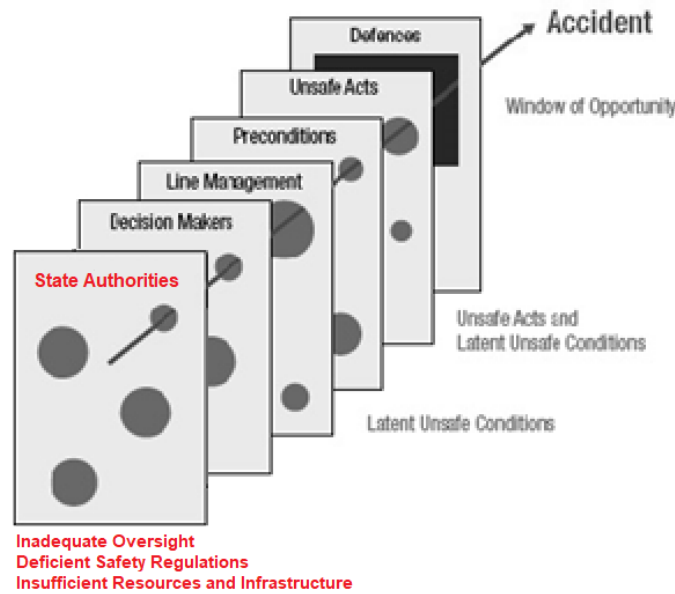


Figure 5 — The State Factor in Relation to the Swiss Cheese Model (Revised)

safely to the earth” (emphasis added).²⁵² In seeking a substantial financial pledge by Congress for accomplishing this exploit, JFK’s speech reflected a State’s institutional safety culture and policy commitment aimed at establishing the foundations for exploring a new frontier whilst protecting the lives of its constituents first and foremost.²⁵³ In the context of aviation, as well as in any industry for that matter, it is thus argued that the Swiss Cheese Model should explicitly include the State as its very first layer of defence, or inversely as the first potential point of failure (see revised model in Figure 5 above). In a perfect system, adequate regulations, active surveillance activities and sufficient resources and infrastructure by the State should—in theory—prevent the manifestation of latent and active failures within the organizational, technical and human

²⁵² Michele Ostovar, “The Decision to Go to the Moon: President John F. Kennedy’s May 25, 1961 Speech before a Joint Session of Congress”, (22 September 1998), online: *National Aeronautics and Space Administration* <www.nasa.gov/history/the-decision-to-go-to-the-moon/>.

²⁵³ *A contrario*, it could also be inferred from this speech that JFK recognized the State’s legal responsibility for any failure to protect the safety of its space pioneers. Unfortunately, this scenario would tragically materialize when the Challenger space shuttle exploded in 1986. See *Report of the Presidential Commission on the Space Shuttle Challenger Accident*, Accident Investigation, by National Aeronautics and Space Administration, Accident Investigation Executive Order 12546 of February 3, 1986 (Washington, DC, 1986).

components of each air service provider. However, no perfect system exists²⁵⁴ and imperfections at the State-level often constitute the very first ingredient in the sequential order of events that lead to a system's failure.²⁵⁵

Even so, the State, through its SPP, remains the primary and frontal layer of the Swiss Cheese model. By analogy, the State forms the “rind” of the cheese: it should be the most robust, resistant, and vigorous layer of defence against all accidents. But if the rind is pierced, then the entire system is at risk of being contaminated with the entry of risk pathogens within its national system. Over time, this can lead to a progressive decay of the systems' remaining safeguards and the State's overall safety levels, and contribute to systemic issues, such as the proliferation of air occurrences across a national system, at which point the Swiss Cheese may start mouldering. Only the State can establish, protect and reinforce the system's outer barriers with resilient and effective safety defences to prevent inner holes from forming within the organizational, technical and human layers of the Swiss Cheese.

Although the necessary safeguards can be erected by establishing an SPP in strict accordance with ICAO Annex 19, we cannot ignore that globally, ICAO SARPs have not achieved satisfactory and consistent levels of implementation. Consequently, we can assume that not all Member States comply fully with each SPP requirement, therefore, outer holes varying in numbers, sizes and level of severity are likely found at the State-level in *all* national air transport

²⁵⁴ Waring, *supra* note 35 at 119.

²⁵⁵ Orbach, *supra* note 15 at 56.

systems.²⁵⁶ This may explain—in part—the worldwide disparity in safety levels and accident statistics witnessed across ICAO’s membership.²⁵⁷

By relying on a revised version of the Swiss Cheese model, the following section will therefore focus on the potential Total System failures that can arise with respect to a State’s (1) *critical resources and infrastructure*, (2) *government oversight* and (3) *air safety regulations*, as well as their contributory role in aircraft accidents. Given that several damning findings regarding TC’s governance in civil aviation were made during the Dryden Inquiry,²⁵⁸ the following section will continue to rely on Flight 1363’s compelling set of facts to demonstrate how government (in)action—in the three key areas mentioned above—can act as a pernicious State Factor in aircraft accidents.

9.3 *Insufficient Resources and Infrastructure — The “Cost” of Safety*

It has been suggested that “[a]viation safety can be effectively improved only if relevant organizations have access to sufficient resources.”²⁵⁹ Similar to air carriers, all governments must carefully balance public resources against the need to protect the travelling public’s safety. They may also have to make difficult decisions in the governance of not just aviation, but of their country

²⁵⁶ Jennison, *supra* note 168 at 292: “Practically, many - or even most - of the world’s governments are ill-equipped to carry out their responsibilities under international law for safety oversight of air carrier operations. They lack the trained personnel, regulatory framework, financial and technical resources, or some combination of these factors to carry out the minimum requirements of the Chicago Convention and its Annexes. Not all ICAO countries have air carriers based in their territories, but the ones that do differ substantially in their degree of industrialization and national wealth. Some countries have no reasonable hope of putting together an effective oversight mechanism without skewing national priorities and drawing badly needed resources from some other public use. Many others operate substantial fleets, engaged in sophisticated and far-flung operations, and may be on the verge of being able to provide effective oversight. Even the most highly developed nations are unable to undertake the oversight of every aircraft that flies into their territories”.

²⁵⁷ See Fox, *supra* note 80 at 41.

²⁵⁸ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 1048–1052.

²⁵⁹ Schnitker & van het Kaar, *supra* note 82 at 20.

at large. Governments constantly face institutional challenges and constraints, budgetary cutbacks,²⁶⁰ political dilemmas or national crises that can overshadow safety issues in aviation.²⁶¹

Financial considerations are thus one of the major reasons why certain States cannot fully comply with SARPs.²⁶² The proposition that aviation safety “is increasingly becoming linked to wealth”²⁶³ has valid applications in the context of State governance, particularly since “[a]n adequately trained and resourced inspectorate using an appropriate array of enforcement tools is critical to the effective implementation of safety regulation.”²⁶⁴ However, the balancing of one interest—*safety*—against another—*public resources*—can present a significant challenge for any government.²⁶⁵ Just like with airlines, it is axiomatic that any government decision has the potential to positively or negatively influence safety whilst consuming limited public resources, and *vice versa*. Investing into safety therefore reflects an opportunity cost for government executives, who are also faced with a constant, yet even more crucial management dilemma when seeking to balance industry interests and government budgets, against fundamental safety priorities.

As it is the case for all air carriers, safety also has a “price tag” in yearly government budgets²⁶⁶ and while air safety cannot be “bought” *per se*, governments have a strong influence on the industry’s overall standing and welfare, depending on the level of State investments made in the

²⁶⁰ Mark Lee Morrison, “Navigating the Tumultuous Skies of International Aviation: The Federal Aviation Administration’s Response to Non- Compliance With International Safety Standards” 2 Southwestern University School of Law Southwestern Journal of Law and Trade in the Americas 621–642 at 640.

²⁶¹ For example, TC issues numerous safety-related exemptions during COVID-19 allowing for the extension of flying privileges, deferring pilot proficiency training and competency checks, postponing onsite inspections, etc. Transport Canada, “COVID-19 measures, updates, and guidance for aviation issued by Transport Canada”, (2020), online: *Government of Canada* <<https://tc.canada.ca/en/initiatives/covid-19-measures-updates-guidance-issued-transport-canada/covid-19-measures-updates-guidance-aviation-issued-transport-canada#toc5>>.

²⁶² Olga Barreto, “Safety Oversight: Federal Aviation Administration, International Civil Aviation Organization, and Central American Aviation Safety Agency” (2002) 67:3 Journal of Air Law and Commerce 651–684 at 670–671; Leloudas & Haeck, *supra* note 204 at 121–122.

²⁶³ Fox, *supra* note 80 at 24.

²⁶⁴ Hampson, Fraser & Quinlan, *supra* note 170 at 247.

²⁶⁵ White, *supra* note 125 at 163.

²⁶⁶ For instance, TC estimates that for civil aviation, its regulatory and oversight mandates require a budget allocation of CAD 94,996,000 per year. Transport Canada, “2020 to 2021 Integrated plan for regulatory framework and oversight”, (2020), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/open-tc/2020-2021-integrated-plan-regulatory-framework-oversight#toc-7-2>>.

available infrastructure, regulation and oversight of civil aviation. From a governance standpoint, an active approach by the State will positively influence safety levels in the aviation industry—the positive externality, but could foreseeably require significant financial resources—the negative externality. In the context of ICAO Annex 19, it also becomes evident that developing, implementing and maintaining an SPP (i.e., safety policies and oversight activities)²⁶⁷ requires significant financial resources to carry out prescribed regulatory and surveillance measures, and maintain crucial State assets to run the SPP, such as qualified personnel, salaries, infrastructure, etc.

According to ICAO, States “must ensure that agencies that have safety responsibilities are given sufficient resources to carry out their mandates.”²⁶⁸ To implement and maintain a SPP, namely to carry out licensing, certification, authorization approvals, oversight (inspections and audits) and enforcement actions,²⁶⁹ States incur significant expenses which are generally funded by a State-allocated budget.²⁷⁰ However, not every country is in a position to afford the full spectrum of essential aeronautical resources and safety requirements,²⁷¹ not to mention that many governments are responsible for providing air navigation services,²⁷² as well as building and maintaining critical aeronautical infrastructure,²⁷³ such as airports, across its territory.²⁷⁴

²⁶⁷ International Civil Aviation Organization, *supra* note 30, s 8.3.6.17.

²⁶⁸ *Ibid* at 8.3.6.17.

²⁶⁹ Adediran, *supra* note 13 at 321–322.

²⁷⁰ International Civil Aviation Organization, *supra* note 30, s 8.3.6.18.

²⁷¹ Charles E Schlumberger & Shruti Vijayakumar, “Regional Safety Oversight Organisation: Service Provider or More” (2014) 39 *Annals of Air and Space Law* 213–246 at 165–167; John Saba, “Aviation Safety in Crisis: The Option of the International Financial Facility for Aviation Safety (IFFAS)” (2002) 30:1 *Transportation Law Journal* 1–52 at 10–11 & 25.

²⁷² *Convention on International Civil Aviation, 7 December 1944*, 1944 art 28; Schubert, Francis, “Air Navigation” in Dempsey, Paul S & Ram Jakhu, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 88 at 103.

²⁷³ Ruwantissa Abeyratne, “Funding an International Financial Facility for Aviation Safety” (2002) 27 *Annals of Air and Space Law* 1–26 at 25–26; see also Isabelle Lelieur, “Airport Business and Regulation” in Dempsey, Paul S, Ram Jakhu & Charles E Schlumberger, eds, *Routledge Handbook of Public Aviation Law* Routledge Handbooks (New-York, New-York: Routledge, 2017) 114 c 6.

²⁷⁴ George N Tompkins, “Enforcement of Aviation Safety Standards” (1995) 20 *Annals of Air and Space Law* 319–334 at 327: “The civil aviation authorities of ICAO member States are responsible, not only for safety oversight of licensed operators within their respective countries, but also for air traffic control facilities, instrument landing systems, runway

Moreover, certain countries, like Canada, Brazil, the U.S., Russia and China, have vast geographical areas to cover, thus considerably increasing their overall expenses needed to meet their safety responsibilities under the *Chicago Convention*. All of these considerations can effectively inhibit a State's ability to have "boots on the ground" throughout its territory to conduct active oversight and ensure compliance across all sectors of its aviation industry. Qualified staff, such as safety inspectors and experts, are particularly essential in carrying out surveillance programs and maintaining critical aeronautical infrastructure, yet competent personnel in these niche areas are scarce, difficult to retain and expensive to employ, as they are they often recruited from civilian and military operators whose work description, salary and benefits are generally more competitive and appealing in comparison with the public service. This is concerning since ICAO has noted that systemic safety issues within a country are often linked to "the lack of an adequate safety oversight organization and a sufficient number of adequately qualified, experienced and trained technical staff."²⁷⁵

In the end, even if CAAs yearn to hire additional inspectors, acquire new infrastructure and carry out more safety surveillance, each country has fluctuating abilities to levy financial resources and cover the cost of their regulatory mandate. While they must all meet the same requirements under the *Chicago Convention*, CAAs come in different sizes, with unequal budgets, institutional resources, and expertise, as well as with distinct experience levels in civil aviation.²⁷⁶ CAA executives are also similar to airline CEOs: they must delicately balance their allocation of resources and optimize their ability to satisfy their safety mandate within the available funding,

conditions, including length, markings and obstructions, airport operators, the accuracy of approach charts and the furnishing of airport terminal information, including weather data, to arriving and departing aircraft, to mention but a few of the all inclusive subject of 'safety oversight' responsibility of civil aviation authorities".

²⁷⁵ International Civil Aviation Organization, *supra* note 221, s 1.2.2.

²⁷⁶ Fitzgerald, *supra* note 239 at 132–133.

while navigating through public pressure and periods of political instability, thus reflecting “in a crude form of the kind of cost-benefit analysis that is the grammar of modern economics.”²⁷⁷

Even with good intentions, CAA budgets are also limited and can change drastically from one year to another, particularly when a change in government occurs. On the political stage, making public investments into civil aviation may not be a popular and politically appealing option for elected representatives, that is until a serious and highly-mediatized accident occurs.²⁷⁸ Public investments, policy initiatives and budgetary allocations are more likely to be funnelled towards healthcare, education, and tax incentives in order to produce more noticeable results for their electorate (and yield votes), in contrast with aviation safety investments whose tangible benefits on our wellbeing are far less discernable and harder to appreciate in the short term.

Even if air safety should *in theory* be a paramount priority within a country,²⁷⁹ politics can become “a threat to the efficiency of the law”²⁸⁰ and hinder valid safety objectives when a CAA’s funding is depleted or redirected towards another government department due to conflicting national priorities.²⁸¹ Or even worse, if public budgets are constrained and the economy is struggling, the State may be less inclined to pay for something that it simply cannot afford.²⁸²

²⁷⁷ The issue of turning safety as a “commodity” or a budget line in federal accounting books makes it vulnerable to market forces, like any other good. If air carriers are left policing themselves, some may see “safety” as an expendable commodity and then focus solely on the profitability of their respective operations. The issue is that in deregulated industries, markets can stop serving the public good and thus undermine aviation’s legal framework. See White, *supra* note 125 at 163.

²⁷⁸ Megan Coontz McAllister, “Maximizing Safety under Nextgen: Apportionment of Duty, the FTCA, and Policy in Aviation” (2015) 13:1 Colorado Technology Law Journal 129–148 at 145–146.

²⁷⁹ Tompkins, *supra* note 273 at 321.

²⁸⁰ Paul Kahn, *Making the Case* (New Haven, Connecticut: Yale University Press, 2016) at 174.

²⁸¹ Saba, *supra* note 270 at 52: “In the end, the economic reality of limited resources and politically dictated priorities should not interfere with the world’s politicians finding a way to balance the priority attached to not only civil aviation ‘security’ but also ‘safety.’ Civil aviation security and safety each constitute a global and indivisible system such that if civil aviation security and/or safety are threatened in one country or region, security and/or safety breaks down and is threatened worldwide. The sovereign and international political will must be directed to recognize that state interests and passenger lives depend upon channeling sufficient resources to both objectives at the same time and, at a minimum, with equal priority. The citizens of the world can hope for no more. Needless to add, they have a right to expect no less”.

²⁸² Waring, *supra* note 35 at 85; Addy, *supra* note 127 at 45; Paul Stephen Dempsey, *supra* note 246 at 38: “ICAO has recognized that, for economic reasons, many states simply cannot comply without significant technical and economic

Given the disparities in each country's public budgets, it is obvious that not every State has the privilege to afford the resources necessary to implement an SPP in perfect harmony with ICAO Annex 19. Regardless of the intent or reason, ICAO has warned that insufficient safety resources can contribute to a "lack of a regulatory framework and lack of technical and financial resources to carry out the minimum requirements of the *Chicago Convention*."²⁸³

During the Dryden Inquiry for instance, it was noted that the downsizing of TC and the lack of dedicated resources during the 1980s contributed to numerous issues with respect to its general ability to carry out meaningful oversight activities and effective regulatory approvals.²⁸⁴ As a result, TC overlooked many critical safety issues and allowed them to persist to a point of endangering the safety of the travelling public.²⁸⁵ In addition to the implementation of a federal deficit reduction policy in the 1980s, which drastically reduced TC's funding and available resources, TC also had to compose with a skyrocketing increase in new air carrier applicants within the Canadian market following the economic deregulation of civil aviation during the same period.²⁸⁶ This led to a significant increase in various requests pertaining to operational, licensing and certification approvals, as well as an increased need for more surveillance activities.²⁸⁷ However, TC lacked sufficient qualified personnel, namely air carrier inspectors,²⁸⁸ and became overwhelmed to a point where it was unable to carry out its regulatory and oversight functions effectively.²⁸⁹

assistance dedicated to improving navigation facilities and equipment, training and personnel, and laws and regulations".

²⁸³ International Civil Aviation Organization, *supra* note 226, s 2.1.2.

²⁸⁴ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 868: "The review team found that the Aviation Regulation organization had significant shortages in resources and that these shortages were adversely affecting the organization's ability to conduct its affairs efficiently and to ensure an adequate level of safety. It also noted a number of activities where efficiency and effectiveness could be achieved through changes in existing practices".

²⁸⁵ See *ibid* at 813–814.

²⁸⁶ *Ibid* at 872.

²⁸⁷ *Ibid* at 873–874.

²⁸⁸ *Ibid* at 920.

²⁸⁹ *Ibid* at 914.

In a purely Canadian analogy, it was as if a massive expansion had occurred in a professional hockey league, which could not afford anymore to have qualified referees on the ice for each game to confirm goals, break up fights, and punish infractions. With industry activities ramping up substantially due to new market participants and increased competition, the Canadian air transportation market was outgrowing its regulator's institutional capabilities at a fast pace never seen before in Canada.²⁹⁰ The Dryden Inquiry therefore found that the compounded effect of both the deficit reduction and the economic deregulation policies significantly hindered TC's ability to effectively discharge its safety mandate.²⁹¹

Numerous inquiry witnesses confirmed that in the years preceding the Dryden tragedy, TC consistently struggled to carry out the full scope of its essential certification, inspection and surveillance duties.²⁹² More concerning was the fact that inspections were often delayed,

²⁹⁰ Jennison, *supra* note 168 at 305: "Just as serious, the growth in aviation activity has outpaced the growth of resources devoted to aviation safety. Government budgets and staffing are being slashed in the United States, as in many other places. Nevertheless, civil aviation must adjust its priorities as necessary to meet the challenge of upholding ICAO standards for safety oversight, despite limited resources. Governments must set safety priorities, because the industry tends to treat it as just another cost item, like any other. [...] As Mr. Pogue said, "safety must be the preoccupation of every one working in civil aviation", from airlines, to airports, to government. "Attitude", he said, "is of towering importance".

²⁹¹ Waring, *supra* note 35 at 42–43; The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 869; Moshansky & Van Dyke, *supra* note 8 at 56–57: "Air Ontario managed to get away with serious operational deficiencies primarily because government's then-prevailing twin policies of fiscal restraint and deregulation of the airline industry greatly diminished regulatory oversight. A pre-Dryden plea for funding by the Assistant Deputy Minister, Aviation, for what was described as absolute minimum regulatory oversight activities to assure public safety was summarily dismissed by the Program Control Board and cut by 80%.¹ Not one individual on the Control Board at the time had an aviation background. Decisions directly affecting aviation safety were based solely on financial considerations. Pre-Dryden, the shortage of qualified air carrier inspectors was so critical that all long-haul domestic and international in-flight aircrew monitoring and surveillance had been suspended. The Inspectorate had been depleted to about 1200 inspectors, some 400 below the minimum required to properly oversee air carrier operations. After the introduction of airline deregulation, most remaining Aviation Inspectors were assigned to desk jobs processing new airline certification applications. Cost-cutting virtually eliminated support staff as well. In one Regional Office, 29 Aviation Inspectors shared one typist. Inspectors, earning commensurate salaries to monitor air carrier operations, were reduced to typing new air carrier certification reports. A cursory Transport Canada audit of Air Ontario five months before the Dryden accident did not even examine the airline's F-28 implementation program. On January 20, 1989, the Acting Chief of Air Carrier Operations issued a prophetic warning to senior Transport Canada management that air carrier inspection was "no longer able to assure the Minister of the safety of large air carrier commercial air services in Canada and that a major accident was inevitable in this country". This warning was rebuffed by senior management as "inflammatory". Seven weeks later, at Dryden, Ontario, 24 people paid with their lives. Lack of regulatory oversight had left Air Ontario virtually to its own devices, allowing it to set its own inadequate safety standards and enabling it to get away with unconscionable safety, management and operational deficiencies, all of which contributed to the crash".

²⁹² The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 932–933.

incomplete and seldom effective.²⁹³ With government fiscal restraints overriding safety imperatives,²⁹⁴ the Inquiry noted an “apparent conflict between the need, on the one hand, to satisfy the requirement that the industry was in compliance with safety standards and, on the other, to live within the resource levels imposed as a result of budgetary restraint.”²⁹⁵ The Inquiry further found that TC executives had effectively prioritized internal budgetary targets over their primary safety mandate.²⁹⁶

Because of resource constraints, an inadequate regulatory framework, and organizational deficiencies, the present Transport Canada organization is ill-equipped to provide in an efficient manner a uniform level of safety. [...] There is ample evidence before this Commission to show that Transport Canada, because of a variety of inadequacies in its organization, has fallen short of meeting its safety assurance responsibilities. Much of the evidence indicates that competition for scarce resources, both within the department itself and with other departments, has been a basic contributing factor to such inadequacy.²⁹⁷

The complacency and lack of rigour at TC, which has been characterized as a form “organizational narcissism,” blinded government officials at the time to the growing dangers on the horizon.²⁹⁸ Based on the evidence adduced during the Dryden Inquiry, it appears that a State’s inability to invest adequate public funds to maintain essential resources and infrastructure will necessarily hinder its capacity to conduct effective oversight and its ability to prevent accidents.²⁹⁹ According to ICAO, systemic safety issues within a country can be attributable to the concerned States’ lack of resources and/or commitment towards aviation safety:

Information available to ICAO shows that a significant number of Contracting States have experienced major difficulties in carrying out their safety oversight functions. The reasons for their inability to effectively carry out an exercise that is one of the tenets of the Convention may be many and varied. Nevertheless, the obligation remains with individual States and the successful resolution of difficulties requires a solid and transparent commitment from governments. State authorities responsible for safety oversight should be provided with the necessary resources, both human and financial, to be able to

²⁹³ *Ibid* at 1104–1105.

²⁹⁴ *Ibid* at 935.

²⁹⁵ *Ibid* at 927.

²⁹⁶ See Campbell, *supra* note 54 at 23.

²⁹⁷ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 1049–1051.

²⁹⁸ Campbell, *supra* note 54 at 73.

²⁹⁹ Mark Lee Morrison, *supra* note 259 at 629.

effectively carry out safety oversight obligations on behalf of the State. Without such a commitment on the part of the State, efforts put into resolving difficulties will remain simply efforts, with no significant positive effect. (emphasis added)³⁰⁰

Based on the foregoing, we can conclude with certainty that government constraints related to funding, institutional expertise, critical infrastructure, internal training and qualified personnel can lead to a reduction in the quality and quantity of surveillance, inspection and monitoring activities,³⁰¹ which in turns affect national safety levels.

9.4 Inadequate Oversight

Safety oversight can be defined as “a process by which States ensure implementation of SARPs at the domestic level through the enactment of primary aviation legislation and the establishment of an oversight agency.”³⁰² State oversight plays a crucial role, as it compels air operators to follow safety standards and prevent deadly errors over time.³⁰³ As noted by an author, “[t]he accession of States to the *Chicago Convention* assumes an undertaking by them to comply with the applicable SARPs and to put in place a safety oversight system in their territories to adequately address safety issues.”³⁰⁴ Inadequate oversight therefore constitutes a breach of the *Chicago Convention* and reflects a serious risk which can contribute to aviation occurrences, as documented by investigation reports and previous studies on this subject.³⁰⁵

³⁰⁰ International Civil Aviation Organization, *supra* note 226, s 2.5.4.

³⁰¹ Moshansky & Van Dyke, *supra* note 8 at 62–63.

³⁰² Blumenkron, *supra* note 245 at 36.

³⁰³ Schnitker & van het Kaar, *supra* note 82 at 69.

³⁰⁴ Adediran, *supra* note 13 at 319; Addy, *supra* note 127 at 52.

³⁰⁵ Anthony J Broderick & James Loos, “Government Aviation Safety Oversight - Trust, but Verify” (2002) 67:4 Journal of Air Law and Commerce 1035–1056 at 1054–1055: “One may justifiably question whether the government oversight of airlines is, in the scheme of things, an important factor in airline safety. Several studies have shown that the quality of safety oversight is strongly correlated with the safety record of airlines. Proper safety oversight of commercial airlines by governments, as is required by international treaty, has been shown to be highly correlated with relatively good safety records for these airlines. These data, coupled with the Common sense notion that adherence to international obligations is expected by other nations, has led to a welcome emphasis on safety as a high priority in ICAO and a sea change in the way government safety oversight is viewed throughout the world”; see also Ghislaine Richard, “The Civil Aviation Tribunal of Canada after Five Years” (1991) 16 Annals of Air and Space Law 179–194.

In this context, Paul P. Dempsey has eloquently stated that “[l]aw without compliance and enforcement is like poetry—it is pleasing to the ear, but has little to do with the practical world in which we live.”³⁰⁶ It is undeniable that compliance with regulations can only be ensured through adequate oversight and corresponding enforcement measures by the regulator. Surveillance and enforcement activities are thus key prerequisites for an effective SPP,³⁰⁷ as they serve the public interest by ensuring that air services remain safe and dependable.³⁰⁸ It has even been argued that providing effective oversight is akin to a peremptory norm of general international law (*jus cogens*).³⁰⁹ Yet, ICAO has reported that “a number of States have failed to establish the capability for effective safety oversight”³¹⁰ and has further noted that:

... many Contracting States have not established effective safety oversight, thereby creating the risk for unsafe conditions. The establishment of effective safety oversight by the State requires both a high-level government commitment and an adequate level of resources. Without political commitment, a Contracting State cannot fully fulfill its aviation safety-related responsibilities. However, in the case of many States, even if the State is fully committed to resolving its safety oversight deficiencies, low levels of aviation activity within the State and competing demands on public resources may severely limit the level of funding available to national aviation safety and safety oversight bodies.³¹¹

³⁰⁶ Paul Stephen Dempsey, *supra* note 246 at 2.

³⁰⁷ The Honourable Virgil P Moshansky, & Donald L Van Dyke, *The Role of the Judiciary in Aviation Safety: The Inside Story and Legacy of Dryden* (International Civil Aviation Organization, Montréal, QC: Royal Aeronautical Society, 2007).

³⁰⁸ Broderick & Loos, *supra* note 304 at 1039: “If a country is to reap the many benefits of international commercial air transportation, the country has agreed, by the terms of the Convention, to provide for safety oversight of those operations. Governments do not always recognize this obligation. From our experience, many governments that do recognize their safety oversight obligations have certainly not devoted adequate resources to fulfilling those obligations”.

³⁰⁹ Moshansky & Van Dyke, *supra* note 8 at 74–75: “Article 53 of the Vienna Convention on the Law of Treaties defines rules of *jus cogens* as peremptory norms of general international law recognized by the international community of States as a whole as norms from which no derogation is permitted ‘and which can be modified only by a subsequent norm of general international law having the same character’. A basic State responsibility is to ensure the safety of its citizens, including all those who travel by air, through diligent regulatory oversight of carriers which it has licensed. Can the State legally and morally divest itself of its responsibility for assuring public safety by delegating regulatory oversight of air carriers unto the carriers themselves? We are firmly of the belief that it cannot. This critical responsibility of government simply cannot be delegated to private operators. Such devolution of regulatory oversight is a colossal abdication of governmental responsibility. We submit that not only is it contrary to international law but also to long-established practices of States which have major aviation industries. Moreover, it runs contrary to the best interests of the air-traveling public and potentially puts their lives at risk”.

³¹⁰ International Civil Aviation Organization, *supra* note 221, s 2.1.1.

³¹¹ *Ibid*, s 1.1.2.

As noted previously in Chapter 1, the State cannot be faulted for each accident, nor can it guarantee absolute safety, however, it is “uniquely placed as one of the potentially most effective defences against organisational accidents.”³¹² On the other hand, the regulator can become the most threatening point of failure in the system given its potential to generate systemic safety issues throughout its national civil aviation system. The Dryden Inquiry pointed out that TC’s acute difficulties in discharging its safety mandate (*State Factors*), namely by conducting inadequate oversight, were issues that clearly inhibited its ability to prevent the Air Ontario tragedy.³¹³ This led to a damning finding by Justice Moshansky:

Had the Transport Canada Aviation Regulation Directorate been in a position to discharge all of its responsibilities in an effective and timely manner, some of the factors that contributed to the Dryden accident may not have arisen.³¹⁴

In other words, had TC upheld its statutory responsibilities, appropriate safeguards reflected as defence layers in the Swiss Cheese model would have been firmly in place to prevent the activation of a deadly chain reaction. Faced with a rapidly changing market, TC was unable to adapt its regulatory and oversight frameworks to reflect the new reality at the time, thus leading to widespread compliance issues across Canada.³¹⁵ A combination of various neoliberal policies aiming to deregulate the market and remove “red tape”, poor departmental management at TC and financial austerity at the State level effectively removed critical safety barriers. These factors “checkmated” TC’s ability to correct safety deficiencies,³¹⁶ produced significant gaps in the system

³¹² National Aerospace Laboratory NLR, “Aviation Safety Management in Switzerland: Recovering from the Myth of Perfection”, (June 2003), online: *NLR Air Transport Safety Institute* <www.nlr-atsi.nl/.../aviation-safety-management-in-switzerland.pdf> at 17.

³¹³ See The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 934.

³¹⁴ *Ibid* at 914.

³¹⁵ Parker, *supra* note 160 at 18: “Economies in transition face particular compliance challenges due to pre-existing historical, political, and economic factors that mean that regulatory instruments cannot achieve their objectives unless many other factors are changed as well”.

³¹⁶ Campbell, *supra* note 54 at 20.

and created an environment where serious safety deficiencies were left unidentified and/or uncorrected.³¹⁷

In recent history, inadequate oversight continues to be cited in aircraft accident reports, even in well-regarded jurisdictions.³¹⁸ In Canada, the TSB has cited a form of inadequate oversight as a *finding as to risk* in several of its investigation reports,³¹⁹ i.e. “conditions, unsafe

³¹⁷ International Civil Aviation Organization, *supra* note 226, s 1.2.2. In this context, ICAO has noted that: “A common deficiency identified in the majority of assessed and audited States is a lack of an adequate safety oversight organization and infrastructure within the CAA. In the majority of cases, this has resulted from insufficient resources being provided for the CAA. As a result, such States are unable to fully comply with national and international requirements relating to the safety of civil aviation, including operations and infrastructure. The audits and other ICAO missions have shown that where an appropriate safety oversight organization has not been established, control and supervision of aircraft operation and associated activities are often deficient, creating an opportunity for unsafe practices”.

³¹⁸ *Final Committee Report - The Design, Development & Certification of the Boeing 737 MAX*, by Committee on Transportation and Infrastructure (Washington, DC: House Committee on Transportation & Infrastructure, 2020) at 84: “Understanding the FAA’s oversight structure, as well as the many problems it has recently encountered and the oversight challenges it still needs to confront, is important to understanding why the U.S. aviation regulatory system failed in such spectacular fashion with the certification of the 737 MAX aircraft and the FAA’s actions after the crash of Lion Air flight 610”.

³¹⁹ See for example (list not exhaustive): Transportation Safety Board of Canada, “Aviation Investigation Report A07C0001 - Collision with Terrain, Transwest Air, Beech A100 King Air C-GFFN, Sandy Bay, Saskatchewan, 07 January 2007”, (12 August 2009), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2007/a07c0001/a07c0001.html#3.0>>; Transportation Safety Board of Canada, “Aviation Investigation Report A12W0031 - Loss of control and collision with terrain, Kananaskis Mountain Helicopters Ltd., Bell 206B JetRanger (Helicopter) C-GLQI, Loder Peak, Alberta 0.4 nm NW, 30 March 2012”, (23 July 2013), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2012/a12w0031/a12w0031.html#4.0>>; Transportation Safety Board of Canada, “Air transportation safety investigation A12Q0216 - Low-energy rejected landing and collision with terrain, Perimeter Aviation LP, Fairchild SA227-AC Metro III, C-GFWX, Sanikiluaq, Nunavut, 22 December 2012”, (29 June 2015), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2012/a12q0216/a12q0216.html>>; Transportation Safety Board of Canada, “Air transportation safety investigation A13W0120 - Engine failure after takeoff and collision with terrain, Buffalo Airways Ltd., Douglas DC-3C, C-GWIR, Yellowknife Airport, Northwest Territories, 19 August 2013”, (27 April 2015), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2013/a13w0120/a13w0120.html>>; “Air transportation safety investigation A13Q0098 - Forced landing following fuel exhaustion, Aviation Flycie Inc., Beechcraft King Air 100, C-GJSU, Montréal/St-Hubert Airport, Quebec, 8 nm E, 10 June 2013”, (17 August 2016), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2013/a13q0098/a13q0098.html>>; Transportation Safety Board of Canada, “Air transportation safety investigation A13H0001, Controlled flight into terrain 7506406 Canada Inc., Sikorsky S-76A (helicopter), C-GIMY, Moosonee, Ontario, 31 May 2013”, (15 June 2016), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2013/a13h0001/a13h0001.html>>; Transportation Safety Board of Canada, “Air transportation safety investigation A14A0067 - Collision with terrain, Manan Air Services (dba Atlantic Charters), Piper PA-31 Navajo, C-GKWE, Grand Manan, New Brunswick, 16 August 2014”, (12 February 2016), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2014/a14a0067/a14a0067.html>>; Transportation Safety Board of Canada, “Air transportation safety investigation A15Q0120 - Loss of control and collision with terrain, Air Saguenay (1980) inc. de Havilland DHC-2 Mk. 1 (Beaver), C-FKRJ, Tadoussac, Quebec, 7 nm N, 23 August 2015”, (7 September 2017), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2015/a15q0120/a15q0120.html>>; Transportation Safety Board of Canada, “Air transportation safety investigation A13H0002 - Collision with water, Government of Canada, Department of Transport, MBB BO 105 S CDN-BS-4 (helicopter) C-GCFU, M’Clure Strait, Northwest Territories, 09 September 2013”, (7 December 2015), online: *Transportation Safety Board of Canada*

acts or safety deficiencies that were found not to be a factor in [those occurrences] but could have adverse consequences in future occurrences.”³²⁰ While such risks did not *directly* contribute to these specific accidents in question, we can infer from the TSB’s findings that these gaps did represent visible holes in the Swiss Cheese model that could in other circumstances contribute directly to actual accidents.

There have been air safety investigation reports where instances of inadequate oversight were explicitly identified by the TSB as *causes and contributing factors*,³²¹ which are defined as “conditions, acts or safety deficiencies that were found to have caused or contributed to this occurrence.”³²² Under the Swiss Cheese Model, these reflect serious failures at the State-level, which aligned with other latent and active failures and culminated in a catastrophic outcome. The foregoing findings therefore reaffirm the proposition that State (in)action can constitute a defined causal factor in actual accident sequences, as evidenced by TSB investigation reports.

<<https://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2013/a13h0002/a13h0002.html>>; Transportation Safety Board of Canada, “Air transportation safety investigation report A17C0146 - Loss of control and collision with terrain, West Wind Aviation L.P., Avions de Transport Régional ATR 42-320, C-GWEA, Fond-du-Lac, Saskatchewan, 13 December 2017”, (October 2021), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rapports-reports/aviation/2017/a17c0146/a17c0146.html#n271>.

³²⁰ Transportation Safety Board of Canada, “Air transportation safety investigation A18Q0030, Runway overrun on landing, Strait Air (2000) Ltd., Beechcraft King Air A100, C-GJXF, Havre St-Pierre Airport, Quebec, 26 February 2018”, (21 May 2020), online: *Transportation Safety Board of Canada* <<https://www.bst-tsb.gc.ca/eng/rapports-reports/aviation/2018/a18q0030/a18q0030.html>>.

³²¹ Transportation Safety Board of Canada, “Aviation Investigation Report A10Q0117 - Loss of Control and Collision with Terrain, Nordair Québec 2000 Inc., de Havilland DHC-2 Mk. 1 C-FGYK, La Grande-Rivière, Airport, Quebec, 24 July 2010”, (24 April 2013), online: *Transportation Safety Board of Canada* <<http://www.bst-tsb.gc.ca/eng/rapports-reports/aviation/2010/a10q0117/a10q0117.asp>>: “The action taken by TC did not have the desired outcomes to ensure regulatory compliance; consequently, unsafe practices persisted”; A10Q0098: “The significant measures taken by TC did not have the expected results to ensure compliance with the regulations, and consequently unsafe practices persisted”.

³²² Transportation Safety Board of Canada, *supra* note 319.

In addition to regularly raising serious concerns within TC's regulatory surveillance program³²³ as a part of the TSB Watchlist,³²⁴ Canada's safety watchdog has also issued numerous air transportation safety recommendations calling upon TC to correct safety deficiencies pertaining to its national oversight program, following their detection in the course of investigations.³²⁵ Considering that TSB recommendations expressly identify "safety deficiencies that pose significant risks to the transportation system and warrant the attention of regulators and industry,"³²⁶ these recommendations reinforce the view that State (in)action does play a role in the manifestation or prevention of accidents. In response to some of these deficiencies, Justice Moshansky even published an article stating that the ongoing lack of meaningful oversight in Canada in the 21st century mimics the pre-Dryden scenario.³²⁷

³²³ Transportation Safety Board of Canada, "Watchlist 2020 - Regulatory Surveillance", (2020), online: *Transportation Safety Board of Canada* <<https://www.bst-tsb.gc.ca/eng/surveillance-watchlist/multi-modal/2020/multimodal-04.html>>: "Regulatory surveillance has not always proven effective at verifying whether operators are, or have become, compliant with regulations and able to manage the safety of their operations. Furthermore, Transport Canada (TC) hasn't always intervened on a timely basis to ensure transportation operators in the air, marine and rail sectors take appropriate corrective actions. [...] [It] is TC's responsibility to inspect and audit operators to confirm that they are compliant with these regulations and that minimum levels of safety are met. [...] TC is not always effective at identifying gaps in a company's safety management processes and intervening in a timely manner. Moreover, at times, there has been an imbalance between the use of traditional inspections to verify compliance with regulations and auditing company safety processes to assess if they are working".

³²⁴ Transportation Safety Board of Canada, "Watchlist 2022 - Key Safety Issues in Canada's Transportation System", (2022), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/surveillance-watchlist/index.html>>: "The Transportation Safety Board of Canada's (TSB) Watchlist identifies the key safety issues that need to be addressed to make Canada's transportation system even safer".

³²⁵ See for example: A16-14, A01-01, A95-17, A09-06, A93-05; A01-01; A16-13; A16-14; A18-03. Transportation Safety Board of Canada, "Air transportation safety recommendations", (2024), online: *Transportation Safety Board of Canada* <<https://www.bst-tsb.gc.ca/eng/recommendations-recommendations/aviation/index.html>>.

³²⁶ *Ibid.*

³²⁷ Moshansky & Van Dyke, *supra* note 8 at 65: "Because of recurring chronic under-funding by the government, Transport Canada has effectively dismantled its regulatory oversight structure by systematically depleting, through attrition and suspended hiring, its inspectorate despite continued growth of aviation. In April 2006, Transport Canada cancelled its National Audit Program, one of its most important oversight activities and, in December 2007, ceased conducting pilot proficiency checks (PPCs). [...] Mr. Justice Charles Dubin who headed a 1981 Commission of Inquiry into aviation safety in Canada stated 'enforcement should play a very significant role in an aviation safety program ... it is presently not doing so'. Transport Canada was again warned 15 years ago, in my Final Report on the Dryden crash, to beef up the regulatory inspectorate force in order to meet the challenges of the expanding aviation industry. In recommendations MCR 110 to MCR 1171 recommended, *inter alia*, that adequate resources be focused on surveillance and monitoring of the air carrier industry with emphasis on in-flight inspections and unannounced spot checks; that surveillance of air carriers be established as a non-discretionary task; that Transport Canada establish a contingency policy to meet unusual resource demands without jeopardizing adequate staffing of inspection and surveillance functions; that it establish improved staffing and recruitment programs to enable filling aviation regulation staffing requirements on a high-priority basis, and that it fast-track staffing requirements. Unfortunately, none of that is now occurring and conditions mimic the pre-Dryden scenario".

We can therefore affirm with certainty that accidents can be attributed to poor oversight, i.e., *State Factors*³²⁸, based on the TSB's evidence placing State (in)action directly in the sequential chain of events leading up accidents. That being said, even adequate oversight and compliance cannot correct dormant deficiencies within a State's regulatory framework,³²⁹ hence why the next subsection will consider how regulatory gaps—a *State Factor*—can also contribute to accidents.

9.5 Deficient Air Safety Regulations

Regulation can be defined as a “sustained and focused control exercised by a public agency over activities that are socially valued.”³³⁰ Yet, the public's trust in the ability of its government to adopt regulations that are effective in mitigating safety risks can be deceptive at times,³³¹ given the potential for regulatory deficiencies: “[d]esigned by humans for a complex reality, regulations tend to be imperfect. Government failures, including a lack of, or inadequate regulation, merely reflect the imperfect nature of regulation.”³³² Globally, it has also been argued that ICAO SARPs are flawed by design: “they are often sketchy and lacking the kind of detail that is appropriate to national safety regulatory.”³³³ If we acknowledge that regulations are imperfect in aviation, the same can be said about their underlying policy-goal outcomes, i.e., preventing accidents and saving lives.

³²⁸ *Ibid* at 70–71: “Lack of regulatory oversight is cited by many authorities and academics as a causal influence on aviation accidents. Transport Canada's own international aviation branch concluded that a substantial portion of Canadian crashes analyzed had a root cause of ‘lack of regulatory supervision’. Linkages between deficient regulatory oversight and poor aviation safety performance are by no means unique to Canada. Australia, Ghana, Russia and the United States are but a few of the States in which these linkages have been identified as contributory factors in high profile aircraft accidents. Economic pressures have led to white-collar crime and violations of regulations among both regulators and the regulated. Inadequate legislation and enforcement has often failed to avoid subverted innovation (i.e., industrial espionage, etc) and technology (i.e., pirated parts, etc)”.

³²⁹ Parker, *supra* note 160 at 7.

³³⁰ Selznick, Philip (1985). “Focusing organizational research on regulation.” In Roger Noll (Ed). *Regulatory Policy and the Social Sciences* (pp. 363-367). Berkeley: University of California Press at 385.

³³¹ Dodd, *supra* note 237 at 7.

³³² Orbach, *supra* note 15 at 56.

³³³ Jennison, *supra* note 108 at 290.

When considering *State Factors*, one possible approach to determine whether a country has deficient air safety regulations would be to objectively compare them against ICAO SARPs in a side-by-side assessment to determine whether they fully comply with international norms.³³⁴ Even if SARPs are not flawless either, this method would yield some interesting findings, particularly since it has been demonstrated that every country's legislative framework arguably differs from ICAO SARPs in some shape or form. By correlating regulatory gaps with corresponding accidents, this exercise would likely find that such regulatory deviations do result in safety deficiencies that can potentially play a role in aircraft accidents.³³⁵

However, "what is paramount is the attitude towards safety, as opposed to the mere adoption and adherence to rules and regulations establishing safety standards."³³⁶ This may explain why even in the presence of comprehensive safety legislation aiming to prevent tragedies, "accidents continue to occur in spite of the existence and enforcement of numerous rules and regulations."³³⁷ As such, an accurate assessment of potential regulatory deficiencies requires a much more subjective examination, as each country has its own industry characteristics and is confronted with unique challenges, which may not be explicitly addressed by ICAO SARPs, especially if they have no international ramifications (e.g., Nordic "bush" air operations).

Instead, the (in)adequacy of air safety regulations should be measured by evaluating their overall *effect* on air safety levels, and how their distinctive regulatory characteristics and design,

³³⁴ Since there are over 12,000 ICAO SARPs across nineteen annexes, conducting such a comprehensive exercise would require substantial time and resources to achieve, hence why it was excluded from the scope of this thesis. See *2020 Safety Report*, by International Civil Aviation Organization (Montréal, Canada: International Civil Aviation Organization, 2020) at 2.

³³⁵ In Canada for instance, Canadian runway end safety area standards do not align with ICAO SARPs under ICAO Annex 14, which increases the risk of aircraft damage, injuries and fatalities in the event of a runway excursion. See Transportation Safety Board of Canada, "TSB Recommendation A07-06 - Runway end safety area (RESA) requirements", (12 December 2007), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/recommandations-recommendations/aviation/2007/rec-a0706.html>>.

³³⁶ Tompkins, *supra* note 273 at 321.

³³⁷ Schubert, *supra* note 124 at 21.

i.e., how the compounded impact of the regulations' combined scope, coherence, specificity, comprehensiveness,³³⁸ and enforceability, play a positive or adverse role in preventing aircraft accidents. It is also important to recognize that regulatory compliance does not necessarily equate to absolute safety.³³⁹ For this reason, achieving the *intended* safety benefits of SARPs (rather than strict compliance with each of the 12,000 SARPs)³⁴⁰ through national safety legislation will depend on its institutional design at the State-level and more importantly, on its overall *effectivity*.³⁴¹

The effectivity of air safety regulations, i.e., their ability to successfully induce safe behaviours across the industry and bring about a meaningful effect in preventing air occurrences,³⁴² is a crucial prerequisite for protecting the wellbeing of the travelling public. Effectivity can be measured by how well a regulatory system achieves its fundamental objectives, and how a target population obeys with regulations or with government policy objectives. In line with the maxim *ut res magis valeat quam pereat*,³⁴³ the effectivity of regulations can be measured by their effective and operative nature in exerting a force or influence over a target population/activity that produces a desired effect and result.³⁴⁴ As a general legal principle, rights and obligations, such as those found in national safety regulations and even ICAO SARPs, ought to be effective, i.e., executable, in order to translate their theoretical purposes into tangible safety

³³⁸ See Michael Milde, "Aviation Safety and Security - Legal Management" (2004) 29 *Annals of Air and Space Law* 1–18 at 2.

³³⁹ Hampson, Fraser & Quinlan, *supra* note 170 at 250.

³⁴⁰ International Civil Aviation Organization, "How ICAO Develops Standards", (2024), online: *International Civil Aviation Organization* <<https://www.icao.int/about-icao/airnavigationcommission/pages/how-icao-develops-standards.aspx>>.

³⁴¹ See Jean d'Aspremont, "Effectivity in International Law: Self-Empowerment against Epistemological Claustrophobia" (2015) 108 *American Journal of International Law* 103–105 at 103.

³⁴² Pierre Lascombes & Evelyne Serverin, "Théories et pratiques de l'effectivité du droit" (1986) 2 *Droit et Société* 102–124 at 101.

³⁴³ *Hofer et al. v Hofer et al.*, 1970 CanLII 161 (SCC), [1970] SCR 958: "It is better for a thing to have effect than to be made void".

³⁴⁴ In French, "effectivité" is defined as: "Caractère d'une règle de droit qui est appliquée réellement ou qui produit l'effet recherché par le législateur" Hubert Reid & Simon Reid, "Dictionnaire de droit québécois et canadien - 6e édition", (2024), online: *Centre d'accès à l'information juridique* <<https://dictionnaires.caij.qc.ca/recherche#t=edictionnaire&sort=relevancy&m=dico&dico=dictionnaire-reid-6>>.

benefits for frontline employees and passengers across the aviation industry.³⁴⁵ In other words, effectivity can be measured by the variance between the air safety regulations' *intended* outcome and its *actual* results.³⁴⁶

Regulatory gaps that weaken the effectivity of air safety regulations can occur whenever a legal norm is insufficient with regards to its scope and specific functions, lacks the intended legal effects due to unforeseen interactions or behaviours among concerned participants, or does not achieve its overall purpose.³⁴⁷ Conversely, effectivity can be enhanced if the target group is *aware* of the applicable norms and *understands* them, and is *willing* and *able* to comply with the said rules. In practice, the effectivity of safety regulations can be largely achieved through institutional promotion, enforcement and oversight,³⁴⁸ however, one or many deficiencies in the design of a country's air safety legislation can also contribute to a serious lack of effectivity.

For instance, the Dryden Inquiry found that prior to the Air Ontario tragedy, "Transport Canada operated with antiquated and inconsistent Air Navigation Orders and Air Regulations which were out of touch with reality and essentially unchanged for 40 years or so."³⁴⁹ Given that a "preeminent regulatory challenge confronting air transport is the need to update policies, guidelines, and other regulatory instruments to address global changes in the aviation environment,"³⁵⁰ regulatory design issues can arise if air safety regulations are substantively outdated and/or vague,³⁵¹ or if their scope is ambiguous or utterly defective.³⁵²

³⁴⁵ d'Aspremont, *supra* note 340 at 104.

³⁴⁶ Lascoumes & Serverin, *supra* note 341 at 101.

³⁴⁷ *Ibid* at 104.

³⁴⁸ See Samantha Besson, "The European Union and Human Rights: Towards A Post-National Human Rights Institution?" (2006) 6:2 Human Rights Law Review 323–360.

³⁴⁹ The Honourable Virgil P. Moshansky, & Donald L Van Dyke, *supra* note 306 at 56.

³⁵⁰ Abeyratne, *supra* note 272 at 29.

³⁵¹ Milde, *supra* note 337 at 7 & 18.

³⁵² Even then, international norms may not always address a country's distinctive issues with adequate precision, thus hindering their overall effectivity. See Edmond Volker, "The Direct Effect of International Agreements in the Community's Legal Order" (1983) 10:1 Legal Issues of Economic Integration 131–145 at 136.

Secondly, regulations can also lack meaningful influence through the generalized acceptance of unsafe practices over time, particularly when the industry “struggle[s] to reconcile business priorities, such as efficiency and market capacity, with safety concerns”³⁵³ and starts drifting away from compliance with applicable rules. Consequently, a widespread lack of compliance with respect to supposedly counterproductive, yet crucial safety regulations will generally contribute to the lowering of safety margins.³⁵⁴ Whether it be a State’s failure to fully implement SARPs, tackle regulatory drift or address urgent industry needs with contemporary legal measures, inadequate regulations will necessarily put a country’s civil aviation industry at risk.

Regulations are also reactive in nature,³⁵⁵ meaning that they do not always anticipate every emerging safety risk and are often drafted in response to tragedies.³⁵⁶ While it is possible for regulators to rely on requisite imagination and predictive logic when drafting rules, many governments struggle to keep up with the industry’s rapid pace and even if they could, no politician

³⁵³ René David-Cooper, *supra* note 71 at 465; see also Sidney Dekker, *Ten Questions About Human Error: A New View of Human Factors and System Safety* (Farnham, United Kingdom: Ashgate Publishing Company, 2006) at 43.

³⁵⁴ Transportation Safety Board of Canada, “Air transportation safety issue investigation report A15H0001 - Raising the bar on safety: Reducing the risks associated with air-taxi operations in Canada”, (7 November 2019), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rapports-reports/aviation/etudes-etudes/a15h0001/a15h0001.html>, s 4.2.10: “In the course of an organization’s activities, unsafe practices may be introduced as personnel work to accomplish goals. These unsafe practices may gradually become accepted as part of the job—in an undetected drift from safe practices—and eventually be taught to newcomers, perpetuating their use. Because these unsafe practices continue with no negative outcomes or often with positive outcomes, such as successful flights or satisfied customers, accepting them can sometimes be seen as rational, and at other times they become the norm. These practices develop as a result of a number of factors, including pressure to get the job done [...] and an underestimation or non-recognition of the associated risks. Examples of unsafe practices include flying overweight, flying with inadequate fuel reserves, not recording defects in aircraft logs, and ‘pushing the weather’ [...] There are many underlying factors that lead to the development of unsafe practices in aviation. When personnel carry out routine activities time after time, such as the same scheduled flight or the same aircraft inspection, these activities may become habitual, resulting in reduced vigilance. Personnel may find more efficient ways of doing something but may not account for the associated risk or relationships between tasks. In some cases, personnel are placed in situations where they must improvise and solve problems as they arise; the procedure as written may not always be practical in the field. In other cases, personnel and organizations need to make the most of the resources they have. In extreme cases, a company culture develops in which unsafe practices are accepted as a way of doing the job”.

³⁵⁵ Schubert, *supra* note 124 at 147–148.

³⁵⁶ Jennison, *supra* note 168 at 349: “We have long-since reached the point that aviation is so safe that accident investigation cannot be the chief means by which we identify safety deficiencies”.

or public servant has a crystal ball to foresee every emerging risk,³⁵⁷ for example following a shift in industry practices, aviation technology and/or market stakeholder interactions. Yet, only the regulator is in a position to fill regulatory gaps in the Swiss Cheese by frequently updating and proactively improving its air safety legislation.³⁵⁸ Conversely, regulatory gaps exist in every system and are to be expected, at least temporarily, in a fast-changing industry like aviation, however, these imperfections can grow into systemic safety issues across the country if left unaddressed. In the Dryden Inquiry for instance, several vague, discretionary and/or imprecise regulations involving critical safety issues³⁵⁹ were highlighted as notable gaps that contributed indirectly to the Air Ontario accident.³⁶⁰ Considering the tragic outcome of these flaws in 1989, regulatory deficiencies can act as adverse *State Factors*, seeing how they can create serious gaps in the first layer of the Swiss Cheese model, and eventually contribute to accidents.

To support this assertion, the TSB has issued numerous air safety recommendations demanding that TC introduce new regulations or amend existing provisions, in order to correct regulatory deficiencies in Canada. More specifically, the TSB has recommended regulatory changes to: address emerging safety issues linked to new technology in civil aviation,³⁶¹ require by law the installation and/or use of safety-related equipment onboard aircraft,³⁶² develop through

³⁵⁷ Waring, *supra* note 35 at 8; Erik Hollnagel, David D. Woods & Nancy Leveson, *supra* note 17 at 181–184.

³⁵⁸ Schubert, *supra* note 124 at 21.

³⁵⁹ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 636. At the time for instance, there were “no Canadian regulatory requirements pertaining to the training of personnel involved in the ground handling, fuelling, or de-icing of aircraft, and Transport Canada has no stated policy with respect to the training of ground handlers and de-icing personnel”.

³⁶⁰ *Ibid* at 1001: “The present Canadian aviation regulatory requirements reside in a mix of disjointed regulations, orders, manuals, and policy documents that are difficult to comprehend. During the course of the hearings of this Inquiry, many Transport Canada officials were unable to interpret the aviation regulations and orders clearly”.

³⁶¹ For example, in 1995, with the increased use of and reliance on global positioning systems (GPS) in aviation, the TSB recommended that TC “expedite the implementation of approved GPS standards and procedures for use in Canadian airspace”. Transportation Safety Board of Canada, “Air transportation safety recommendation A95-07 - Global Positioning System (GPS)”, (1995), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/recommendations-recommendations/aviation/1995/rec-a9507.html>>.

³⁶² See for example: A16-01, A15-02, A13-03, A11-05, A11-06 & A94-07. Transportation Safety Board of Canada, *supra* note 324.

legislation specific training requirements,³⁶³ establish standards pertaining to operating procedures,³⁶⁴ introduce more robust aircraft design and manufacturing standards (including aircraft instruments, structures, systems, materials, etc.),³⁶⁵ rectify legal ambiguities³⁶⁶ within the CARs,³⁶⁷ and resolve issues pertaining to the *effectivity* of certain regulations.³⁶⁸

It must be highlighted that TSB recommendations are relatively exceptional, as relatively few investigations yield such safety communications. TSB recommendations are specifically “designed to eliminate or reduce [...] safety deficiencies”³⁶⁹ identified during its post-accident investigations³⁷⁰ in order to prompt corrective measures across the aviation industry. It can thus be inferred that if the TSB deems it appropriate and important enough to issue a recommendation calling for immediate regulatory changes, it is apparent that a State’s regulatory framework, including its flaws and strengths, can either prevent or contribute to accidents in the form of latent conditions (*State Factors*) under the Swiss Cheese model.

Even if these recommendations can be interpreted as an urgent call for action to amend the CARs, TC has nonetheless experienced several delays in addressing regulatory deficiencies identified by the TSB. This has allowed serious safety issues within Canada’s legal framework to persist in the meantime. In some instances, TC has not addressed critical recommendations that

³⁶³ *Ibid* See for example: A13-02, A00-06, A07-03, A09-02, A16-09, A16-11, A95-12 & A95-11.

³⁶⁴ *Ibid* See for example: A12-01, A20-01, A02-01, A02-02, A07-01 & A12-02.

³⁶⁵ *Ibid* See for example: A17-01, A18-01, A00-01, A01-02, A16-05, A16-07, A16-10, A99-01, A99-02 & A99-03, A99-04.

³⁶⁶ *Ibid*. For example, in A16-08, the TSB recommended that: “The Department of Transport amend the regulations to clearly define the visual references (including lighting considerations and/or alternate means) required to reduce the risks associated with night visual flight rules flight”. Another example includes A19-01 where the TSB recommended that TC “amend the Canadian Aviation Regulations to remove any ambiguity associated with the definition of ‘safety belt’”, following an accident where the occupants of a helicopters were ejected from the aircraft during the flight.

³⁶⁷ *Canadian Aviation Regulations*, SOR/96-433.

³⁶⁸ *Ibid* In A18-03, the TSB recommended that TC and air operators “take action to increase compliance with *Canadian Aviation Regulations* subsection 602.11(2) and reduce the likelihood of aircraft taking off with contaminated critical surfaces”.

³⁶⁹ *Canadian Transportation Accident Investigation and Safety Board Act*, SC 1989, c 3 at para 7(1)c).

³⁷⁰ *Ibid*. at para 7(1)b) & ss 24(5).

have been outstanding for over three decades.³⁷¹ It is important to highlight that the inefficiency at which the legislator addresses regulatory gaps, which apply to its entire national aviation industry, will necessarily have a far-reaching impact on the entire country. In its 2016 & 2018 Watchlists for instance,³⁷² the TSB slammed TC for its slow progress on addressing critical TSB recommendations.³⁷³ This was particularly concerning, since recommendations are aimed at correcting urgent safety deficiencies identified in past accidents.³⁷⁴

The TSB further noted that delays in addressing these recommendations, including regulatory changes, affect Canada's ability to remain in line with international norms and prevent serious risks from being reduced to an acceptable level.³⁷⁵ What was even more concerning is that in the meantime, the TSB continued to identify safety issues in subsequent investigations, including fatal occurrences, related to regulatory deficiencies that had not been addressed by TC despite longstanding recommendations.³⁷⁶ We can only speculate, but it is possible that lives

³⁷¹ Transportation Safety Board of Canada, *supra* note 324. For example, at the time of this writing (2021), two recommendations that were issued in 1990 were still unsatisfactory despite addressing elementary safety requirements for helicopter operations:

A90-81: the Department of Transport require verification of proficiency in basic instrument flying skills for commercially-employed helicopter pilots during annual pilot proficiency flight checks.

A90-83: the Department of Transport require all commercially-operated helicopters to be equipped with appropriate instrumentation for the conduct of basic instrument flying.

³⁷² Transportation Safety Board of Canada, "Slow progress on addressing TSB recommendations", (2018), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/surveillance-watchlist/multi-modal/2018/multimodal-02.html>>; Transportation Safety Board of Canada, "Slow progress on addressing TSB recommendations", (2016), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/surveillance-watchlist/multi-modal/2016/multimodal-02.html>>.

³⁷³ In October 2018, 62 recommendations (more than 10% of all TSB recommendations) that were issued more than 10 years ago still had not been fully addressed: "There are various reasons for the slow implementation of recommendations, including protracted studies; delays in publishing regulations; changes in course of action; lack of consensus among stakeholders; voluntary rather than mandatory measures, which also create uneven safety standards; jurisdictional issues; and the need to harmonize standards across jurisdictions". Transportation Safety Board of Canada, *supra* note 371.

³⁷⁴ The last major regulatory reform for air safety regulations in Canada was in 1996. See also Transportation Safety Board of Canada, *supra* note 371: "When timely actions are not taken on TSB recommendations, safety deficiencies persist and continue to pose a risk for the safety of people, property, and the environment. [...] In issuing a recommendation, the Board generally takes into account the relevant international standards. Long delays in taking action increase the likelihood of falling behind international standards and perpetuate any existing gaps. This has been the case, in particular, for cockpit voice recorders and runway end safety areas. Finally, if the underlying regulatory process does not change, undue delays will likely persist and increase the backlog of old outstanding recommendations".

³⁷⁵ Transportation Safety Board of Canada, *supra* note 371.

³⁷⁶ Transportation Safety Board of Canada, *supra* note 371.

could have been spared had those regulatory deficiencies been addressed by TC in a timely manner following the issuance of these recommendations.

Coincidentally, similar concerns regarding regulatory delays were documented during the Dryden Inquiry and evidently still persist to this day. The Inquiry found at the time that “it [took] an inordinate length of time to put into place adequate legislation related to aviation safety, a problem that causes delays in the timely introduction of, or urgently required changes to, the operating rules.”³⁷⁷ It further concluded that “[t]here is an urgent need for a legislative mechanism to enable the expediting or fast-tracking within Transport Canada of necessary changes to regulations and operating rules that have the greatest impact on aviation safety.”³⁷⁸

As they say, the more things change, the more they stay the same: comparable delays still hinder to this day TC’s ability to address critical safety gaps within the frontal layer of the Swiss Cheese. TC’s consistent struggles in addressing regulatory deficiencies is concerning, particularly since the Dryden Inquiry concluded that the “regulator, as an arm of government, has a duty to the public to fulfil its role in the promulgation and enforcement of legislative standards within the air transportation system.”³⁷⁹ It further noted that:

...because of the potentially catastrophic consequences of a failure in the air transportation system, the aviation industry must operate within a regime of clearly defined and well-enforced standards. [...] A properly functioning air transportation system with appropriate standards operates as an ongoing check against the circumstances that can give rise to an accident.³⁸⁰ [...]

All operational regulations by their nature have flight safety implications. Regulatory standards regarding pilot proficiency, licensing, maintenance facilities, operational control, and instrument flight rules, for example, are all designed to ensure an acceptable degree of operational integrity within the air transportation system and an acceptable level of safety.³⁸¹

³⁷⁷ The Honorable Justice Virgil P. Moshansky, *supra* note 130 at 1010.

³⁷⁸ *Ibid* at 1013.

³⁷⁹ *Ibid* at 11.

³⁸⁰ *Ibid* at 5.

³⁸¹ *Ibid* at 747.

In addition to the above, the Inquiry also noted a propensity by TC to prioritize industry demands over much-needed safety regulations or regulatory amendments.³⁸² Over thirty years later, regulatory deficiencies still persist as a result of a similar pattern of regulatory capture wherein industry interests sometimes prevail over safety concerns. For instance, the TSB issued two recommendations (A94-07 and A11-06) mandating that aircrews and passengers wear life jackets onboard seaplanes—one in 1994 following an extensive study on seaplane accidents (SA9401) and another in 2011 following a deadly seaplane accident in 2009 where several passengers who were not wearing flotation devices drowned.³⁸³ Although both recommendation focus on elementary water survival requirements, TC took 25 years to satisfy the first recommendation and almost ten years to satisfy the second recommendation, mainly because of regulatory delays and pushback from industry lobbyists³⁸⁴ concerned with the alleged “prohibitive” cost of purchasing life jackets.³⁸⁵ This industry pressure effectively placed a value on human lives³⁸⁶ and uncovered a form of regulatory capture,³⁸⁷ as TC demonstrated its disposition to make lethal compromises to satisfy industry demands.

³⁸² *Ibid* at 1028.

³⁸³ Surprisingly, seaplane occupants were not required to wear a flotation device until 2020. Transportation Safety Board of Canada, “Aviation Investigation Report A09P0187, Wake Turbulence Encounter - Collision with Terrain, Integra Ops Ltd. (dba Canadian Air Charters), Piper PA-31-350 Chieftain, C-GNAF, Richmond, British Columbia, 09 July 2009”, (24 April 2013), online: *Transportation Safety Board of Canada* <<http://www.tsb.gc.ca/eng/rapports-reports/aviation/2009/a09p0187/a09p0187.pdf>>.

³⁸⁴ Waring, *supra* note 35 at 24.

³⁸⁵ Transportation Safety Board of Canada, “Reassessment of Response to Aviation Safety Recommendation A94-07”, (2019), online: *Transportation Safety Board of Canada* <<https://www.bst.gc.ca/eng/recommandations-recommendations/aviation/1994/rec-a9407.pdf>> See TSB August 2004 assessment. See also TSB November 1996 reassessment: On 2 August 1995, during a video/teleconference on “Exploring requirements for safety in seaplane operations”, the Director of Transport Canada, Air Carriers, stated that Transport Canada would not endorse any safety equipment requirement that would impose a cost to operators”.

³⁸⁶ See Dodd, *supra* note 237 at 100; Jeffrey M Jakubiak, “Maintaining Air Safety at Less Cost: A Plan for Replacing FAA Safety Regulations with Strict Liability” (1997) 6:2 Cornell Journal of Law and Public Policy 421–440 at 432–433: “Although the term ‘value-of-life’ is charged with moral and philosophical connotations, it need not be so. To an economist or government regulator, the concept of value-of-life is invaluable for performing accurate cost-benefit analyses involving (on the cost side) the risk of death or injury. In this vein, ‘fatal risk reduction values,’ as value-of life estimates are euphemistically referred to by the federal government, are used by such agencies as the Nuclear Regulatory Commission, the Consumer Product Safety Commission, the Occupational Safety and Health Administration, the Environmental Protection Agency, and the Department of Transportation (within which the FAA resides)”.

³⁸⁷ Campbell, *supra* note 54 at 21.

In the meantime, the number of drownings resulting from seaplane accidents continued to rise,³⁸⁸ thus illustrating how regulatory advancements can be impeded by legislative delays but also by industry pressure and ultimately money.³⁸⁹ This regulatory approach, characterized by a cozy relationship between the industry and the regulator,³⁹⁰ ought to be condemned as no CAA should “be willing to loosen its regulatory reigns and risk the lives of airborne consumers in order to ensure that airlines are saving every penny they can get in their bank account.”³⁹¹ Moreover, past experiences reveal that promoting industry interests while regulating safety can bring into question the legitimacy of a regulator.³⁹² As such, each State has the responsibility to take reasonable legal measures to protect the public from corporate predation within the industry.³⁹³

In sum, regulations generally offer the most dependable form of protection, however, they can also become a particularly vulnerable point of failure in a State’s SPP. As discussed *supra*, regulatory design flaws, a lack of international compliance with SARPs and slow legislative processes can all have significant impacts on aviation safety, as they hinder the timely and effective implementation of regulatory defences that can ultimately prevent accidents. In this context, regulatory frameworks can set the stage for a disaster to happen,³⁹⁴ but they can also prevent it from ever happening. Based on the foregoing analysis, it can be concluded that

³⁸⁸ See for example: Transportation Safety Board of Canada, “Air transportation safety investigation A18W0129, Capsize on water landing, Simpson Air (1981) Limited Cessna U206G, C-FNEQ, Little Doctor Lake, Northwest Territories, 16 August 2018”, (14 November 2019), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2018/a18w0129/a18w0129.html>>.

³⁸⁹ The Honourable Virgil P. Moshansky, & Donald L Van Dyke, *supra* note 306 at 61: “Many government aviation authorities operate with a dual mandate to regulate and to promote the industry. This dichotomy has often favoured commercial concerns [...] Powerful commercial interests insist that safety initiatives be firstly proved cost-beneficial but this may not be the sole metric needed or the most important”.

³⁹⁰ Dodd, *supra* note 237 at 8 & 9.

³⁹¹ Van Wagner, *supra* note 43 at 656.

³⁹² Christopher M Petras & Mathieu Vaugeois, “Safety regulation and oversight” in *Routledge Handbook of Public Aviation Law*, Paul s. Dempsey and Ram s. Jakhu ed (New-York, New-York: Routledge, 2017) 64 at 65.

³⁹³ See Dodd, *supra* note 237 at 145: “To expect corporations to self-regulate in any way that compromises the most direct path to profit is naïve”.

³⁹⁴ *Ibid* at 35.

regulatory deficiencies, being tied to State inaction, constitute *State Factors* capable of contributing to accidents.³⁹⁵

10. Chapter 3—Summary & Key Takeaways

The word “factor” is defined as “something that helps *produce* or *influence* a result: one of the things that *cause* something to *happen*.”³⁹⁶ As demonstrated in this chapter, State decisions can influence national air safety statistics positively, but government (in)action can also generate latent conditions in the Swiss Cheese Model and cause multiple failures within ICAO’s Total System. As such, we can confidently conclude that *State Factors* can produce systemic safety deficiencies that can cause events to happen, i.e., aircraft accidents, hence why their existence should be fully considered when regulating and investigating civil aviation safety matters. To this end, ICAO has stated that:

[a]n accident or incident is not solely the result of an action taken by one individual. The potential for an accident is created when human actions and latent failures present within an organization or the air transport system interact in a manner which breaches all of the defences.” (emphasis added)³⁹⁷

It is thus apparent that the overall safety performance of air carriers and the accidents they are involved in are largely conditioned by and dependent on the *system* in which they operate, including the compounded effect of multiple government policies, regulations, actions, or lack thereof. More specifically, the lack of State resources and infrastructure, inadequate oversight and regulatory deficiencies, can foster the cancerous growth of latent failures at the State-level, and expose vulnerable organizations and frontline personnel to additional risks.

The expectation towards States must therefore be raised to consider the impact of their policy decisions, specifically how these can increase or decrease risks across the industry.

³⁹⁵ *Ibid* at 160–161.

³⁹⁶ Merriam-Webster, “Definition of ‘Factor’”, (2024), online: *Merriam-Webster* <<https://www.merriam-webster.com/dictionary/factor>>.

³⁹⁷ International Civil Aviation Organization (ICAO), *supra* note 121 at para 1.27.

Drawing upon the same logic utilized to define organizational factors, governance failures by State executives and politicians “which originate from questionable decisions or incorrect actions, although not harmful if they occur in isolation, can interact to create “a window of opportunity” for [the emergence of latent conditions within one or several air operators, and thus induce a] pilot, air traffic controller, or mechanic to commit an active failure which breaches all the defences of the system and results in an accident.”³⁹⁸ As argued throughout this chapter, governance failures represent a fourth and powerful consideration in the study of aviation safety—*State Factors*—whose deadly potential has contributed to tragedies in the past and will likely continue to do so in the future.

We can no longer ignore that government weaknesses and limitations, fuelled by varying economic, political and societal priorities,³⁹⁹ can induce governance failures and create gaps in the Swiss Cheese Model.⁴⁰⁰ To support this position, ICAO has even acknowledged that decisions by a regulator can result in latent failures that may lie dormant for years before they become palpable precursors in an accident.⁴⁰¹ Together, these gaps have a serious potential to affect the industry’s overall ability, willingness and/or inclination to behave safely. As such, the concept of *State Factors* brings a new dimension to safety under which we can examine how aviation stakeholders react, behave and perform in their respective market, regulatory framework and political landscape, whose fundamental structures (and flaws) are ultimately designed, influenced and controlled by the State.

³⁹⁸ *Ibid* at para 1.12.

³⁹⁹ Kenneth P Quinn, Jennifer E Trock, & Timothy C Gerheim, “Improving Global Aviation Safety by Protecting Information Sources” (2009) 9 *Issues in Aviation Law and Policy* 243 at 259.

⁴⁰⁰ Mark Lee Morrison, “Navigating the Tumultuous Skies of International Aviation: The Federal Aviation Administration’s Response to Non-Compliance with International Safety Standards” (1995) 2:2 *Southwestern Journal of Law and Trade in the Americas* 621–656 at 622: “Poor infrastructures, weak economies, and differing political processes are anathema to international airline safety”.

⁴⁰¹ *Ibid* at para 1.11.

Drawing upon existing definitions used to characterize technical, human & organizational factors, the concept of *State Factors* can be viewed as a unique perspective which considers the distinct impact of legal systems, government resources and oversight policies on the effectiveness of safety risk controls,⁴⁰² specifically how the role of individual State characteristics can act as causal and contributory factors in aircraft accidents, but also in the emergence of systemic risk patterns. Investigating the role of *State Factors* is about understanding how companies and frontline personnel interact with the regulatory framework under which they operate, how their safety behaviour can be positively manipulated by meaningful surveillance activities⁴⁰³ and how these interactions affect the capabilities and limitations of air carriers to operate safely.⁴⁰⁴ It is also about evaluating a State's ability to deter unsafe practices and intervene when needed to enforce the law and remove unsafe players from the industry before disaster strikes.⁴⁰⁵ In this sense, *State Factors* are a particularly powerful component of ICAO's Total System. With influential tentacles that extend across the entire aviation industry, it is thus important to identify and understand the underlying roots of these factors in order to correct them before disaster strikes.⁴⁰⁶

It must be acknowledged that under ICAO Annex 19, the precepts of safety management at the State level (e.g., SSP) reflect a pre-existing and implicit understanding that States can contribute to accidents. However, safety factors and risks attributable to individual governments have never been compartmentalized under a single category, nor examined separately through the lens of the State, in contrast with how regulators and investigators currently consider technical, human and organizational influences as three distinctive factors. Yet, limiting our perspective to

⁴⁰² International Civil Aviation Organization, *supra* note 228, s 2.1.4(c).

⁴⁰³ Waring, *supra* note 35 at 28–29.

⁴⁰⁴ Abeyratne, *supra* note 272 at 26.

⁴⁰⁵ Black, *supra* note 82 at 194: "The essence of effective enforcement of safety regulations is the speedy and just handling of alleged violations. The need for additional enforcing services to achieve this result will increase in proportion to the growth of aviation".

⁴⁰⁶ Henry Off, "The Unpave Road Towards Establishing International Legal Responsibility of States for Shooting Down Civilian Aircraft" (2020) 45 *Annals of Air and Space Law* 133–170 at 141. Accordingly, "holding States responsible on the international stage pressures them to advance significant safeguards surrounding civil aviation at the root levels rather than taking small reactionary measures by merely punishing its agents".

the other three factors is akin to approaching a crime scene but only capturing evidence with the naked eye, whereas investigating *State Factors* is comparable to conducting a comprehensive autopsy deep into the organs of a State to determine the exact cause of an occurrence and uncovering its tragic timeline with surgical precision. This is why it is important to broaden our perspectives and formally recognize the distinct nature and role of *State Factors* in civil aviation.

State Factors look at a variety of events going beyond the hours or days that precede an accident: their underlying approach allows us to identify causal elements and systemic deficiencies that emerged in the months, years and even decades before an occurrence. This offers an invaluable opportunity to dig deep into the governance of civil aviation to identify latent conditions that may not be apparent on the surface when only looking at the three other factors. By expressly considering *State Factors* under regulatory and investigative frameworks in civil aviation, we can achieve a formal acknowledgement that government (in)action is an important causal element in some accidents.

Formally introducing this concept also broadens the scope of opportunities for bringing justice to victims. From a litigation standpoint, contributory *State Factors* may include malignant conditions (e.g., regulatory design, oversight policies and resource allocation) that currently escape Crown liability under Canadian law. Under the *Crown Liability and Proceedings Act*⁴⁰⁷ and its associated case law, there is a fundamental rule under which true policy decisions are immune from liability;⁴⁰⁸ only operational decisions (stemming from administrative, routine, housekeeping, implementation or business power acts) can be subject to negligence actions.⁴⁰⁹

⁴⁰⁷ *Crown Liability and Proceedings Act*, RSC, 1985, c C-50.

⁴⁰⁸ The SCC defined a “core policy” government decision as “a course or principle of action that [is] based on public policy considerations, such as economic, social and political factors, provided they are neither irrational nor taken in bad faith.” See *R. v Imperial Tobacco Canada Ltd.*, 2011 SCC 42 at para 90.

⁴⁰⁹ See *R. v Imperial Tobacco Canada Ltd.*, 2011 SCC 42 (CanLII), [2011] SCR 3 45; *Just v British Columbia*, 1989 CanLII 16 (SCC), [1989] SCR 2 1228; *Nielsen v Kamloops (City)*, 1981 CanLII 452 (BC CA); *Swinamer v Nova Scotia (Attorney General)*, 1994 CanLII 122 (SCC), [1994] SCR 1 445; *Brown v British Columbia (Minister of Transportation and Highways)*, 1994 CanLII 121 (SCC), [1994] 1 SCR 420.

As Canada's civil aviation safety regime is largely predicated on a government policy – SMS, many *State Factors* (e.g. policy decisions) will attract State immunity in Canada, despite having important flaws that increase safety risks. Chapters 4 and 5 will indeed highlight how policy decisions have contributed to system-wide safety deficiencies in the North, as documented by numerous TSB air safety investigation reports. Beyond the factors that are already understood to be negligent under Canadian law, there are therefore *State Factors* that remain immune from liability under the policy exception but nonetheless contribute to civil aviation accidents. In many cases, this is an evident loophole that may prevent bringing justice to victims and their next-of-kin, even when there is a definite link between State (in)action and a deadly accident.

However, when decision-makers systemically neglect the safety and wellbeing of a particular group, resulting system-wide deficiencies at the State-level should not find refuge from legal action. In other words, when policies create systemic issues that contribute to a disproportionate impact on a group of individuals with a protected characteristic, a case of discrimination can be made (see Chapter 6) on the basis of these *State Factors*, in which case the policy immunity no longer applies.⁴¹⁰ In addition to providing an additional layer of analysis when developing regulations and investigating crashes, the concept of *State Factors* therefore allows certain claimants to identify system-wide gaps, go beyond the inherent limitations of Crown liability and seek meaningful remedies under human rights legislation.

As it will be shown in chapters 4, 5 & 6, various *State Factors* currently have a disproportionate role in northern aircraft accidents, thus exposing indigenous people to higher risks in civil aviation. When seeking to establish such a disparate treatment and characterize its

⁴¹⁰ A State cannot be immune from liability in situations where its government has systematically taken policy decisions, which result in systemic issues that disproportionately affect a particular group. See *British Columbia v Bolster*, 2007 BCCA 65 at para 74; see also *Vancouver (City) v Ward*, 2010 SCC 27; *Meekis v Ontario*, 2021 ONCA 534.

corresponding impact as a form of systemic discrimination, one must establish a causal connection, nexus or link between the protected characteristic and the adverse treatment.⁴¹¹ While this step can often be the most significant evidentiary obstacle for claimants,⁴¹² Chapter 3 resolves this issue by offering an evidentiary methodology under which we can identify State (in)action as a contributory factor in the accidents that predominantly affect northern indigenous communities in Canada. As discussed in the next chapters, *State Factors* are the basis for establishing the existence of systemic discrimination within Canada's civil aviation network, as they provide a valuable causal explanation with respect to the nexus between the government's (in)action in the North and the resulting adverse impact on the safety of northern indigenous populations.

⁴¹¹ See *Public Service Alliance of Canada v Canada (Treasury Board)*, 1998 CanLII 3995 at para 195; *Ontario v Association of Ontario Midwives*, 2020 ONSC 2839; *Chaudhuri v The College of Physicians and Surgeons of Prince Edward Island*, 2013 CanLII 92072 (PE HRC) at para 50; *Coast Mountain Bus Company Ltd. v National Automobile, Aerospace, Transportation and General Workers of Canada (CAW—Canada)*, Local 111, 2010 BCCA 447; Jason R Bent, "The Telltale Sign of Discrimination: Probabilities, Information Asymmetries, and the Systemic Disparate Treatment Theory" (2011) 44 University of Michigan Journal of Law Reform 797–855 at 842; Sheila R Foster, "Causation in Antidiscrimination Law: Beyond Intent versus Impact" (2004) 41 Houston Law Review 1469–1548: "By definition, all discrimination claims require plaintiffs to demonstrate a causal connection between the challenged decision or outcome and a protected status characteristic. That is, when a plaintiff alleges that she has been discriminated against by a particular decision or action, she is essentially making a causal claim about the relationship between her status and that decision or action. Indeed, this causal link defines the very essence of prohibited discrimination under both constitutional and statutory civil rights law".

⁴¹² See generally Sheehy, *supra* note 6.

PART II – SYSTEMIC DISCRIMINATION IN NORTHERN CANADIAN AVIATION

CHAPTER 4 - THE RELATIONSHIP BETWEEN INEFFECTIVE OVERSIGHT AND SYSTEMIC SAFETY ISSUES IN THE NORTH

1. Introduction

Chapter 4 is a tragic story about systemic neglect at the State-level and its discriminatory effects on northern indigenous populations in the North. The Canadian Human Rights Tribunal (CHRT) has recognized that racist, oppressive and colonial practices towards indigenous people are entrenched in many programs and systems within Canadian society.¹ This chapter will prove that civil aviation is certainly not exempt from this pattern. This chapter will describe how Canada's regulatory inaction has maintained northern civil aviation in a state of disarray and crisis. It will show that historically, *State Factors*—as defined in the previous chapter—have exposed indigenous people in the North to unacceptable hazards and harm as a result of the discriminatory effects of an oversight regime primarily designed to further the interests of mainline airlines that service Canadian urban centres.

The former Minister of Justice and Attorney General of Canada, the Honourable David Lametti, once stated that “[r]econciliation means recognizing and holding ourselves accountable for the injustices and harms that have been imposed on First Nations”.² Chapter 4 will achieve just that: it will explain how the longstanding discriminatory treatment of northern indigenous populations also permeates Canadian civil aviation, as demonstrated by the MOT's inadequate oversight over the air services and its contributory role in northern accidents—a *State Factor*.

¹ *First Nations Child & Family Caring Society of Canada et al. v Attorney General of Canada (representing the Minister of Indigenous and Northern Affairs Canada)*, 2020 CHRT 20 at para 107; *First Nations Child and Family Caring Society of Canada et al. v Attorney General of Canada (for the Minister of Indian and Northern Affairs Canada)*, 2016 CHRT 2 at para 402.

² Indigenous Services Canada, “Revised settlement agreement of \$23B reached to compensate First Nations children and families”, (5 April 2023), online: *Government of Canada* <<https://www.canada.ca/en/indigenous-services-canada/news/2023/04/revised-settlement-agreement-of-23b-reached-to-compensate-first-nations-children-and-families.html>>.

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Currently, there are few societal, political and academic debates on the discriminatory nature and effects of government oversight over the safety of indigenous people in civil aviation. However, systemic issues pertaining to inadequate oversight in Northern Canada were first documented in the 1980s by the late Honourable Mr. Justice Charles L. Dubin during the *Commission of Inquiry on Aviation Safety*.³ At the time, regulatory surveillance by Transport Canada in the North was characterized as being “a joke” and in “a state of anarchy” by industry witnesses.⁴ A decade later, during the Dryden Inquiry, a witness formerly employed in TC’s upper management⁵ also underlined the hostile environment and unique hazards that air carriers must cope with in Northern Canada.⁶ It was further noted that there is a direct relationship between the number of accidents and the challenges associated with northern flying operations,⁷ whose risks are ultimately aggravated by what appears to be a persistent lack of oversight. Together, these historical remarks reveal that *State Factors* have played a notable role in northern accidents and that unfortunately, nothing has changed since those inquiries, as tragic crashes continue to be rooted in State (in)action.

³ The inquiry was launched *inter alia* due to concerns regarding “the adequacy of federal law, regulations, and rules and of practices and procedures governing aviation safety in Canada, particularly in relation to (i) small aircraft (ii) remote areas, and (iii) uncontrolled airports. *Report of the Commission of Inquiry on Aviation Safety / Commissioner the Honourable Mr. Justice Charles L. Dubin.*, by Privy Council Office (Ottawa, ON: Government of Canada, 1982) at 1; see also Sandford Borins, “The Value of Aviation Safety: A Review of the Dubin Commission Report” (1982) 8:4 Canadian Public Policy 596–602.

⁴ Privy Council Office, *supra* note 3 at 22–27 & 341–362.

⁵ Mr. Martin Brayman, former Superintendent of Air Carrier Inspection for Transport Canada’s Ontario Region.

⁶ *Commission of Inquiry into the Air Ontario Crash at Dryden Ontario - Final Report*, Commission of Inquiry - Government of Canada, by The Honorable Justice Virgil P Moshansky, Commission of Inquiry - Government of Canada (Ottawa, ON: Minister of Supply and Service Canada, 1992) at 397: “There is no question that in remote areas where the population demands a reasonably high level of air service, and in Canada, our native peoples surely do that, the carriers are hard-pressed often to meet those demands. You are working in areas of bad weather, poor runways, little in the way of runway markings or approach aids, weak beacons often covered with ice. So it’s a— it is a hostile environment. And if you take it even further to operations that extend out onto the sea ice, for instance, a lot of the northern operators land and take off from frozen lakes, from frozen sea ice, they touch down on frozen cracks in the sea ice. There is no question there’s an element of risk. (Transcript, vol. 131, pp. 63–64). He elaborated upon the difficult conditions habitually faced by pilots in northern operations: ‘You are getting in an area that has a paucity of aids to the pilot. You are dealing with basic single runway strips. You are dealing with heavy snowfalls, high snowbanks, drifting snow, whiteouts. It’s a very difficult area to fly in successfully. Extremely cold temperatures, heavy icing during transitional periods, spring and fall. Yes, it’s a very, very difficult area to fly in’.

⁷ *Ibid* at 396.

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While the Maslow Pyramid (see Chapter 1) views safety as a common need for all human beings, the following chapter will highlight how Canada's oversight regime fails to equally protect the wellbeing of indigenous people who rely extensively on northern air transportation services. In this context, the purpose of Chapter 4 is to highlight (1) the prevalent nature of safety issues stemming from the lack of oversight in Northern Canada; and (2) how the inadequate level of surveillance not only contrasts with Southern Canada, but also puts northern air operators at a greater risk of experiencing accidents.

While oversight has played an adverse role in other accidents across the country, this chapter will reveal that TC's inability and weak proclivity to provide equivalent surveillance levels up North, i.e., *State Factors*, have contributed to the emergence of systemic safety issues that are not only disproportionately high and rampant in the North, but also unique to this part of the country. Consequently, there is a striking asymmetry between the safeguards afforded to most Canadians travelling to/from Canadian urban centres or internationally, and those afforded to indigenous populations up North. Although safety should not be a "white privilege", this chapter will reveal that TC's inequitable allocation of resources, combined with the geographical remoteness of many northern settlements, has led to an uneven application and enforcement of aviation safety standards throughout Northern Canada. Chapter 4 is thus an essential building block, along with Chapter 5, in making the final argument later in Chapter 6 that Canada's civil aviation system is discriminatory towards northern indigenous people.

2. The Federal Jurisdiction Over Aeronautics in Canada

In order to comprehend why inadequate oversight disproportionately affects air safety up North, it is important to go back in time to understand how Canada's federal aviation regime was initially established in order to subsequently analyze the institutional elements that now influence aviation safety in the 21st century.

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In the 21st century, we can easily understand why the magnitude of the Canadian aviation industry warrants a uniform exercise of federal powers across the country to evenly regulate and supervise aviation from coast to coast. It is estimated that Canadian aeronautics generates over CAD\$31 billion in annual revenues, with over 1,300 air carriers and 37,000 Canadian registered aircraft operated within, or to/from Canada.⁸ At the time of this writing, there were approximately 31,000 licensed pilots, with Canada hosting 296 certified land airports, 5 certified water airports, and 264 certified heliports across its territory.⁹ But despite the vast scale of today's aviation industry, the allocation of constitutional powers over aeronautics was initially an unsettled matter that remained well-under the radar of Parliament in the early days of aviation.¹⁰

While powered flight did not occur until 1909 in Canada, there were previously documented instances during the 19th century when hot air balloons were successfully tested and flown in Canadian skies.¹¹ While these events theoretically signified the birth of aviation in Canada (from a purely legal perspective),¹² these primitive aircraft were viewed at the time as a novel curiosity and a wealthy spectator sport,¹³ thus why air transportation was not explicitly considered by the Fathers of the Constitution¹⁴ when drafting the constitutional distribution of powers under sections 91 (federal) and 92 (provincial) of the *Constitution Act, 1867*.¹⁵

⁸ Transport Canada, "Overview of Canada's Transportation Sector", (27 January 2023), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/briefing-documents-transport-canada/2021/transportation-sector/overview-canada-s-transportation-sector>>.

⁹ *Ibid.*

¹⁰ Statistics Canada, *Aviation in Canada - Historical and Statistical Perspectives on Civil Aviation* (Ottawa, ON: Ministry of Supply and Services of Canada, 1986) at 170.

¹¹ *Ibid* at 106 & 9: "...the earliest recorded experiment took place in 1837, when a Hamilton schoolteacher launched a balloon, 'for which lift was provided by the heating owing to its blackened surface, of the air within by the sun.' In 1856, the first balloon to carry passengers in Canada lifted off from Montreal and landed in the nearby town of Pointe Claire. Appropriately, it was called 'the Canada'".

¹² See Chapter 1, *supra*.

¹³ Institute of Air and Space Law McGill University, *Legal, economic and socio-political implications of Canadian air transport* (Montréal, QC: Centre for Research of Air and Space Law, 1980) at 49; Statistics Canada, *supra* note 10 at 9.

¹⁴ See Colin H McNairn, "Aeronautics and the Constitution" (1971) 49:3 Canadian Bar Review; Gary Abrams, "Federal Jurisdiction over Aerodromes in Canada: Settled Law, Questionable Public Policy" (2021) 37 Annals of Air and Space Law 429-444 at 431; McGill University, *supra* note 13 at 49.

¹⁵ *Constitution Act, 1867*, 30 & 31 Victoria, c. 3 (UK) [*Constitution*].

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Half a century later, “propelled” by aeronautical advancements during World War I and particularly by the rising needs of the country,¹⁶ Canadian aviation and its resulting body of laws would significantly expand in a very short period of time.¹⁷ When Canada became bound to the 1919 *Paris Convention*,¹⁸ this legal vacuum suddenly became a contentious issue among provinces, more precisely when the federal government issued a far-sighted piece of comprehensive aeronautical legislation¹⁹—the *Air Board Act* (1919) and the *Air Regulations* (1920)²⁰—to fulfill its new international obligations,²¹ but also to regulate aviation evenly across its territory.²²

Under its newly enacted statutes, the federal government entrusted the Air Board, followed by the Minister of National Defence²³ with broad powers “to regulate the licensing of pilots, aircraft, aerodromes and commercial services; the conditions under which aircraft may be used for goods, mail and passengers, or their carriage over any part of Canada; the prohibition (absolute or

¹⁶ Statistics Canada, *supra* note 10 at 37; Minister Mr. A.K. Maclean cited in McGill University, *supra* note 13: “It is necessary, in view of the probable (sic) development of aeronautics, that there should be some government control of such matters and its proposed to establish a Board which shall have entire control of any government or commercial service. [...] It (aeronautics) is unknown to both the common law and the statute law. Consequently, nobody can legally engage in flying today, and in none of the Provinces, nor in Canada, is there any statutory authority for anybody to grant licenses for the purpose”.

¹⁷ See Statistics Canada, *supra* note 10 at 11–15.

¹⁸ It must be noted that Canada did not directly ratify the 1919 *Paris Convention*, but it was bound to it as a result of the United Kingdom’s ratification, on behalf of Canada, on June 1, 1922. As a dominion of the British Empire, Canada was by extension bound to the treaties signed by the United Kingdom until 1931, when the *Statute of Westminster* granted Canada with a full legal autonomy as a self-governing Dominion with the ability to conduct international affairs independently.

¹⁹ Statistics Canada, *supra* note 10 at 170.

²⁰ The *Air Board Act*, c 11 of the *Statutes of Canada*, 1919 (1st session), would later be consolidated under the *Aeronautics Act*, RS Can, 1927, c 3, and the *Air Regulations*, 1920.

²¹ McGill University, *supra* note 13 at 55; Statistics Canada, *supra* note 10: “The Act provided for the establishment of the Air Board and empowered it to control all flying in Canada, and the implementation of the International Convention on Air Navigation (ICAN)”.

²² Together, the Act and the Regulations would give full effect to the *Paris Convention*’s binding annexes and became Canada’s first ever body of air law to federally control and comprehensively regulate aeronautics throughout the country.

²³ Pursuant to the *National Defence Act*, SC 1922, c 34. Statistics Canada, *supra* note 10 at 171: “Initially, the executive arm of this Act, the Air Board, reported directly to Parliament. In 1923 however, the Department of National Defence took over responsibility for aviation and the Air Board, as such, ceased to exist”.

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conditional) of flying over prescribed areas; aerial routes, and provision for safe and proper flying.”²⁴

However, provincial authorities questioned the legitimacy of such legislation: if road transportation remained under provincial jurisdiction, why should aviation receive a different treatment?²⁵ The existing conjuncture was arguably in the provinces’ favour: aviation had not yet matured to a global level, aircraft ranges were still relatively constrained and unlike European countries, the territory covered by Canadian provinces was quite vast, meaning that many flights were typically limited to intra-provincial journeys.

In this context, we can understand why the need for a State-centric approach in aviation, as advocated by European powers under the 1919 *Paris Convention*, was not desirable for everyone in Canada at the time, hence why its jurisdictional exercise by federal powers was not initially well received by provinces. During a conference between representatives from both the Dominion and provincial governments in 1927, the Province of Québec formally challenged the validity of federal aviation statutes, which it contended fell under provincial jurisdiction, as they addressed property and civil rights,²⁶ and merely local and private matters.²⁷

Soon after, provinces would carry this debate into the judicial arena. In 1931, the dispute was definitively resolved by the Judicial Committee of the Privy Council in London (United Kingdom),²⁸ which ruled that aeronautics fell under the exclusive purview of the federal Parliament pursuant to the *British North America Act*,²⁹ and could be lawfully exercised in accordance with

²⁴ *Reference re legislative powers as to regulation and control of aeronautics in Canada*, 1930 CanLII 79 (SCC), [1930] SCR 663 at para 5 [*Aeronautics in Canada*].

²⁵ McNairn, *supra* note 14 at 429–432.

²⁶ *Constitution*, *supra* note 15 at ss 92(13).

²⁷ *Ibid.* at ss 92(16).

²⁸ Michael Peck, “Say Again, Please: Use of Bilingual Air Traffic Control for International Operations in Quebec” (2020) 45 *Annals of Air and Space Law* 1–46 at 11: “Until 1949, the highest appellate court was not the Supreme Court of Canada; it was rather the Judicial Committee of the Privy Council—board of the British Privy Council—that operated as the court of final appeal”; see also Peter W Hogg, *Constitutional Law of Canada* (Toronto, Ontario: Carswells, 1977) at 128–129.

²⁹ *British North America Act*, 1867, 30–31 Vict., c 3 (UK), at s 132: “The Parliament and Government of Canada shall have all Powers necessary or proper for performing the Obligations of Canada or of any Province thereof, as Part of

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federal powers over trade and commerce, postal services, and militia and defence,³⁰ as well as the federal government's residuary power "to make laws for the peace, order and good government of Canada."³¹ The Privy Council found that because the disputed statutes were implementing a treaty covering "almost every conceivable matter relating to aerial navigation,"³² the deriving powers of the federal Parliament had to be necessarily quite extensive,³³ particularly since aeronautics had then become a matter of national interest and importance, whose growing dimensions affected "the body politic of the Dominion."³⁴

In other words, safety was recognized—at least in theory—as being a national matter that had to be governed *equally* across Canada.³⁵ An enduring saga of subsequent court rulings has since confirmed, but also delineated the federal government's exclusive powers over aeronautics,³⁶ thus maintaining the MOT's ability and responsibility to comply with Canada's international air law obligations, now found under the 1944 *Chicago Convention*.³⁷ Acknowledging that safety has acquired an *erga omnes* obligation over time (see Chapter 2), we can now better appreciate why the effective regulation and oversight of civil aviation in Canada cannot be feasibly

the British Empire, towards Foreign Countries, arising under Treaties between the Empire and such Foreign Countries"; see also *Aeronautics in Canada* at paras 29–31.

³⁰ *Constitution*, *supra* note 15 at ss 91(2), 91(5) & 91(7).

³¹ *Aeronautics in Canada*, *supra* note 24 at para 32; see also Monahan, Patrick J., *Constitutional Law*, Irwin Law, 2015 at 259.

³² *Aeronautics in Canada*, *supra* note 24 at para 31.

³³ McNairn, *supra* note 14 at 413.

³⁴ See generally Norman MacKenzie, "Legislative Control over Aviation in Canada" (1932) 3:4 *Air Law Review* 407–416.

³⁵ Applied to the context of this thesis, the historical roots of the MOT's jurisdiction over aviation should mean that uniform safety rules and standards ought to be applied and enforced equally across the country, however this aspiration is currently far from being satisfied in the North, as discussed *infra*.

³⁶ See *Aeronautics in Canada*, *supra* note 24; see also *Johannesson v West St. Paul*, [1952] 1 S.C.R. 292; *Re Orangeville Airport*, [1976] 11 O.R. (2d) 546; *Quebec (Attorney General) v Canadian Owners and Pilots Association*, 2010 SCC 39.

³⁷ Upon Canada ratifying the *Chicago Convention*, the federal jurisdiction over aeronautics was again challenged but confirmed in *Johannesson v West St Paul (Rural Municipality of)* [1952] 1 S.C.R. 297. Unlike the 1931 decision, Canada had since achieved full political autonomy under the *Statute of Westminster*, and thus could not invoke Section 132 of the BNA anymore to sustain its federal jurisdiction over aeronautics. The SCC nonetheless reconfirmed the federal jurisdiction over civil aviation by expanding and relying on the peace, order and good government clause.

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nor legally divided among provinces.³⁸ Air safety goes beyond local or provincial boundaries and by its inherent nature, it reflects a national priority for Canada.³⁹

The foregoing summary is thus important to highlight—as an introductory element to this chapter—since it underlines the federal government’s broad mandate over civil aviation across Canada, through the adoption and enforcement of uniform safety regulations in order to protect the wellbeing of the travelling public. Under this mandate, we can also infer that the federal government not only holds the exclusive *responsibility* over civil aviation, but also remains *accountable* for failures that may arise within its national air transportation system.

3. The Minister of Transport

3.1 Mandate

Since its creation over 75 years ago by the *Department of Transport Act*,⁴⁰ the federal MOT has been entrusted with the responsibility of governing *inter alia*⁴¹ civil aviation in Canada,⁴² namely by developing “legislative and regulatory frameworks, and [conducting] transportation oversight through legislative, regulatory, surveillance and enforcement activities.”⁴³ Its aviation-related responsibilities are specifically carried out by TC, the MOT’s subsidiary department

³⁸ See *Johannesson v West St Paul (Rural Municipality of)* [1952] 1 SCR 297 at paras 33 & 68.

³⁹ Gib van Ert, “POGG and Treaties: The Role of International Agreements in National Concern Analysis” (2020) 43:2 Dalhousie Law Journal 901–928 at 909 See *Burrardview Neighbourhood Assn. v Vancouver (City)*, 2007 SCC 23 at para 64: “The transportation needs of the country cannot be allowed to be hobbled by local interests. Nothing would be more futile than a ship denied the space to land or collect its cargo and condemned like the Flying Dutchman to forever travel the seas”.

⁴⁰ *Department of Transport Act*, SC 1936, c 34. See Statistics Canada, *supra* note 10 at 21; Transport Canada, “Getting started: Transport Canada 1936-1946”, (25 October 2016), online: *Government of Canada* <<https://tc.canada.ca/en/getting-started-transport-canada-1936-1946>>; Transport Canada, “Frequently Asked Questions (FAQs)”, (2024), online: *Government of Canada* <<https://www.wapps2.tc.gc.ca/en/faq/menu.htm>> This act “brought together into one department the Department of Railways and Canals, the Department of Marine and the Civil Aviation Branch of the Department of National Defence”. The Act was specifically “intended to bring civil aviation under the Minister of Transport in order that this rapidly developing mode of transport may be properly coordinated with the older services and given a more effective opportunity to develop”.

⁴¹ TC is responsible for administering and enforcing over 50 laws related to transportation. See Transport Canada, “List of Acts”, (4 December 2019), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/acts-regulations/list-acts>>.

⁴² Between 1919 and 1936, civil aviation was governed by the Air Board, followed by the Civil Aviation Branch, both of which were military organizations belonging to the Department of National Defence.

⁴³ *Report on Plans and Priorities (2016-17)*, by Transport Canada, T1-7/2014E (Ottawa, ON: Government of Canada, 2016) at 4; see also McGill University, *supra* note 13 at 10.

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entrusted with the vital mandate to “serve the public interest through the promotion of a safe and secure, efficient and environmentally responsible transportation system in Canada.”⁴⁴

With nearly 6,000 employees⁴⁵ and a budget of approximately CAD\$2 billion at its disposal for the delivery of its core services (a quarter of which is specifically dedicated to the security and safety of transportation),⁴⁶ the MOT has a broad multimodal mandate covering road, rail, marine and air transportation matters. The MOT also holds governing authority over 53 related organizations,⁴⁷ including 41 shared governance entities (e.g., NAV CANADA, maritime ports, airport authorities, etc.), 8 crown corporations (e.g., VIA Rail Canada), the Canadian Transportation Agency,⁴⁸ 2 compensation funds, and the Transportation Appeal Tribunal of Canada.

3.2 The Aeronautics Act

With respect to civil aviation, the statutory powers of the MOT are outlined in the *Aeronautics Act*⁴⁹—the “keystone of the civil aviation regulatory system in Canada,”⁵⁰ as well as the enabling statute that governs the MOT's aviation mandate. It effectively empowers TC with the development, regulation and supervision of all matters connected with civil aviation,⁵¹ but

⁴⁴ Transport Canada, “About Transport Canada – Corporate Information”, (8 August 2019), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/about-transport-canada-corporate-information>>.

⁴⁵ Transport Canada, “Jobs at Transport Canada”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/jobs-transport-canada>>; Transport Canada, “Transport Canada Departmental Plan (2021-22)”, (2020), online: *Government of Canada* <<https://tc.canada.ca/sites/default/files/2021-02/2021-22-DEPARTMENTAL-PLAN-MAIN-EN.pdf>> at 40. In 2021-2022, 3,451 employees were assigned specifically to the safety and security of transportation.

⁴⁶ Transport Canada, “Financial Statements of Transport Canada (Unaudited) for the year ended March 31, 2020”, (8 December 2020), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/corporate-management-reporting/financial-statements-transport-canada-unaudited-year-ended-march-31-2020>> at 20; Transport Canada, *supra* note 45 at 38.

⁴⁷ Transport Canada, “The Transport Canada Portfolio”, (21 June 2019), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transport-canada-portfolio>>.

⁴⁸ In the air sector, TC is responsible *inter alia* for the policy and regulatory aspects of air safety and security.

⁴⁹ See *Aeronautics Act*, RSC, 1985, c. A-2 at s 4.2 & 4.9.

⁵⁰ McGill University, *supra* note 13 at 219.

⁵¹ *Aeronautics Act*, *supra* note 49 at ss 4.2(1); *R v 264,544 Alberta Ltd. and Fix*, 1985 ABCA 205 (CanLII) at para 11: “In our view, the objective of the *Aeronautics Act* is to regulate the safety of commercial air travel. The scheme of the Act is to make this regulation partly by means of tight control over those engaged in the activity through a licensing regime.” See also *R v Biller*, 1999 CanLII 12,356 (SK CA), 174 DLR (4th) 721 at paras 41–43.

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these broad powers are counterbalanced by TC's statutory *duties*—as an entity bound by the *Aeronautics Act*—to uphold and enforce air safety standards for the benefit and protection of the general public and the industry.⁵² The *Aeronautics Act* is thus a *loi cadre*,⁵³ whose general principles and standards provide TC *inter alia* with the broad authority⁵⁴ to adopt and enforce the CARs⁵⁵—a comprehensive set of civil aviation regulations that essentially emulate and give domestic effect to ICAO SARPs,⁵⁶ in accordance with the MOT's powers under section 4.9 of the *Aeronautics Act*.

TC's responsibilities under the *Aeronautics Act* are extensive⁵⁷ and include “(1) developing policies, regulations and standards⁵⁸ [...]; (2) contributing to and implementing aviation safety and security standards developed [by ICAO] and (3) conducting oversight activities and providing services to the aviation industry.”⁵⁹ To safeguard the overriding public interest in aviation,⁶⁰ the

⁵² Ewa Swiecicki, “Liability of the Canadian Government for the Negligent Enforcement of Aviation Safety Legislation” (1993) 18:1 *Annals of Air and Space Law* 275–314 at 280.

⁵³ McGill University, *supra* note 13 at 221.

⁵⁴ *Ibid* at 231: “The authority conferred upon the Minister is in the widest terms. It is elucidated and probably expanded by the specification of a series of matters, all connected with aircraft or aircraft related activities and functions [...] The effectiveness of the safety regulatory structure is bound up to an important extent with this section [the Minister's power to make regulations]. The efficiency, or otherwise, of the enforcement procedures is directly related to these provisions. From this section flows the multitude of duties which lie upon operators of aircraft, their right to fly, the conditions under which they may fly and the safeguards, if any, of their rights”.

⁵⁵ Pursuant to the *Aeronautics Act*, *supra* note 49 at s 4.9.

⁵⁶ McGill University, *supra* note 13 at 242 & 259. It must be noted that the CARs came into effect in 1996 to replace the former *Air Regulations* and *Air Navigations Orders* in a consolidated set of civil aviation regulations.

⁵⁷ *Association des Gens de L'Air du Quebec Inc. et al. v Lang et al.*, 1978 CanLII 2029 (FCA), [1978] 2 FC 371 at 501: “Parliament intended to limit the power of the Minister of Transport to issue regulations that he deemed necessary to ensure the safety of air navigation”.

⁵⁸ See Transportation Safety Board of Canada, “Air transportation safety issue investigation report A15H0001 - Raising the bar on safety: Reducing the risks associated with air-taxi operations in Canada”, (7 November 2019), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rapports-reports/aviation/etudes-studies/a15h0001/a15h0001.html>, s 4.2.18.1.

⁵⁹ Transport Canada, “Safety and Security Group”, (20 November 2019), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/briefing-documents-transport-canada/2021/corporate-structure/tc-groups/safety-security-group>>.

⁶⁰ See *Canada (Attorney General) v 2431–9154 Québec Inc.*, 2008 FC 976 (CanLII), [2009] 3 FCR 317 at para 65: “The mandate of the Minister of Transport and officials in the Department of Transport is to enforce the law and regulations in the interest of public safety (*Swanson v Canada (Minister of Transport)*, 1991 CanLII 8226 (FCA), [1992] 1 F.C. 408 (C.A.) at 424) [*Swanson*]. The public interest to which paragraph 7.1(1)(c) refers is the public interest in aviation safety (*Bancarz*, at paragraph 44). The Minister ‘bears a heavy responsibility towards the public to ensure that aircraft and air carrier operations are conducted safely. This is especially so for Transport Canada inspectors who are in practice charged with the duty of maintaining safety’ (*Sierra Fox Inc. v Canada (Minister of Transport)*, 2007 FC 129 (CanLII), at para 6), and ‘the statutory scheme vests broad discretion in the Minister in the interest of public safety’ (*Kiss v Canada (Minister of Transport)*, 1999 CanLII 8509 (FC) at para 31); see also *Bancarz v Canada (Minister of Transport)*, review determination, W-3058-27 (TATC), [2005] DTATC no. 24 (QL), affirmed by the Federal Court of Canada (2007 FC 451 (CanLII), [2007] F.C.J. no. 599 (QL): “The public interest as asserted by the Minister is a societal

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Aeronautics Act further empowers TC to “supervise all matters connected with aeronautics, including the construction, maintenance, and operation of airports; control and management of aircraft and related equipment; and air traffic routes.”⁶¹

3.3 Transport Canada’s Civil Aviation Directorate

TC’s largest portfolio is administered by its Civil Aviation Directorate (commonly known as Transport Canada Civil Aviation—the “TCCA”), which carries out core policy, regulatory and operational functions.⁶² The TCCA holds regulatory powers for the enforcement of laws deemed necessary for the safe and proper operation of aircraft;⁶³ it is thus essentially responsible for Canada’s effective compliance with the *Chicago Convention* through its regulatory and oversight activities:

The [TCCA] is responsible for the regulation and oversight of civil aviation transportation in Canada. In the civil sector, TCCA oversees air operators, aircraft maintenance organizations, aerodrome operations, air navigation services, and aeronautical product designers and manufacturers. As part of its regulatory role, TCCA is responsible for the development and distribution of policies, standards, regulations, and guidance and educational material.

TCCA’s oversight activities are divided into two categories: service and surveillance. Services include licensing for pilots, maintenance engineers, and air traffic controllers; medical assessments of personnel; the certification of aeronautical products; confirming aerodrome safety; and granting operating certificates to air operators, aircraft maintenance organizations, and other operations in the industry. Surveillance involves

interest that relates to the protection and safety of the public and the users of the system as part of its policy regarding the development, regulation and supervision of all matters connected with aeronautics, and the maintenance of an acceptable level of safety”; 2431-9154 *Québec Inc. v d.b.a. Sept-Îles Aviation Enr.*, 2009 CanLII 101397 (CA TAT) at paras 40-41: « It is clear that the public interest in aviation refers to safety and compliance with the statutes, regulations, standards and requirements related to aviation »; See also *Gill v Canada (Minister of Transport)*, 2015 BCCA 344, 388 DLR (4th) 593 at paras 26–28 & 31: “The evident and overriding purpose of this aspect of the scheme of regulation is to ensure public safety. The obligations imposed on Transport Canada are owed to the public at large, and in particular, the travelling public as a whole.”

⁶¹ Nathalie Chalifour & Laurel Besco, “Taking Flight: Federal Action to Mitigate Canada’s GHG Emissions from Aviation” (2016) 48:2 *Ottawa Law Review* 575–624 at 600 *Aeronautics Act*, *supra* note 49 at s 4.2 (b), (e), (f), (j), (1), (o); see also *British Columbia (Workers’ Compensation Board) v Flanagan Enterprises (Nevada) Inc.*, 2018 BCCA 459 at para 5.

⁶² McGill University, *supra* note 13 at 126.

⁶³ See *Aeronautics Act*, *supra* note 49 at s 4.9.

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conducting inspections and assessments of organizations to confirm compliance with the *Canadian Aviation Regulations* (CARs).⁶⁴

In other words, the TCCA must ensure that any entity or person involved in aeronautical activities meets the safety prerequisites prior to being duly authorized to do so. Subsequently, the TCCA must ensure that such individuals or entities follow prescribed safety norms and a level of operational competency on a continuing basis.⁶⁵ To do so, the TCCA must specifically ensure—through its oversight activities—that “the aviation industry complies with the regulatory framework through certifications, assessments, validations, inspections and enforcement.”⁶⁶ The TCCA is therefore entrusted with the application of the CARs, but also with the administration, supervision and enforcement of safety norms pertaining to all aeronautical activities within the country and/or involving Canadian interests abroad.⁶⁷

4. TCCA Surveillance Methods

4.1 Surveillance Framework

Canada’s civil aviation surveillance framework is not intended, nor designed to be discriminatory *per se*, but its structural particularities certainly contribute to hazardous effects and unequal safety benefits for northern indigenous people. While the TCCA *generally* complies with ICAO oversight standards,⁶⁸ discrepancies and major deviations are particularly prevalent in

⁶⁴ Transport Canada, “Evaluation of Safety Management Systems in Civil Aviation”, (July 2019), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/corporate-management-reporting/evaluation-report-s/evaluation-safety-management-systems-civil-aviation>>.

⁶⁵ See Swiecicki, *supra* note 52 at 277; Hugh W Silverman & John D Evans, “Aeronautical Noise in Canada” (1972) 10:3 Osgoode Hall L J 607 at 611; Henri Wassenbergh, “Safety in Air Transportation and Market Entry - National Licensing and Safety Oversight in Civil Aviation” (1998) 23:2 Air & Space Law 74–81; John Parnell, “Review and Appeal in Civil Aviation De-Licensing Regimes: A Comparative Study of New Zealand, Australia and Canada” (2013) 11:3 New Zealand Journal of Public and International Law 623–660 at 640–643.

⁶⁶ Transport Canada, “Aviation”, (2023), online: *Government of Canada* <<https://tc.canada.ca/en/aviation>>; Transport Canada, “Transport Canada and Air Safety: Our Work Behind the Scenes”, (2017), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/publications/transport-canada-air-safety-our-work-behind-scenes>>. The TCCA administers and enforces pilot and personnel licensing, aircraft and airport operations, drone safety, incident reporting, commercial air services, aircraft airworthiness, maintenance and registration, medical fitness, cabin safety, general operating and flight rules, dangerous goods, greenhouse gas emissions and air navigation services.

⁶⁷ Concordia University McGill University, *The McGill-Concordia Report on International Aviation Policy for Canada* (Montréal, Canada: Institute of Air and Space Law, 2005) at 16; McGill University, *supra* note 13 at 17.

⁶⁸ *Transport Canada Civil Aviation Program Manual for the Civil Aviation Directorate*, by Transport Canada, Z 5000-7-1 U (Ottawa, ON: Government of Canada, 2021) , s 4.2.

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Northern Canada, specifically with regards to Canada's uneven implementation of contemporary oversight requirements and proactive SMS approaches. Although a full analysis of Canada's SSP under ICAO Annex 19 would go beyond the scope of this thesis, it is important to have a basic understanding of the TCCA's current surveillance methods in order to subsequently analyze the adverse impact of certain *State Factors* in the North through a series of case studies discussed later in this chapter.

Since 2005—years before the adoption of ICAO Annex 19,⁶⁹ the TCCA has embraced a systems-based approach to regulatory oversight, under which it assesses the tangible effectiveness of each operator's safety management processes (i.e., SMS).⁷⁰ Under the TCCA's current National Oversight Plan,⁷¹ approximately 3,200 oversight actions are carried out in Canada's aviation sector on a yearly basis,⁷² largely through *surveillance*, defined as “activities through which TCCA verifies that aviation license, certificate, authorization, or approval holders continue to meet the established requirements and function at the required level of competency and safety.”⁷³

The TCCA's surveillance program is formally outlined in *Staff Instruction (SI) SUR-001*,⁷⁴ which describes in great detail the procedures and guidelines that inspectors must follow to verify

⁶⁹ This policy was at the time a “regulatory embryo” of what would become SMS as we know it today. Canada's oversight policies and methods have since been implemented in accordance with ICAO Annex 19 and now apply to air services bound by these global norms, i.e., mostly international operators as discussed previously in Chapter 2 and later in this chapter.

⁷⁰ Transportation Safety Board of Canada, *supra* note 57, s 4.2.19.1: “Systems that are the subject of oversight include safety management systems (SMSs), quality assurance programs, training systems, operational control systems, and others”.

⁷¹ See Transport Canada, “Safety and Security 2019-20 Integrated National Oversight Plan”, (2020), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/open-tc/safety-security-2019-20-integrated-national-oversight-plan>>.

⁷² Statistics Canada, “Multimodal Safety and Security Programs Oversight Delivery Indicators, by federal government fiscal year quarter, Transport Canada”, (2022), online: *Government of Canada* <<https://www150.statcan.gc.ca/t1/tbl1/en/cv!recreate.action?pid=2310026801&selectedNodeIds=2D1&checkedLevels=0D1,2D1,3D1,4D1&refPeriods=20180101,20190331&dimensionLayouts=layout2,layout3,layout3,layout2,layout2,layout2&vectorDisplay=false>>.

⁷³ *Supplementary Staff Instruction (SSI) No. SUR-001-P - Surveillance Procedures (Issue 9)*, by Transport Canada, Z 5000-32 (Ottawa, ON: Government of Canada, 2020) at 9.

⁷⁴ Transport Canada, *supra* note 73.

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that commercial air enterprises⁷⁵ operating within the purview of the TCCA effectively comply with regulatory safety requirements.⁷⁶ Following the systems-approach prescribed under ICAO Annex 19 (see Chapter 3), the TCCA's surveillance activities under *SUR-001* are currently divided into four categories:

Systems Level Surveillance: “conducted to seek assurance that enterprise systems are operating as intended and are effective at achieving operational objectives in accordance with regulatory requirements. Systems level surveillance is conducted using assessments⁷⁷ and/or program validation inspections (PVIs).⁷⁸ During these activities, a surveillance team reviews an enterprise's *systems* to develop an understanding of how they comply with regulatory requirements.”⁷⁹

Process Level Surveillance: “evaluates the processes used by an enterprise to accomplish operational objectives, while still assessing the enterprise through the lens of the systems approach to safety. Process level surveillance is conducted using process inspections (PI).”⁸⁰

Targeted Inspections: targeted surveillance is “a flexible oversight approach that mixes compliance monitoring with gathering evaluative information to gain contextual knowledge on a certain issue or topic. They allow TCCA to determine operator compliance levels while also collecting data that helps TCCA understand how operators interpret and implement rules, or to understand what factors, elements, or conditions may be missing and/or contributing to unacceptable results.”⁸¹

Compliance Inspections: often carried out in-person, this “traditional” surveillance method is “designed to verify that a product or an activity meets applicable regulatory requirement(s) or standard(s). A compliance inspection assesses only whether an output meets an identified standard. The effectiveness of related processes or systems is not evaluated.”⁸²

⁷⁵ *Ibid* at 7 An enterprise is defined as “the holder of one or more TCCA issued Canadian Aviation Document under a single Accountable Executive. For example, a company holds an Approved Maintenance Organization Certificate, an Air Operator Certificate, an Approved Training Organization Certificate and a Design Organization Authority. The term Enterprise is intended to denote that surveillance is conducted on the whole enterprise rather than on an individual Canadian Aviation Document”.

⁷⁶ *Ibid*, s 1.1.

⁷⁷ Assessments: “the surveillance activity conducted to evaluate effectiveness and level of compliance with the CARs.” *Ibid* at 6.

⁷⁸ Program Validation Inspections (PVIs): “a process comprised of research and an on-site review of one or more components of a SMS or other regulated areas of an enterprise.” *Ibid* at 8.

⁷⁹ *Ibid* at 16.

⁸⁰ Process Inspections: “a review of an enterprise process and its intended outputs to determine if the process is consistently accomplishing its objective(s) in accordance with regulatory requirements. A process inspection may review multiple processes.” *Ibid* at 8 & 16.

⁸¹ *Ibid* at 16.

⁸² *Ibid* at 17: “An example of a compliance inspection would include aircraft equipment inspections: the inspection would evaluate whether the equipment required by regulation was present and operable”.

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As it stands, the TCCA's oversight is now mostly geared towards performance-based surveillance activities, which assess the design, data and effectiveness of each operator's SMS, rather than a conventional compliance-based approach (i.e., in-person inspections).⁸³ In all cases, surveillance activities utilize a risk-based approach,⁸⁴ which may—in certain circumstances—warrant increased attention towards a high-risk air carrier, trigger a corrective action plan to address identified risks,⁸⁵ or enforcement action by the TCCA, including license and certificate revocation, administrative fines and even prosecution.⁸⁶

Under SUR-001, the TCCA's surveillance activities can be *planned* at specific intervals⁸⁷ or be *reactive* in nature (e.g., in response to an accident or increase in operator risk indicators). Surveillance can sometimes be conducted in person (e.g., physical inspections) or even remotely (e.g., paper-based audits), however, it must be noted that the latter has become far more common over the past two decades,⁸⁸ and presumably even more in a post-pandemic telework era.

⁸³ David Grizzle, Marc Warren & Steven Seiden, "FAA's Move to Performance-Based Oversight: Developments, Challenges, and Shifting Legal Landscapes" (2016) 29:1 Air & Space Law 1–17 at 4: "Compliance-based oversight is built on 'the assumption that if an organization is fully compliant with the applicable safety requirements, then an adequate level of safety is achieved.' It focuses on 'verifying the compliance of service providers with all applicable regulatory requirements and requires such verifications to be repeated at regular intervals, regardless of the level of compliance and maturity achieved by the organization under scrutiny.' By its nature, compliance-based oversight is rule based, relying on enforcement action where rules are not followed. It is generally backward looking and treats all rules and infractions as equally significant from a safety perspective. Compliance-based oversight is necessarily adversarial and often contains an element of ambush, with midnight ramp inspections and other unannounced visits. [...] In contrast, performance-based oversight focuses on systems and processes that manage risk. It is intrinsically data intensive and forward looking, as it searches within the data to identify precursors to hazards for which corrective action may be undertaken. Performance-based oversight is not rule indifferent, but it recognizes that not all rule infractions present equal risk and that there can be substantial residual risk even with complete rule compliance. [...] It has given rise to innovative approaches that promote the sharing of data without fear of reprisal, most significantly the voluntary disclosure reporting programs (VDRPs) that began with the operators, moved to the cockpits, and have now migrated to the air traffic control facilities. Predicated on the 'Just Culture' concepts that individuals should not be punished for good-faith mistakes, VDRPs provide substantial immunity from punishment for unintentional rule infractions, provided that the infraction is reported in a complete and timely manner, so that the data derived from the disclosure can be promptly entered into risk analysis processes that identify appropriate corrective actions".

⁸⁴ Transport Canada, "Civil Aviation - Oversight Program Description and Delivery - Fiscal Year 2021 to 2022", (2021), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/civil-aviation-oversight-program-description-delivery-fiscal-year-2021-2022>>.

⁸⁵ Corrective Action Plan (CAP): "a plan submitted in response to findings. The CAP outlines how the enterprise proposes to address identified regulatory non-compliances and ensure on-going compliance". Transport Canada, *supra* note 73 at 7.

⁸⁶ *Ibid* at 42–46.

⁸⁷ *Ibid* at 18: "Planned surveillance activities are conducted at predetermined intervals as outlined in the National Oversight Plan (NOP)".

⁸⁸ See René David-Cooper, "The Transition to Safety Management Systems (SMS) in Aviation: Is Canada Deregulating Flight Safety?" (2016) 81:1 Journal of Air Law and Commerce 33–64.

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4.2 Potential Gaps in SUR-001—Frequency and Scope of Northern Surveillance Activities

With regards to Northern Canada, a potential issue that emerges under *SUR-001* is that reactive oversight activities, which represent over 90% of the TCCA's yearly oversight actions,⁸⁹ are supposed to be coordinated to also include "opportunity inspections due to proximity with other planned inspection sites".⁹⁰ In contrast with densely populated areas that offer more surveillance opportunities, the further North an air operator or aerodrome is located, the lesser chances it will be subjected to unplanned peripheral surveillance by the TCCA.

Given the sparsely settled and remote areas in which they operate, some northern operators and aerodromes are fairly isolated from each other and generally spread out on far larger distances, meaning that a planned inspection at one northern site might not yield any opportunities to conduct incidental inspections with another enterprise, as there may be no nearby aerodrome or operator to visit within a reasonable travel distance.

For example, by their mere isolation and difficulty to access, arctic aerodromes in Canada, e.g., Grise Ford (Nunavut), Resolute Bay (Nunavut) or Sachs Harbour (Northwest Territories), are unlikely to be audited incidentally with another inspection site and/or without advanced planning, as there are no nearby locations with the necessary proximity to justify—pursuant to *SUR-001*—an impromptu surveillance visit (see Figure 1 below).⁹¹

⁸⁹ Statistics Canada, *supra* note 72.

⁹⁰ *Ibid.*

⁹¹ Source: Google Earth.



Figure 1— The Canadian Arctic in Relation to Sachs Harbour, Resolute Bay and Grise Ford

This situation contrasts with Southern Canada where a planned inspection—even in a less densely populated area, for instance at the Gaspé Airport (CYGP) in the Province of Québec, will generally yield several opportunities to spontaneously conduct spot checks at other airports along the way (e.g., Matane, Sainte-Anne-des-Monts, Percé and Bonaventure). This may be stating the obvious, but the reality is that southern operators and airports are generally closer to one another, but also in relative proximity to TC offices where inspectors can be easily deployed within a day⁹² and driven at a nominal cost to nearby locations for planned and unplanned surveillance activities.

⁹² It is important to note that under SUR-028, targeted inspections are limited to 1 inspection day for each planned surveillance activity, meaning that the added travel time to go up North may potentially limit the available time and scope of the inspection. This could lead to substantial disparities in relation to the South, where TC the travel time is considerably reduced and thus allows inspectors more time to conduct their onsite inspections. *Staff Instruction - Surveillance Planning Instructions – Fiscal Year 2020-2021*, by Transport Canada, SI SUR-028 (Issue 5) (Ottawa, ON: Government of Canada, 2019).

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Accordingly, this geographical proximity implies that under *SUR-001*, inspections are likely more frequent with southern operators.

In Northern Canada, however, it can also be presumed that the TCCA must give advance notice to targeted entities in order to secure surveillance opportunities up North and avoid showing up without the operator's key assets and personnel present once onsite.⁹³ In his inquiry report, Justice Dubin found that these pre-announced inspections or audits are detrimental to safety, particularly in the North, as they allow operators to conceal known deficiencies ahead of time,⁹⁴ thus "giving the regulator the impression that these operators comply with [...] regulations, when in fact they may be running an unsafe operation."⁹⁵ Under this approach, northern operators have also developed a practice—commonly referred to as the "moccasin telegraph"⁹⁶—where they warn neighbouring operators of an impending TC visit in order to prepare accordingly, which is somewhat akin to motorists flashing their headlights to inform incoming vehicles of a nearby police radar operation. Therefore, inspectors may not have the necessary surprise effect to catch delinquents with their "hands in the cookie jar".

Conducting surveillance up North is also an entirely different endeavour for government administrators, as it requires substantial preparation and advanced logistics to fly out inspectors to very remote locations, where accommodations, Internet, food, and travel options are scarce, but also come at a premium cost. This brings us to a speculative, yet plausible concern: could

⁹³ René David-Cooper, "Pilot Fatigue - A Study on the Effectiveness of Flight and Duty Time Regulations for Professional Pilots in Canada" (2019) *Quebec Journal of International Law* 117–146 at 141.

⁹⁴ Privy Council Office, *supra* note 3 at 349: "At present, operators are given prior notification of forthcoming Base Inspections. This naive approach gives operators an opportunity to 'clean house', make artificial entries in aircraft logs and other records, and remove any aircraft which may be of questionable airworthiness status. Repeated statements from air carrier personnel and even persons outside the industry, relate stories of aircraft being sent away on the day of the inspection so that they are not available for examination. Clearly the effectiveness of these inspections is negligible, and Transport Canada's reputation suffers".

⁹⁵ David-Cooper, *supra* note 93 at 141.

⁹⁶ Privy Council Office, *supra* note 3 at 349.

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budgetary considerations within the MOT influence the frequency and depth of in-person surveillance activities up North in comparison to southern locations?

There is no publicly available data or evidence that can support or dispel these concerns, and in fairness to TC, the latter does own and operate a fleet of government aircraft whose purpose is *inter alia* to transport TCCA officials for *ad hoc* surveillance activities in harder to reach locations.⁹⁷ However, *SUR-001* does explicitly require in several of its provisions and guidelines that specific budgetary planning conditions and financial approvals be met—before and after—surveillance activities are conducted.⁹⁸ One can only assume that fiscal considerations influence, at the very least subconsciously,⁹⁹ the TCCA's timing, scope and frequency of northern surveillance deployments, which presumably come at an exorbitant cost in comparison with southern locations.

Moreover, TCCA guidelines explicitly state that air carriers considered as having a “high profile” by public opinion, arguably major airlines operating in the South and internationally (e.g., Air Canada, WestJet, Porter Airlines and Air Transat) must be prioritized when planning surveillance activities.¹⁰⁰ The “big fish” in the pond are thus more likely to be included in the TCCA's yearly oversight plans, whilst committing to regular northern deployments may represent harder fiscal decisions to make for the TCCA's upper management who must ultimately compose with finite public resources in light of ministerial priorities,¹⁰¹ as discussed previously in Chapter 3.

⁹⁷ See Transport Canada, “Infographic for Aircraft Services”, (2024), online: *Government of Canada* <<https://www.tbs-sct.canada.ca/ems-sgd/edb-bdd/index-eng.html#infographic/program/TC-BTW06/intro/>>; Transport Canada, “Transport Canada's Aircraft Services Directorate: 85 years and going strong!”, (10 December 2021), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transport-canada-serving-canadians/transport-canada-s-aircraft-services-directorate-85-years-going-strong>>.

⁹⁸ Transport Canada, *supra* note 73, s 4.1(2)(a), 4.2(1)(b), 8.7(2)(d) & Appendix C.

⁹⁹ Resource requirement and costing estimates are assessed in TC's yearly surveillance plans. See Transport Canada, *supra* note 92, s 4.3 & 5.3.

¹⁰⁰ *Ibid*, s 5.4(1)(j).

¹⁰¹ This is particularly evident in the management's obligation to “manage all budgetary and travel/logistical arrangements” and to report financial deviations from approved arrangements. See *Civil Aviation Surveillance Program - Advisory Circular*, by Transport Canada, AC SUR 004 (Ottawa, ON: Government of Canada, 2015) , s 5.1(3)(a) & 5.2(1)(b).

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Moreover, the lack of available resources to carry out a proposed inspection may justify its refusal by management, under current TCCA guidelines.¹⁰² Consequently, while regular inspections near TCCA offices are far easier to budget for in Southern Canada, one can assume that budget considerations may favour more “paper audits” for remote northern locations, in lieu of planning costly in-person visits. Yet, there is a known risk that carrying out paper audits remotely can prevent a regulator from identifying critical safety issues, as some deficiencies can be intentionally suppressed from an operator’s written documentation or simply impossible to discern without being physically present for a meaningful period of time.¹⁰³ Therefore, the inherent remoteness of northern operators may put them at greater risks, as they are less likely to receive the same level of oversight provided to southern operators located closer to TCCA offices.

Moreover, under *SUR-001*, surveillance intervals range on average from one year for high risk and/or high-impact enterprises, to five years for lower-risk operations or *lower-impact enterprises*. This particular guideline differs from ICAO’s recommendation to inspect operators at least every year.¹⁰⁴ The “lower-impact” criterion in *SUR-001* is particularly troubling, as it leaves us wondering if smaller carriers in Northern Canada, which operate outside mainstream commercial networks with lower traffic volumes, are not afforded the same level of regulatory consideration by the TCCA, particularly since they unfortunately do not draw as many passengers or much public attention.

In other words, one must wonder if the wording of *SUR-001* indirectly favours the safety of operators in Southern Canada at the expense of the North, and ultimately to the detriment of the safety of its indigenous benefactors. While incidents involving Air Canada—most certainly a *high impact* air carrier within the meaning of *SUR-001*—will generally garner instant public and

¹⁰² Transport Canada, *supra* note 92 app A.

¹⁰³ See David-Cooper, *supra* note 93 at 140–141; Privy Council Office, *supra* note 3 at 349.

¹⁰⁴ See David-Cooper, *supra* note 93 at 85; *Manual of Procedures for Operations Inspection, Certification and Continued Surveillance (5th Edition)*, by International Civil Aviation Organization, Doc 8335 AN/879 (Montréal, QC: International Civil Aviation Organization, 2010) at iv &2–2.

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political attention (especially since the Canadian government owns a minority stake in this airline),¹⁰⁵ and often lead to an immediate response by the regulator, the same cannot be said about northern accidents in or near indigenous settlements.

Even if surveillance is planned in the North, TCCA activities are usually scheduled on multi-year intervals, unless reactive surveillance is required,¹⁰⁶ meaning that unlike Southern Canada where TCCA inspectors have constant eyes on surrounding operations and can gather data given their obvious proximity to major airports,¹⁰⁷ TCCA inspectors cannot continuously have an accurate situational awareness with respect to the actual safety of northern operators/aerodromes, as they cannot routinely access them in-person and verify whether overall compliance with safety regulations is effectively attained across the region.

¹⁰⁵ Sandrine Rastello, "Air Canada Exits the \$4.7 Billion Bailout It Lobbied For", (19 November 2021), online: *Bloomberg* <<https://www.bloomberg.com/news/articles/2021-11-19/air-canada-exits-the-4-7-billion-bailout-package-it-lobbied-for>>.

¹⁰⁶ Transport Canada, *supra* note 64: "Surveillance can occur on two fronts: planned or reactive. Planned surveillance consists of activities scheduled at the beginning of each fiscal year based on a variety of risk factors and safety information, while reactive (unplanned) surveillance includes "activities conducted in response to an unforeseen event or issue (accident, incident, increase in an enterprise risk indicator level, etc.)." Traditional surveillance policy dictated that the examination of organizations occur at specific time intervals (and if not, the decision to delay surveillance was justified based on a risk assessment). With updates to surveillance practices, the goal became "a more robust risk-based decision making framework" in order to ensure oversight activities are flexible and focused on risk rather than simply time. Surveillance 2.0 continues to strive for this. Currently, there are multiple types of surveillance of regulated entities that TCCA can conduct: process-level surveillance, systems-level surveillance, as well as targeted inspections for companies not currently subject to SMS regulations. As of 2018-2019, process-level surveillance is the primary means of oversight. Process-level surveillance looks at the functioning of a specific process within the SMS or other system to determine whether it is effective and compliant. TCCA manages this through a process inspection (PI). While originally used primarily as a reactive tool, PIs now allow for quick review and sampling to evaluate how an enterprise is operating. These inspections can lead to additional systems-level surveillance if needed. Choosing the process to inspect involves preliminary analysis to determine which process is most relevant to the reason or trigger for inspection. PIs may be planned, reactive, part of a systems-level check, or used to support oversight services (e.g., ramp inspection to support the addition of a new aircraft type). To assess a system, TCCA uses either assessments or Program Validation Inspections (PVI). The primary differences between assessments and PVIs are the points of entry and the timelines. Assessments are used for organizations that have a Safety Management System in place, thus making the scope or focus of the assessment the system itself. For PVIs, on the other hand, the scope is slightly smaller and focused on a unique system, program, or procedure (e.g., the Quality Assurance Program or training program). Differences in timelines may occur throughout the surveillance process; for instance, in notifying an enterprise about upcoming on-site activities, 10 weeks' notice is required for an assessment, as opposed to 6 weeks for the more concentrated Program Validation Inspection. In every other area, PVIs and assessments follow the same general process".

¹⁰⁷ For instance, the TCCA's office in Montréal is located across the street from the Montréal-Pierre Elliott Trudeau International Airport. See Transport Canada, "Civil aviation contacts and offices", (2024), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/civil-aviation-contacts-offices>>.

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As such, the compounded effects of some of *SUR-001*'s dubious surveillance criteria may very well reveal the discriminatory roots for some of the enduring air safety issues experienced in Northern Canada, as the inferior public and political weight given to northern operations, their remoteness and institutional budgetary constraints within the TCCA, are sufficient policy reasons to legitimately justify fewer inspections in the North.

4.3 Potential Gaps in SUR-001—The Exemption of Air Taxi and Commuter Operators from SMS

The most serious issue under *SUR-001* is how it exempts high-risk operators in the North from crucial SMS requirements. This exemption stems from the formal distinction under Canadian aviation law between *airlines*, *air commuters* and *air taxis*. Airlines conduct business under CARS Subpart 705 and generally operate aircraft with 20 passenger seats or more.¹⁰⁸ This category includes well-know operators that mostly operate in Southern Canada and abroad, such as Air Canada, WestJet, Flair Airlines, Air Transat and Porter Airlines, but also includes a few northern operators such as Canadian North, First Air, Air Inuit and Air Creebec.¹⁰⁹ The airline category represents the majority of Canada's air traffic volume,¹¹⁰ yet most airline operations are centred on southern and international air networks.

¹⁰⁸ The *Canadian Aviation Regulations* (section 705.01) define an airline operator as "a Canadian air operator, in an air transport service or in aerial work involving sightseeing operations, of any of the following aircraft: (a) an aeroplane, other than an aeroplane authorized to operate under Subpart 4, that has a MCTOW of more than 8,618 kg (19,000 pounds) or for which a Canadian type certificate has been issued authorizing the transport of 20 or more passengers; (b) a helicopter that has a seating configuration, excluding pilot seats, of 20 or more; or (c) any aircraft that is authorized by the Minister to be operated under this Subpart."

¹⁰⁹ At the time of this writing (05 February 2022), there were 38 airline operators registered in Canada. Transport Canada, "Operator List Search", (2022), online: *Government of Canada* <<https://wwwapps.tc.gc.ca/Saf-Sec-Sur/2/CAS-SAC/olsrles.aspx?GoCTemplateCulture=en-CA>>.

¹¹⁰ René David-Cooper, *Implementing Safety Management Systems in Aviation: The Legal Impact on Canadian Commercial Air Carriers* McGill University - Institute of Air and Space Law, 2015) [unpublished] at 51.

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Air taxis (CARS Subpart 703)¹¹¹ and commuters (CARS Subpart 704),¹¹² often referred to as “small carriers”, mostly operate aircraft with fewer than 9 passenger seats, and 10 to 19 passenger seats respectively.¹¹³ Generally speaking, many small operators operate within Northern Canada to provide essential services (e.g., medical evacuation flights),¹¹⁴ and carry vital supplies (e.g., food, fuel and clothing) to remote indigenous communities.¹¹⁵

Together with aerial work operators, small operators represent a high-risk industry sector and were previously reported to account for 91% of all air accidents and 93% of all fatalities.¹¹⁶ Shockingly, small operators in Canada are not legally bound by SMS requirements,¹¹⁷ in contrast with Canadian airlines that have been required to follow SMS requirements since 2005.¹¹⁸ The TCCA previously announced that SMS would be required for all commercial operators, including small carriers, however, it “backed away from that commitment,”¹¹⁹ even though a review of 176

¹¹¹ The *Canadian Aviation Regulations Aeronautic Act* (section 703.01) define an air taxi operator as “a Canadian air operator, in an air transport service or in aerial work involving sightseeing operations, of any of the following aircraft: (a) a single-engined aircraft; (b) a multi-engined aircraft, other than a turbo-jet-powered aeroplane, that has a MCTOW of 8,618 kg (19,000 pounds) or less and a seating configuration, excluding pilot seats, of nine or less; (b.1) a multi-engined helicopter certified for operation by one pilot and operated under VFR; and (c) any aircraft that is authorized by the Minister to be operated under this Subpart”.

¹¹² *Ibid.* at s 704.01. The Regulations define commuter operator as “a Canadian air operator, in an air transport service or in aerial work involving sightseeing operations, of any of the following aircraft: (a) a multi-engined aeroplane that has a MCTOW of 8,618 kg (19,000 pounds) or less and a seating configuration, excluding pilot seats, of 10 to 19 inclusive; (b) a turbo-jet-powered aeroplane that has a maximum zero fuel weight of 22,680 kg (50,000 pounds) or less and for which a Canadian type certificate has been issued authorizing the transport of not more than 19 passengers; (b.1) a multi-engined helicopter with a seating configuration, excluding pilot seats, of 10 to 19 inclusive, unless it is certified for operation with one pilot and operated under VFR; and (c) any aircraft that is authorized by the Minister to be operated under this Subpart.”

¹¹³ At the time of this writing (05 February 2022), there were 478 air taxi operators and 82 commuter operators registered in Canada. Transport Canada, *supra* note 109.

¹¹⁴ David-Cooper, *supra* note 93 at 130.

¹¹⁵ Transportation Safety Board of Canada, *supra* note 57, s 1.

¹¹⁶ Transportation Safety Board of Canada, “Air Safety Management Systems”, (27 March 2013), online: *Transportation Safety Board of Canada* <<http://www.bst-tsb.gc.ca/eng/medias-media/videos/surveillance-watchlist/aviation/aviation-video-04.asp>>.

¹¹⁷ *Safety Management Systems in Canada's Transportation Sector*, by Allison Padova, 2013-77-E (Ottawa, ON: Parliament of Canada, 2021).

¹¹⁸ See ICAO Transport Canada, “SMS in Canada: Implementation, Surveillance and General Strategies”, online: *International Civil Aviation Organization* <<http://www.icao.int/SAM/Documents/2009/LAR145SMSOMAS/LAR145-SMS%2006%20-%20SMS%20in%20Canada.pdf>>; Carlos Martins & Andrew MacDonald, “Tensions between SMS and Access to Information Act”, (2014), online: *Lexology* <<https://www.lexology.com/commentary/aviation/canada/weirfoulds-llp/tensions-between-sms-and-access-to-information-act>>.

¹¹⁹ Transportation Safety Board of Canada, *supra* note 57, s 4.2.17.1.

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occurrences by the TSB revealed that “safety management issues were contributory in 14 accidents” involving air taxi operators.¹²⁰

Despite an unsatisfied TSB recommendation in 2016 demanding that the MOT¹²¹ require all commercial air operators to implement a formal SMS regardless of their size and category,¹²² small operators are still not legally required to have an SMS, nor are they governed by the systems-based surveillance processes mandated under ICAO Annex 19. Accordingly, small operators in the North cannot benefit from the proven safety benefits of SMS discussed previously in Chapter 3. As noted in Chapter 2, Canada’s decision to exempt these domestic operators from ICAO SARPs is a sovereign prerogative under the *Chicago Convention*, however, it reveals how an *intentional* policy decision can have *unintentional* discriminatory effects on the safety of indigenous people, as discussed *infra*.

While small operators may still voluntarily implement SMS,¹²³ many do not and continue to face higher risks in comparison with other industry sectors. For example, between 2000 and 2017, a TSB study on air taxi operations identified “789 accidents in the air-taxi sector, resulting in 240 fatalities—representing 55% of all accidents in commercial air services in Canada and 62% of the fatalities in this period,”¹²⁴ in contrast with the airline sector which only experienced “93 accidents (6% of the total) and 15 fatalities (4% of the total).”¹²⁵ As noted by the TSB in its study, these sombre statistics can be attributed to the unorthodox and perilous nature of many air taxi operations, many of which fly to remote northern indigenous communities in Canada:

¹²⁰ *Ibid.*, s 4.2.17.3. See also TSB air safety investigation reports A02C0124, A05A0155, A07C0001, A07W0138, A08P0353, A10Q0098, A11W0048, A12C0154, A12W0031, A13H0001, A13P0166, A13Q0098, A14A0067, and A14W0181.

¹²¹ TSB recommendations are addressed to the MOT directly, rather than to the TCCA. See *Canadian Transportation Accident Investigation and Safety Board Act*, SC 1989, c 3 at ss. 24(5) & (6).

¹²² “TSB Recommendation A16-12 - Oversight of commercial aviation in Canada: Implementation of formal safety management system (SMS)”, (15 June 2016), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/recommendations-recommendations/aviation/2016/rec-a1612.html>>.

¹²³ See *Advisory Circular (AC) No. 107-002 - Safety Management System Development Guide for Smaller Aviation Organizations*, by Transport Canada, AC 107-002 (Ottawa, ON: Government of Canada, 2016).

¹²⁴ Transportation Safety Board of Canada, *supra* note 57, s 1.3.

¹²⁵ *Ibid.*

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[...] air-taxi services operate in a very different context from other sectors of aviation. They often have no set schedule and fly into remote areas in uncontrolled airspace with few aerodromes or navigation aids. What aerodromes there are may be small, with fewer services and less infrastructure. Access to current and forecast weather information or the latest technology may be limited. Operators tend to be smaller. Flight crews have a more direct role in managing many of the operational hazards, and pilots often have direct contact with clients. Pilots may not have operational support from dispatch and other personnel. Flights tend to be shorter, resulting in more takeoffs and landings. Aircraft are exposed to severe weather because they fly at lower altitudes and over rugged, coastal, or northern topography. The aircraft can be small (carrying fewer than 10 passengers, by regulation), in many cases, old (some more than 70 years old), and with less sophisticated technology. Pilots often fly by visual reference to the ground, rather than navigating using instruments alone. Flight crews may have to land on gravel airstrips, on lakes, or on frozen surfaces, especially helicopter crews who often have to land at unprepared sites. [...] In many remote and northern parts of Canada, air-taxi services are the only way to reach communities, with small airplanes delivering food, equipment, and passengers. These vital air links have helped build Canada and sustain its people. [...] The north, in particular, presents inherent challenges and risks to air transportation. Its population is spread out in small communities over vast stretches of inhospitable terrain. Air operations are subject to extreme weather, including cold temperatures, and to extended periods of darkness. Low and sporadic passenger volumes, along with these harsh operating conditions, create a difficult and costly operating environment for the air-taxi industry.¹²⁶

Narrow profit margins and resulting operational pressures,¹²⁷ poor safety culture,¹²⁸ difficulties in meeting training requirements,¹²⁹ obsolete aircraft,¹³⁰ qualified personnel shortages,¹³¹ primitive maintenance capabilities,¹³² inexperienced pilots,¹³³ regular operations to/from unprepared landing sites,¹³⁴ informal organizational structures,¹³⁵ lack of modern onboard

¹²⁶ *Ibid* at ix.

¹²⁷ *Ibid*, s 4.2.13.

¹²⁸ *Ibid*, s 4.2.17.2.1.

¹²⁹ *Ibid*, s 5.6.1.1: "Although there are many similarities among commercial aviation operations, training requirements are less stringent for pilots flying in air-taxi operations than for pilots flying in commuter or airline operations."

¹³⁰ *Ibid*, s 4.2.7. For example, some northern air carriers (e.g., Buffalo Airways) still operate aircraft, such as the DC-3 and C-46, that were built, manufactured and flown during World War Two.

¹³¹ *Ibid*, s 4.2.2

¹³² *Ibid*, s 4.2.12

¹³³ *Ibid*, s at 42: "The air-taxi sector has a high turnover of pilots, mainly because many are hired by larger air carriers. [...] A number of operators said that, when it came to replacing or hiring more pilots, it was hard to find qualified candidates in Canada generally. The high turnover in the sector means that the pool of pilots with a level of experience attractive to operators is limited".

¹³⁴ *Ibid*, s 4.2.15.

¹³⁵ *Ibid*, s 4.2.17.

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technology,¹³⁶ extreme microclimates,¹³⁷ and demanding work schedules,¹³⁸ make Northern Canada a very high-risk area to operate in. However, regardless of the significant dangers they face in the North—one of the most challenging flight environments in the world, small operators are still not required to comply with universal SMS requirements.

The fact that small operators are not required to adopt SMS—an approach with a proven track record that has been formally endorsed and universally promoted by ICAO—is quite concerning given the poor safety record experienced by this industry sector. The TSB has noted that the “air-taxi sector has a large number of operators using many different types of aircraft in a wide variety of operations, often in remote locations.”¹³⁹ Consequently, providing effective surveillance over such a diverse industry sector represents an added challenge for the TCCA.¹⁴⁰

As many indigenous communities benefit from these small operators, one would expect that the combined risks, higher accident statistics and overall complexity of air taxi operations, would warrant heightened regulatory attention and the investment of additional oversight resources by the TCCA, namely to ensure the successful implementation of SMS across all commercial air operations and meet ICAO requirements. However, the safety of this vulnerable industry sector remains absent from the MOT’s agenda and priorities,¹⁴¹ even though air taxis and commuters play a vital role in Northern Canada.

¹³⁶ *Ibid*, s 4.2.7. See also Privy Council Office, *supra* note 3 at 13: “Those who live in the remote areas of Canada are serviced by carriers which use less sophisticated aircraft than the major and regional carriers, the structure of which is not fail-safe and which does not have the redundancy features of the larger aircraft”.

¹³⁷ Transportation Safety Board of Canada, *supra* note 57, s 4.2.7; Privy Council Office, *supra* note 3 at 13: “Flying in Canada confronts the pilot with the full gambit of challenge, probably unique, by reason of the vast expanses of uninhabited land, hostile terrain, mountainous regions, variable and unstable weather, white-out hazards and, in many areas, inadequate runways, lack of navigational points of reference, lack of navigational aids and lack of adequate weather reporting services”.

¹³⁸ Transportation Safety Board of Canada, *supra* note 57, s 4.2.11.

¹³⁹ *Ibid*, s 4.2.19.5.

¹⁴⁰ *Ibid*, s 4.2.19.1: “Regulatory oversight is particularly challenging in the air-taxi sector. In 2018, there were more than 500 air operator certificates in place, with a wide range of operations: seaplanes, helicopters, and landplanes; single—and multi-engine aircraft; and visual flight rules (VFR) and instrument flight rules (IFR) operations—all operating in a variety of hazardous environments”.

¹⁴¹ “Minister of Transport Mandate Letter”, (14 December 2021), online: *Prime Minister of Canada* <<https://pm.gc.ca/en/mandate-letters/2021/12/16/minister-transport-mandate-letter>>.

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Even more concerning for small northern operators is the fact that under the TCCA's current SSP, an enterprise can go without an in-person inspection for up to five years. Along with its institutional emphasis on planned and paper-based reviews,¹⁴² the TCCA has been criticized for purportedly reducing—under SMS—the frequency, scope and depth of surveillance activities, which are viewed as being overly bureaucratic, focused solely on evaluating policies and procedures on paper, and moving away from traditional, yet effective physical inspections¹⁴³ (e.g., “check rides, line checks, or ramp checks to directly observe how the operator works on a day-to-day basis”).¹⁴⁴ Under a fully implemented SMS, for example in an airline operation (CARS Subpart 705), this approach may not be as problematic, as acceptable safety management processes should *in theory* contain most risks if traditional surveillance mechanisms are replicated and applied within an organization.

But for small northern operators who are not required to implement SMS and more vulnerable to operational pressures, TCCA oversight methods—now centred on paper-based assessments (e.g., under *SUR-001*) and less on traditional physical inspections—are akin to removing a critical, and perhaps last-standing safety defence in the Swiss Cheese Model.¹⁴⁵ As a result, this approach has led to the complete removal of the cheese rind for small operators in Canada, thus allowing the entry and proliferation of systemic risk pathogens, while major airlines operating under SMS have been provided with more modern and stronger defence barriers.

Another issue under *SUR-001* is that it continues to apply a systems-approach to surveillance even for small operators, while reducing in-person inspections. Yet, PIs and PVIs are not easily adapted, nor entirely compatible with the air taxi and commuter sectors seeing that they are exempted from SMS.¹⁴⁶ This incongruity is further exacerbated by *SUR-001*, which prescribes

¹⁴² See Transportation Safety Board of Canada, *supra* note 57, s 5.6.1.5 & 5.6.2.1.

¹⁴³ See René David-Cooper, *supra* note 88.

¹⁴⁴ Transportation Safety Board of Canada, *supra* note 57, s 4.2.19.2 & 5.6.2.1.

¹⁴⁵ *Ibid*, s 4.2.17.1.

¹⁴⁶ *Ibid*, s 4.2.19.2.

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very rudimentary surveillance guidelines and worksheets for inspecting non-SMS air taxi and commuter operators (3 pages in total).¹⁴⁷ This contrasts with the comprehensive procedures established for air carriers operating under SMS (31 pages in total),¹⁴⁸ not to mention that under *SUR-001*, airlines benefit from the systems-based oversight mechanisms designed specifically for SMS operations, in addition to some in-person inspections. As such, utilizing a contemporary systems-based methodology with operators who are not subject to SMS requirements is an incongruous oversight strategy that could trigger, and likely has contributed to uneven results, thus leading us to question the general effectiveness of the TCCA's surveillance over air taxis and commuters in Northern Canada.

Justice Moshansky conceded himself that implementing SMS—a risk management approach that was designed for complex organizations¹⁴⁹—may present some challenges for small operators.¹⁵⁰ As noted previously in Chapter 2, it is frightening to realize that air safety in Canada is regulated in a “caste system,” wherein small carriers, who predominantly operate up North, are allowed to operate under safety norms inferior to elementary ICAO SARPs.

The TCCA's asymmetric and discriminatory application of the *Aeronautics Act* in the North, as well as the potential for decreased safety, are reflected in (pre-pandemic) accident statistics. In 2019 for instance, there were 66 accidents and 25 fatalities linked to commercially operated aircraft, 7 of which involved airline operators (zero fatalities), 4 involving commuter operators (zero fatalities) and 21 involving air taxi operations (21 fatalities), with the remainder of the accidents associated with flight training units (23 accidents and 1 fatality) and aerial work operators (11

¹⁴⁷ See Appendix B – Expectations – Control of Operations (CAR 703/704) Transport Canada, *supra* note 101.

¹⁴⁸ See Appendix B – Expectations – C.1. SMS Surveillance Worksheet *ibid*.

¹⁴⁹ See James G March, *A Primer on Decision Making: How Decisions Happen* (New-York, NY: The Free Press, 1994); Kathleen Fox, *How has the implementation of Safety Management Systems (SMS) in the transportation industry impacted on risk-management and decision-making?* (Thesis, Lund University, 2009) [unpublished] at 7.

¹⁵⁰ Bruce Campion-Smith, “Safety cuts risk air disaster: Judge”, (1 March 2007), online: *The Toronto Star* <http://www.thestar.com/news/2007/03/01/safety_cuts_risk_air_disaster_judge.html>.

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accidents and 3 fatalities).¹⁵¹ In other words, 84% of fatalities were linked to small operators, with not a single death in the airline sector.

Consequently, we can assert as a preliminary conclusion that Canadians who rely on small air carriers in Northern Canada (generally indigenous populations) are not afforded with the same protections and safety benefits under the *Aeronautics Act* and ICAO SARPs. Accordingly, small operators do not operate to the same regulatory standards as airlines (e.g., SMS) and are statistically more likely to be involved in accidents.

This raises compelling questions: why provide small northern operators with a subpar regulatory and surveillance regime that obviously does not yield the same safety benefits as those experienced by airlines? Why would Southern Canada benefit from internationally recognized SMS and surveillance standards, but not the North where small operators are naturally exposed to higher risks, whilst providing an essential connectivity to remote indigenous communities? With this striking asymmetry in mind, one can only view the implementation of SMS in Canada as a “*Seriously Misguided System*” where northern indigenous residents who rely on and utilize air transportation as a means of survival are not afforded with the same regulatory safeguards.

5. The TCCA’s Organizational Structure

5.1 Headquarters and Regional Offices

The following section will further argue that Canada’s public resource allocation exacerbates this unequal treatment. There are indeed serious issues pertaining to the TCCA’s oversight in Northern Canada, which are revealed by examining its current organizational structure, as well as its effects on the regulator’s effective coverage up North. In addition to its headquarters in Ottawa, TC as a whole (all transportation modes combined) is divided into five

¹⁵¹ Transportation Safety Board of Canada, “Air transportation occurrences in 2019”, (2020), online: *Government of Canada* <<https://www.bst-tsb.gc.ca/eng/stats/aviation/2019/ssea-ssao-2019.html>>.

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regions (Figure 2) with regional offices in Moncton, New Brunswick (Atlantic Region), Montréal, Québec (Québec Region), Toronto, Ontario (Ontario Region), Winnipeg, Manitoba (Prairie and Northern Region — “PNR”) and Vancouver (Pacific Region),¹⁵² from which TC’s core regulatory, oversight and enforcement activities are coordinated and carried out. There are no regional TC offices in Northern Canada, however, there are smaller services centres in 7 northern cities or settlements: Kangiqsujaq (Québec),¹⁵³ Wabush (Newfoundland),¹⁵⁴ Thunder Bay (Ontario), Sudbury (Ontario),¹⁵⁵ Prince George (British Columbia), Prince Rupert (British Columbia),¹⁵⁶ Yellowknife (Northwest Territories) and Whitehorse (Yukon),¹⁵⁷ which provide regulatory services, albeit mostly administrative in nature.¹⁵⁸



Figure 2—Map of Transport Canada Regions¹⁵⁹

¹⁵² See Transport Canada, *supra* note 107.

¹⁵³ Transport Canada, “Quebec Region”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/briefing-documents-transport-canada/2021/corporate-structure/tc-regions/quebec-region>>.

¹⁵⁴ Transport Canada, “Atlantic Region”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/briefing-documents-transport-canada/2021/corporate-structure/tc-regions/atlantic-region>>.

¹⁵⁵ Transport Canada, “Ontario Region”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/briefing-documents-transport-canada/2021/corporate-structure/tc-regions/ontario-region>>.

¹⁵⁶ Transport Canada, “Pacific Region”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/briefing-documents-transport-canada/2021/corporate-structure/tc-regions/pacific-region>>.

¹⁵⁷ A regional office is currently being planned for Iqaluit, Nunavut. Transport Canada, “Prairies and Northern Region”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/briefing-documents-transport-canada/2021/corporate-structure/tc-regions/prairies-northern-region>>.

¹⁵⁸ Transport Canada, *supra* note 107. TC service centres “offer services in many different sectors such as certification of people, products and organizations, aircraft registration and leasing, training and licensing of personnel, etc.”

¹⁵⁹ Transport Canada, “Regions”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/regions>>.

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5.2 Potential Gaps— The Prairie and Northern Region

The organizational structure for the PNR is particularly interesting to examine, as it covers the largest district in comparison with other regions—58,9% of Canada's total land area to be precise—and 18,6% of its population.¹⁶³ Yet, it only employs 440 employees,¹⁶⁴ which accounts for 7,3% of TC's total employee count (all modes of transportation combined).¹⁶⁵ While northern parts of British Columbia, Ontario, Québec and Newfoundland/Labrador also fall within the defined boundaries of Northern Canada and are covered by other TC regions, the PNR covers most of Northern Canada, hence why it is of particular interest given the focus of this thesis.

Table 1—TC Regional Workforce Allocation (2021)					
Region	Provinces & Territories	Total Area (%) ¹⁶⁰	TC Employee Count ¹⁶¹	TC Employee %	Spread in effective coverage
Pacific	British Columbia	9.5%	542	9%	-0.5%
Prairie and Northern	Alberta, Saskatchewan, Manitoba, Yukon, Northwest Territories & Nunavut	58.9%	440	7.3%	-51.6%
Ontario	Ontario	10,8 %	450	7,5 %	-3,3 %
Québec	Québec	15.4%	539	9%	-6.4%
Atlantic	Newfoundland and Labrador, Prince Edward Island, Nova Scotia and New Brunswick	5.5%	408	6.8%	+1.3%
Totals:		100%	2,379	39.6%*	
*In 2021, TC had a total employee count of 6,002. As such, it can be assumed that 3,623 TC employees (60.4%) are based at its headquarters in the National Capital Region, and either assigned to a core responsibility group or internal/support services. ¹⁶²					

¹⁶⁰ Statistics Canada, *supra* note 160.

¹⁶¹ Transport Canada, "TC Regions - Regional Offices", (2024), online: *Government of Canada* <<https://tc.canada.ca/en/corporate-services/transparency/briefing-documents-transport-canada/2021/corporate-structure/tc-regions>>.

¹⁶² Transport Canada, *supra* note 45 at 40.

¹⁶³ Statistics Canada, "Land and freshwater area, by province and territory", (2022), online: *Government of Canada* <<https://www150.statcan.gc.ca/n1/pub/11-402-x/2010000/chap/geo/tbl/tbl07-eng.htm>>.

¹⁶⁴ Transport Canada, *supra* note 157.

¹⁶⁵ There is no data available showing the precise breakdown of employees assigned to each mode of transportation.

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There is indeed a striking asymmetry between the scope of the PNR's territorial jurisdiction and TC's public resource allocation. Given the large area covered by the PNR, significant travel is required to conduct regulatory and oversight activities, but we can assume that with such finite public resources, the frequency and scope of such activities are necessarily limited and likely disproportionately inferior to TC's activities in other regions where commercial enterprises are often closer to TC offices. Whilst TC employees can be dispatched from its headquarters in Ottawa to assist any region in need (e.g., following a major event) or to provide support remotely (e.g., advisory services, regulatory paper-based reviews¹⁶⁶ and approvals, etc.),¹⁶⁷ the PNR, unlike other regions, must compose with a disproportionately low number of resources (i.e., safety inspectors) to cover the vast geographical area over which it has jurisdiction.

Even if the population density and air traffic volume are lower up North, the PNR still has to regulate and oversee 210 certified aerodromes/airports and 343 air operators¹⁶⁸ spread across nearly two thirds of Canada's territory, yet it is serviced by only 7,3% of TC's workforce—a negative spread of -51,6% in effective coverage between its actual workforce and jurisdictional area (see Table 1 above). By way of comparison, the Atlantic Region has a comparable employee representation within TC (6,8% of the total workforce). However, the Atlantic Region has jurisdiction over 5,5% of Canada's total area, which amounts to an effective coverage in excess of 1.3%, meaning that the Atlantic Region actually has proportionately more resources, and thus a relative surplus of employees to cover the actual area under its jurisdiction.

Even though the Atlantic Region is arguably not an aviation hub, nor a densely populated area in comparison with other regions, its local aviation industry benefits from a meaningful

¹⁶⁶ See for example: <https://tc.canada.ca/sites/default/files/2021-01/TDG-Bulletin-Alternative-oversight-activities-Remote-oversight.pdf> Transport Canada, "TDG Bulletin - Alternative Oversight Activities: Remote Oversight", (2020), online: <<https://tc.canada.ca/sites/default/files/2021-01/TDG-Bulletin-Alternative-oversight-activities-Remote-oversight.pdf>>.

¹⁶⁷ Transport Canada, *supra* note 68: "At headquarters, five branches and one task force (Safety Policy and Intelligence, Regulatory Affairs, Management and Resource Services, Standards, Director Generals Office, and Remotely Piloted Aircraft Systems [RPAS]) provide national functional direction to the Civil Aviation Directorate".

¹⁶⁸ Transport Canada, *supra* note 157.

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regulatory coverage and access to safety inspectors, whilst the PNR has less regulatory and oversight resources to compose with, despite having a very complex and challenging air network to supervise. In light of SUR-001, one can also assume that the PNR's resources are focused on urban centres, namely at major airport hubs, such as Calgary, Edmonton and Winnipeg.

With the resources that are left, one could assume that with such a vast territory to cover in the PNR, the added travel burden to visit northern operators and aerodromes would warrant the investment of additional resources by TC to bridge the gap in that region. However, the policy and/or financial reasons behind this substandard resource allocation remain unanswered. This is a significant disparity, which effectively limits the TCCA's ability to have permanent "boots on the ground" to routinely monitor, and supervise northern air operations, but also to intervene when the public interest is at stake. We can only assume, with the SMS/SSP concepts (previously discussed in Chapter 3) in mind, that such a disparate allocation of public resources in a region that faces higher accident statistics, unique operational challenges and increased risks due to isolation, topography and extreme climates, necessarily hinders the TCCA's overall ability to ensure that adequate safety norms are consistently followed in the North.

If we consider Northern Canada in general, the resource allocation and positioning of TCCA inspectors can indeed have a disproportionate safety impact, particularly with respect to the regulatory behaviour and compliance of industry stakeholders. In contrast with Southern Canada, where omnipresent government officials act as a strong deterrent (i.e., TC offices are often physically located near or at major airports, thus enabling inspectors to travel easily to surrounding operators), Northern Canada poses a unique challenge for TC management when planning oversight activities (as discussed *supra*) given the relative remoteness of many northern operators and aerodromes. Unlike the South where TC inspectors can spontaneously drive to a nearby airport for a quick spot-check and "kick the tires", an inspector cannot decide to travel North and inspect a northern operator/aerodrome without making pre-arrangements—a challenge

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that must be particularly prevalent given the PNR's vast area. In the end, the compounded effect of these institutional factors effectively limits the effective oversight of the PNR.

Consequently, the inadequate allocation of resources by TC up North, specifically with regards to inspectors and their (in)ability to carry out meaningful and consistent oversight activities, can allow serious safety deficiencies to emerge and materialize into deadly accidents. It must be conceded that public resources are limited and cannot realistically be present everywhere and at all times, particularly in low-density areas, such as Northern Canada. However, the resulting effect of TC's inequitable resource allocation up North, namely in the PNR, combined with the asymmetric surveillance criteria under *SUR-001*, may be conducive to an institutional environment where infrequent but pre-announced inspections become the norm.¹⁶⁹

Indeed, once TCCA inspectors have left an inspection site up North, a northern operator may sleep soundly knowing that the next visit may not occur for another few years. Pre-announced and spasmodic inspections in civil aviation can also lead to false impressions with respect to actual performance traits; generalized complacency; regulatory laxism; and organizational failures over time. In Northern Canada specifically, there is thus an air of Greek tragedy if nobody is permanently holding the fort and guarding the henhouse.¹⁷⁰

5.3 Proposal — The Creation at TC of a Northern Region

Based on the foregoing, we can conclude that northern indigenous residents are denied equal safeguards in comparison with the South and thus differentiated adversely in the provision of essential surveillance activities in civil aviation. To address these discriminatory effects, public resources, such as TCCA employees and inspectors, should *ideally* provide an effective coverage

¹⁶⁹ With financial constraints in mind, we must also wonder if the government's transition to telework, both during and after the COVID-19 pandemic, adversely affected the number of in-person inspections up North in favour of paper audits.

¹⁷⁰ Robert G Evans, Karen Cardiff, & Sam Sheps, "High Reliability versus High Autonomy: Dryden, Murphy and Patient Safety" (2006) 1:4 Healthcare Policy 12 at 15.

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proportional to the total area of Northern Canada or at least equivalent to the coverage provided for in other regions, in order to offer the equal safety benefits opportunities to local indigenous populations in the North. As noted by the CHRT, any “programs, policies, practices or funding implemented by Canada should be informed by previous shortfalls and should not simply be an expansion of previous practices that did not work and resulted in discrimination.”¹⁷¹ Accordingly, one could argue that – proportionally to the South – a much greater number of resources are necessary up North in order to bridge the gaps and build the foundations for an effective oversight regime reflecting the unique circumstances and risks faced by northern operators.

Unlike commercial businesses where the positioning of facilities and assets are usually optimized based on profitability considerations, key public resources, personnel and assets must be generally present and accessible across sparsely populated areas in order to yield the same benefits afforded to residents in major cities.¹⁷² Elementary services (e.g., policing) and needs, such as food, housing, clean water, safety, etc., are essential for the survival of any human, whether a person lives in downtown Toronto or in a remote community up in the Canadian Arctic.

For example, each community needs a fire station, as it would be absurd and ineffective to decide otherwise and prevent a community from having firemen onsite to put out fires solely because the low population density does not justify such an investment. Granted, a service that may cost the federal government a million dollars in Montréal could very well cost ten times that

¹⁷¹ *First Nations Child & Family Caring Society of Canada et al. v Attorney General of Canada (representing the Minister of Indigenous and Northern Affairs Canada)*, 2017 CHRT 14 at para 73

¹⁷² Jaegon Um et al, “Scaling laws between population and facility densities” (2009) 106:34 *Proceedings of the National Academy of Sciences of the United States of America* 14236–14140: “Economic geography has been investigating the problem of optimal positioning of facilities given uneven population densities [...] Intuitively, within a given country, the more populated an area is the more facilities exist, whereas there are fewer facilities in places where the population density is lower. [...] Generally, commercial facilities like small stores have to attract large numbers of people to make a profit. If they cannot do this, such stores will need to close and move to a place with larger population. On the other hand, public facilities such as fire stations and public schools need to be built in positions where they are as close as possible to their clients, because the consumed travel time or spatial distance yields the social opportunity cost by depriving visitors of time for producing other products or services. For example, public schools that exist in big cities require students who live in nearby small towns or villages to commute for a long period of time. To reduce the social opportunity cost caused by such a long-distance commute, new schools should be built in places where the population is sparse but not negligible. Therefore, one can expect that the public facilities should be more evenly distributed spatially than commercial ones”.

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amount for an equivalent access to that same service in Northern Canada.¹⁷³ But unlike public investments for recreational and cultural infrastructures, which are higher in Maslow's Pyramid (e.g., museums, parks, sports arenas, etc.), some essential services and associated expenses, including safety oversight, are non-negotiable and necessary for the common wellbeing of all Canadians, including northern indigenous people. When looking at the population-public resources ratio, more financial resources are therefore required up North to attain the same level of essential services as the South.

In this context, the TCCA's current policies, under which it maintains its resources congregated exclusively in major Canadian cities situated in Southern Canada, currently impedes on its situational awareness in the North but also on its ability to effectively deploy resources in the field in a timely manner. The lack (and need) of a permanent presence by the TCCA in Northern Canada was an issue first documented four decades ago during the Dubin Inquiry,¹⁷⁴ but evidently, little progress has been made since. As a result of these structural deficiencies (*State Factors*), indigenous people are effectively discriminated against, as they more likely to be affected by an air tragedy and/or by unreliable air services plagued with operational issues.

It would be utopic to argue that TCCA inspectors should be based near every aerodrome up North, as this is not even the standard, nor the expectation in Southern Canada. However, in order to provide an equal level of regulatory service and oversight across Northern Canada, the TCCA should consider increasing its presence up North (1) by creating a dedicated *Northern Region* specialized in northern air carriers and aerodromes¹⁷⁵ and (2) by establishing additional

¹⁷³ For instance, the "approximate cost of an air ambulance from Yellowknife to Edmonton or Inuvik to Yellowknife is between \$25,000 and \$30,000". Katherine Barton, "Mom surprised to learn travelling Canadians have to pay big bucks for medevacs", (2017), online: *CBC News* <<https://www.cbc.ca/news/canada/north/medevac-nwt-tourism-1.4280902>>. In Alberta, the same province in which Edmonton is located, an ambulance will cost \$250 if the patient is not transported and \$385 if the patient is transported. In other words, a northern indigenous resident will cost approximately 75 times more to be transported to a hospital in comparison with an urban resident in Southern Canada.

¹⁷⁴ Privy Council Office, *supra* note 3 at 349–353.

¹⁷⁵ By doing so, the Prairie and Northern Region could be reorganized and divided in two regions under the following two potential scenarios: (1) the Prairie Region could be composed of Alberta, Saskatchewan and Manitoba, with the Northern Region covering Nunavut, the Northwest Territories and the Yukon; or (2) The Prairie Region could be

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TCCA detachments located in strategic northern settlements. This would enable TC inspectors to have a permanent lookout and ability to supervise nearby air operations, in lieu of the current practice of pre-arranging periodic surveillance deployments in northern communities.

This would provide an efficient and effective remedy addressing the historical shortcomings in the provision of critical surveillance activities in the North, as well as the discriminatory policies and resource allocation, which adversely affect the safety and wellbeing of northern residents. It must be conceded that under this proposal, the TCCA would incur additional and perhaps substantial costs that may not be proportionate with the population density and air traffic volume up North (e.g., the creation of new positions, acquisition of equipment, and the construction and/or lease of additional infrastructure). But considering the prevailing systemic safety issues in Northern Canada, policymakers cannot maintain antiquated guidelines under which public funds are invested in communities solely in proportion with their population density or volumes of activity.

Safety oversight should not have any geographical or ethnic boundaries, nor be hindered due to its higher price tag in the North. Policy-makers must come to the realization that providing an equal level of regulatory service and oversight in Northern Canada comes at a premium in comparison with the South, as most commodities and services currently do in northern communities. Consider the following example: a 24-pack of bottled water will cost CAD\$5 in Winnipeg, but sell for CAD\$30 in Iqaluit; a package of spaghetti noodles priced at CAD\$1.50 in the South will cost CAD\$9.50 in Nunavut; and a carton of orange juice will jump from CAD\$4 in southern Manitoba to CAD\$12 up North.¹⁷⁶ Despite these high, yet subsidized commodity

composed of the Southern Canada areas in Alberta, Saskatchewan and Manitoba (south of the 55th parallel), and the Northern Region, could be composed of the Northern Canada areas in Alberta, Saskatchewan and Manitoba (north of the 55th parallel), as well as the entirety of Nunavut, the Northwest Territories and the Yukon.

¹⁷⁶ See Barton, *supra* note 173; Nathan Sing, "The Inuk woman using TikTok to expose high food prices in the North", (2021), online: *Maclean's* <<https://macleans.ca/society/health/the-inuk-woman-using-tiktok-to-expose-high-food-prices-in-the-north/>>; Ryan Flanagan, "\$20 hamburgers and \$2 bananas: The cost of food insecurity in Canada's North", (2020), online: *CTV News* <<https://www.ctvnews.ca/canada/20-hamburgers-and-2-bananas-the-cost-of-food-insecurity-in-canada-s-north-1.5154743>>.

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prices,¹⁷⁷ northern residents obviously have no choice but to eat in order to survive and ultimately “stomach” the added cost. In the North, the same concessions should be made by the government for the effective surveillance of civil aviation; policymakers must also endure the greater costs and commit to additional public investments in order to ensure that safety standards equivalent to those found in Southern Canada are also maintained in the North.

Seeing that smaller aircraft operations and airports generally face disproportionately higher compliance costs,¹⁷⁸ the regulator’s investments into air safety in northern settlements should—in fairness to the regulatory burden routinely faced by northern operators/aerodromes—commensurate this imbalance with additional State resources. As with any aviation-related organization, the TCCA should acknowledge—in the spirit of ICAO Annex 19—that increasing air safety in Northern Canada, and thus providing indigenous groups with equal safety benefits under the *Aeronautics Act*, can only be achieved with additional and consistent institutional investments, such as the creation of a dedicated TC Northern Region. This is the cost of air safety but also equality, particularly in the current context of reconciliation with indigenous people.

By creating a new Northern Region, “resident” TC inspectors would interact more regularly with northern operators, increase their outreach across the region and observe emerging trends in the field more efficiently. It would allow the TCCA to gather accurate and timely safety intelligence, information and data; acquire the ability to deploy a quick reaction team to nearby locations for planned and unplanned surveillance; and also develop a specialized workforce with a unique expertise in northern air operations by virtue of their continued presence up North. Such a meaningful presence in Northern Canada would act both as a deterrent against infractions but

¹⁷⁷ Nutrition North Canada subsidizes eligible food and non-food items in the North. See Government of Canada, “How Nutrition North Canada works”, (2024), online: *Government of Canada* <<https://www.nutritionnorthcanada.gc.ca/eng/1415538638170/1415538670874#tpc1>>; Northern residents also receive a northern living allowance to help offset higher costs that may be incurred whilst living up North. See for instance: “Northern Living Allowance”, (2024), online: *PracticeNWT* <<https://www.practicenwt.ca/en/northern-living-allowance>>; “Northern Allowance Rates”, (2024), online: *Government of Northwest Territories* <<https://my.hr.gov.nt.ca/employees/pay/northern-allowance-rates>>.

¹⁷⁸ Chalifour & Besco, *supra* note 61 at 608.

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also provide northern operators with an invaluable access to regulatory resources and foster increased safety levels across the region in the long term. It would also satisfy the TCCA's internal (yet non-binding) guidelines which provide that its workforce and organizational structure ought to be "effectively positioned to deliver and adapt to requirements of today and the future."¹⁷⁹

At the moment, the TCCA mostly relies on paper-based assessments and intermittent visits in northern locations to conduct surveillance with local operators up North. This approach is obviously inadequate given the potential for multiple blind spots in northern operations, as noted specifically by the Dryden Inquiry over three decades ago.¹⁸⁰ The creation of a Northern Region with sufficient inspectors to cover its vast territory would bridge this gap and provide the TCCA with additional eyes on the ground to observe, identify and address hazards in a timely manner.

It would also protect the public interest by providing northern communities with stronger safeguards against accidents in civil aviation and ultimately provide northern indigenous communities with standards equivalent to those in place internationally and in Southern Canada. Notwithstanding the chosen means to address the uneven resource allocation up North—as we will see in the following case studies—there is a compelling argument for the increased funding and staffing of the TCCA's northern regulatory and surveillance activities.

6. The *State Factor* in Northern Canada—Case Studies Involving Inadequate Oversight

With its inhospitable terrain and extreme climate, the operational landscape in the North hosts its share of distinctive safety risks. Paradoxically, it is often where inexperienced flight school graduates go to earn flight time at the dawn of their careers in order to accumulate sufficient experience¹⁸¹ to eventually move up to the "big leagues" and obtain a well-paid position

¹⁷⁹ Transport Canada, *supra* note 68, s 5.3.1.

¹⁸⁰ The Honorable Justice Virgil P. Moshansky, *supra* note 6 at 993.

¹⁸¹ See "Pilot Training", (2023), online: *Air Canada Pilots Association* <<https://acpa.ca/pilot-life/pilot-training.aspx>>.

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in a large airline, usually in the South or abroad.¹⁸² With large carriers poaching the most experienced pilots with attractive benefits and working conditions,¹⁸³ northern operators experience high pilot turnovers and frequently employ low-salary pilots with minimal flight experience at the lower end of the spectrum,¹⁸⁴ even though they must operate in a more dangerous environment up North. Moreover, in contrast with major airlines that have entire departments to support their flying operations, northern pilots are responsible for loading cargo, embarking and disembarking passengers, fuelling and de-icing aircraft, etc.,¹⁸⁵ often entirely on their own, thus increasing the potential for longer duty hours and increased pilot fatigue.¹⁸⁶ In spite of these added operational burdens and the heightened safety risks associated with northern operations, the degree of effective oversight is also strikingly inferior in the North.

There are numerous examples of northern crashes rooted in the MOT's (in)actions that deprive northern indigenous people from essential oversight activities and safety levels that are substantively equal to those in Southern Canada. Many of these accidents could have been prevented, however, service gaps and lack of public resources have resulted in chronic failures under the Swiss Cheese Model. A comprehensive review of TSB investigation reports reveals that 166 investigation reports were published between 2011 and 2021 (inclusively),¹⁸⁷ 63 of which involved occurrences that took place within the defined boundaries of Northern Canada. Since TSB investigations are launched based on specific criteria, both objective and subjective in nature,¹⁸⁸ this number is neither revealing nor insignificant, but, needless to say, that the list of

¹⁸² For example, a pilot must have a minimum of 2,000 hours of flying time in order to apply at Air Canada. See "Career Opportunities - Pilot Job Requirements", (2024), online: *Air Canada* <[https://www.aircanada.com/ca/en/aco/home/about/careers/career-opportunities.html#/>](https://www.aircanada.com/ca/en/aco/home/about/careers/career-opportunities.html#/).

¹⁸³ For instance, a study found that pilots employed in large airlines are "are usually on schedule for an average of 75 hours a month, and up to a maximum of 85 hours a month with the possibility, but not the requirement, to do some overtime", while pilots in the North can be on duty for up to 100 hours a week and 250 hours a month during in peak periods, often exceeding regulatory flight and duty time limits. See David-Cooper, *supra* note 93 at 128–130.

¹⁸⁴ Privy Council Office, *supra* note 3 at 345.

¹⁸⁵ The Honorable Justice Virgil P. Moshansky, *supra* note 6 at 398.

¹⁸⁶ See generally René David-Cooper, "Protecting the Health and Safety of Pilots: A Critical Analysis of Flight and Duty Time Regulations in Canada" (2016) 41 *Annals of Air and Space Law* 81–126.

¹⁸⁷ Data on file with the author.

¹⁸⁸ See Transportation Safety Board of Canada Government of Canada, "Policy on Occurrence Classification - Transportation Safety Board of Canada", (2021), online: <www.tsb.gc.ca/eng/lois-acts/evenements-occurrences.html>.

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potential case studies to examine inadequate oversight in the North could be particularly lengthy, depending on the chosen scope.

As such, the following section will focus on a select number of case studies where the lack of surveillance by the TCCA in Northern Canada was particularly compelling, serious and worthy of an in-depth analysis. The following analysis is thus not exhaustive, but rather qualitative in nature; it will demonstrate that identifiable gaps within the TCCA's oversight regime—i.e., *State Factors*—have played a significant and distinctive role in northern air occurrences. In many cases, the accidents' root causes are innate to Northern Canada and reflect a palpable form of inequality and discrimination towards northern aviation's indigenous benefactors.

6.1 Wapiti Aviation Flight 402—High Prairie, Alberta (1984)



Figure 3— The Occurrence Site of Flight 402¹⁸⁹

¹⁸⁹ Source of Figure 3: Roberta Bell, "The untold story of 14 kids who lost their mother in the crash of Wapiti Flight 402", (2017), online: *CBC News* <<https://www.cbc.ca/news/canada/edmonton/alberta-wapiti-crash-elaine-noskiye-grant-notley-1984-1.4354252>>.

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The crash of Wapiti Aviation Flight 402 represents one of the earliest documented examples illustrating how a *State Factor*, in the form of inadequate oversight, can exacerbate the risks posed by unsafe carriers up North and directly contribute to a civil aviation accident. It also highlights how structural gaps within Canada's civil aviation oversight regime have discriminatory and deadly effects on indigenous people who, in contrast with those living in urban centres, must rely on air transportation to access essential services.

On October 19, 1984, the occurrence aircraft, a twin-engine Piper Navajo Chieftain that would fit today's legal definition of an air taxi, was operated by a single pilot on a night flight from Edmonton to Peace River, via High Prairie (Alberta), with nine passengers onboard.¹⁹⁰ The snowy and low-visibility IFR conditions¹⁹¹ were admittedly challenging, yet fairly common for northern air operations. Rather than having two aircrew members in the cockpit, the air carrier—Wapiti Aviation—insisted that the flight be conducted with only one pilot for financial reasons,¹⁹² despite the increased workload and risks associated with this practice.¹⁹³

Near its first planned stop in High Prairie, the sole pilot of Flight 402, Eric Vogel—a 24-year-old junior pilot who had joined Wapiti Aviation less than two months before the accident,¹⁹⁴ would encounter several difficulties, including marginal weather conditions with low ceilings and icing conditions,¹⁹⁵ a malfunctioning de-icing system, and issues connecting with the local

¹⁹⁰ *Aviation Occurrence Report - Wapiti Aviation Ltd., Piper Navajo Chieftain, PA-31-350, C-GXUC, High Prairie, Alberta, 20 mi SE, 19 October 1984*, by Canadian Aviation Safety Board of Canada, 84-H40006 (Gatineau, QC: Canadian Aviation Safety Board of Canada, 1986) at 1.

¹⁹¹ René David-Cooper, "Landing Safety Management Systems (SMS) in Aviation: The Implementation of Annex 19 for Commercial Air Carriers in Canada" (2015) 30:1 *Annals of Air and Space Law* at 459: "IFR" refers to Instrument Flight Rules. When flying in IFR conditions (e.g. when flying in reduced visibility, in cloud, or on an IFR flight plan), pilots are required under law to be licensed to fly their aircraft using only their flight instruments, have operational IFR avionics and adhere to certain weather minima. All IFR flights must be, under law, flown with an IFR flight plan".

¹⁹² A copilot was scheduled to fly on Flight 402, however, he was removed by management in order to add in his seat another paying passenger. See Carol Shaben, "Fly At Your Own Risk: Why is Transport Canada moving toward self-regulation for the country's airlines?", (2020), online: *The Walrus* <<https://thewalrus.ca/fly-at-your-own-risk/>>.

¹⁹³ René David-Cooper, *supra* note 186 at 107: "IFR flying can be a strenuous and stressful exercise for pilots flying in challenging weather conditions. In IFR conditions, pilots must often fly and land their aircraft solely by following and monitoring complex avionics systems, without looking outside the cockpit window to visually orient themselves, in some cases until the aircraft is only seconds away from landing on the runway".

¹⁹⁴ Canadian Aviation Safety Board of Canada, *supra* note 190 at 2.

¹⁹⁵ *Ibid* at 4–5.

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navigation aid (VOR)¹⁹⁶ required to conduct the IFR approach in High Prairie, a non-controlled airport with no air traffic controller on duty that evening. These were all issues raised by Mr. Vogel prior to the flight in an attempt to postpone it, but Wapiti's management pressured him into conducting the flight. In his final approach into High Prairie, he encountered a snowstorm. Without the benefit of a co-pilot and flying a fully loaded, ill-equipped aircraft, the pilot attempted to (gu)estimate his landing path, which he ultimately miscalculated.¹⁹⁷ Flight 402's ensuing narrative had all the lethal elements for a tragic *finale*:

Vogel, intending to see whether he could land under Visual Flight Rules, descended further, by "cruise descent" below 5,600 ft., the lowest permissible altitude, hoping to reach 2,800 ft., where he might be able to see the land below. This was the procedure he was shown [...] during training which facilitated landings in situations where they would otherwise be impossible. He tried to contact ground control at High Prairie, but the radio operator was not at her post. Vogel did not use the autopilot, because he had assumed (mistakenly) that it was not operating, like three out of four of the autopilots at Wapiti. He suddenly emerged from a cloud and, at 20:04, crashed into the Swan Hills, which he had wrongly assumed were a distance away. He was then 20 miles from High Prairie airport.¹⁹⁸

Mr. Vogel survived the impact, however, six passengers were fatally injured,¹⁹⁹ including Walter Grant Notley, a rising political star who was then the leader of Alberta's National Democratic Party (NDP),²⁰⁰ making this crash one of the most high-profile occurrences in the 1980s.²⁰¹ Among the other fatalities were Elaine Noskiye, an indigenous mother of fourteen children. Ms. Noskiye was on her way back home to Whitefish Lake First Nation, a remote Cree

¹⁹⁶ See SKYbrary, "VHF Omnidirectional Radio Range (VOR)", (2024), online: SKYbrary <<https://skybrary.aero/articles/vhf-omnidirectional-radio-range-vor>>: "VHF Omnidirectional Radio Range (VOR), is an aircraft navigation system operating in the VHF band. VORs broadcast a VHF radio composite signal including the station's Morse Code identifier (and sometimes a voice identifier), and data that allows the airborne receiving equipment to derive the magnetic bearing from the station to the aircraft. This line of position is called the "radial". Alternatively, the VOR radial may be combined with magnetic heading from the aircraft compass to provide a bearing relative to the aircraft axis, which can be used to home to the beacon. VOR beacons are frequently used as way-points on conventional Airway systems, or as the basis for a Non-Precision Approach".

¹⁹⁷ Canadian Aviation Safety Board of Canada, *supra* note 190 at 7.

¹⁹⁸ Swanson, *supra* note 60 at 417.

¹⁹⁹ Canadian Aviation Safety Board of Canada, *supra* note 190 at 2.

²⁰⁰ Coincidentally, Walter Grant Notley's daughter – Rachel Notley – would later become Alberta's first NDP Premier between 2015 and 2019. See Chris Nelson, "The sad forgotten hero of the Grant Notley aircraft tragedy", (2015), online: *National Post* <<https://nationalpost.com/news/politics/chris-nelson-the-sad-forgotten-hero-of-the-grant-notley-aircraft-tragedy>>.

²⁰¹ "October 19, 1984: Plane Crash Kills NDP Leader Notley and Five Others", *Edmonton Journal* (19 October 2012).

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community in northern Alberta situated between the 55th and 56th parallel,²⁰² after spending the previous weeks in a hospital in Edmonton due to complications with a pregnancy.²⁰³

The ensuing investigation by the predecessor of the TSB—the Canadian Aviation Safety Board (CASB), would find that Wapiti Aviation was not only prohibited by TC from conducting IFR flights into High Prairie that night;²⁰⁴ its management had directly pressured Eric Vogel into bringing Flight 402 to its destination, despite the treacherous weather conditions and regulatory restrictions in place.²⁰⁵ At the time of the occurrence, the pilot was also overworked, stressed from prior flights that day and had lost twenty-five pounds in the previous five weeks.²⁰⁶ It also turns out that rampant safety issues across the company had been documented by complaints filed with TC²⁰⁷ and subsequently recorded by the latter during inspections.

Even though such influences had not been formally acknowledged by accident causation models at the time, the CASB inferred on several occasions in its report that *organizational* factors had played an important role in the crash.²⁰⁸ Wapiti had a propensity for high staff turnover, inadequate training, poor aircraft maintenance, organizational pressure to deviate from regulations, widespread pilot fatigue due to taxing work schedules, aircrews being ridiculed when raising concerns about flying in marginal weather, etc.²⁰⁹ Wapiti showed all the symptoms of a “ragtag” air operation, but even after receiving several complaints from existing and former Wapiti employees, and documenting various regulatory infractions,²¹⁰ TC failed to intervene²¹¹ and thus

²⁰² “White Fish Lake First Nation #459”, (2024), online: *White Fish Lake First Nation* <<https://www.whitefish459.com/>>.

²⁰³ Bell, *supra* note 189.

²⁰⁴ The High Prairie NDB facility was not approved for IFR operation, nor was there an approved instrument landing approach at the High Prairie Airport. Canadian Aviation Safety Board of Canada, *supra* note 190 at 7.

²⁰⁵ *Ibid* at 8.

²⁰⁶ Shaben, *supra* note 192.

²⁰⁷ Canadian Aviation Safety Board of Canada, *supra* note 190 at 12.

²⁰⁸ *Ibid* at 18–19 & 27–28.

²⁰⁹ *Ibid* at 13–15; Swiecicki, *supra* note 52 at 298.

²¹⁰ Roger Harris, “Liability of Government Agencies for Negligent Non-Enforcement of Air Navigation Orders” (1994) 43:2 *German Journal of Air and Space Law* 199–202 at 200.

²¹¹ Canadian Aviation Safety Board of Canada, *supra* note 190 at 20.

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uphold its obligation to enforce safety standards.²¹² In its final investigation report, the CASB concluded that:

One of the primary safety deficiencies identified in the accident was the inability of TC to respond effectively to the apparent unsafe operating practices of a company, despite an abundance of evidence: in the two years preceding the accident, regional Air Carrier Inspectors had expressed concern about the safety of the company; Airworthiness Inspectors discovered numerous irregularities in the maintenance procedures and record keeping of the company; and ATC personnel issued IFR clearances to company aircraft for off-airways flight during conditions of IFR weather to an airport that was not served by an instrument approach. The Board is concerned that the ineffective identification and reporting of apparent unsafe practices, and/or a lack of coordination between divisions of TC may continue to degrade the effectiveness of routine surveillance, despite the enhanced sophistication of the current surveillance policy.²¹³ (emphasis added)

The roots of the Wapiti Flight 1402 therefore went beyond technical, human and organizational factors: broader *State Factors* prevalent at the time with smaller northern operators were also directly involved in the sequence of this accident. There was indeed a strong causal link between TC's inadequate oversight and the crash of Flight 1402. In this context, the estate of two passengers subsequently sued "the federal Crown for damages, alleging that the negligence of its employees contributed to their loss."²¹⁴ The ensuing case—*Swanson Estate v Canada*—made its way to the Federal Court of Appeal (FCA). The late Justice Linden—a renowned expert in Canadian tort law—ruled that TC's oversight was negligent, in that it could have taken actions to prevent the accident. Accordingly, the FCA apportioned liability equally among the pilot, Wapiti and TC.

In its decision, the FCA noted that following several complaints made between 1982 and 1984, TC issued damning inspection reports which documented serious regulatory infractions by Wapiti and observed the latter's total disregard for regulations and safety.²¹⁵ One TC inspector had even noted three months before the crash that a fatal accident was "virtually certain" if no

²¹² Swiecicki, *supra* note 52 at 296.

²¹³ Canadian Aviation Safety Board of Canada, *supra* note 190 at 24.

²¹⁴ *Swanson*, *supra* note 60 at 413.

²¹⁵ Swiecicki, *supra* note 52 at 298.

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action was taken,²¹⁶ however TC's regional director decided not to take any enforcement measures, even though Wapiti was an obvious menace for the travelling public. The FCA ruled that the conscious and discretionary choice by TC not to intervene following these documented safety issues was clearly an *operational* decision,²¹⁷ not a policy matter, thus exposing TC to liability.²¹⁸ With the public interest at stake, TC had a duty to enforce safety standards diligently and adequately, and therefore owed a civil duty of care to the passengers.²¹⁹ Just like any professional, the FCA ruled that TC inspectors were not immune from liability; they had to exercise reasonable care in the circumstances and fulfill their safety mandate under the *Aeronautics Act*.²²⁰

Since the "failure to correct the dangerous situation at Wapiti was impossible to reconcile with the approach required of a reasonable person charged with safeguarding passenger safety,"²²¹ the FCA concluded that TC had been negligent in its oversight over Wapiti in the months preceding the crash. By allowing Wapiti to continue operating despite multiple serious violations, the FCA concluded that TC inspectors had tolerated palpable deviations from elementary safety standards, did not carry out any meaningful enforcement action and thus did not demonstrate the expected behaviour of a reasonably competent inspector.²²²

²¹⁶ *Swanson, supra* note 60 at 416.

²¹⁷ Harris, *supra* note 210 at 200: "Transport Canada's response to the complaints and reports regarding Wapiti was properly characterized as an operational decision. Inspectors of airlines, aircraft and pilots implement policy, not make it. Although they must exercise discretion and judgment in their enforcement practices, they are not called upon to weigh social, political or economic factors. Accordingly, Transport Canada had a civil obligation to the plaintiffs to exercise reasonable care in enforcing the Regulations and ANOs"; see also *Swanson, supra* note 60: "The official making the enforcement decisions was not a high elected official like a Minister or even a Deputy Minister; he was only a regional director. His work involved not policy, planning or governing, but only administering, operations or servicing. The decision had no 'polycentric' aspects, nor was there evidence of any lack of resources to permit more rigorous enforcement of the regulations. There were available numerous specific guidelines upon which the court could rely in evaluating the conduct of the decision-maker. This was not a budgetary, macro-exercise. These people were essentially inspectors of airlines, aircraft and pilots, who did not make policy, but rather implemented it, although they certainly had to exercise some discretion and judgment during the course of their work, much like other professional people".

²¹⁸ In the context of Crown liability, now governed under the *Crown Liability and Proceedings Act*, there is a fundamental rule in Canadian case law that true policy decisions are immune from liability, whereas operational decisions (stemming from administrative, routine, housekeeping, implementation or business power acts) can be subject to negligence actions.

²¹⁹ *Swanson, supra* note 60.

²²⁰ Harris, *supra* note 210 at 201.

²²¹ *Ibid.*

²²² *Swanson, supra* note 60 at 427: "The government is not an insurer; it is not strictly liable for all air crashes, only for those caused by the negligence of its servants. The standard of care required of these inspectors, like every other individual engaged in activity, is that of a reasonable person in their position. What is required of them is that they

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The need for strict compliance with safety standards underscores the obvious importance of passenger safety. The defendant [Transport Canada] is responsible for the certification of each carrier and their inspection, airworthiness of the equipment and its maintenance. Not only is the granting of the license the job of this department, but also the need to monitor the airlines to ensure that they remain qualified. One of the warning signs which may alert an inspector that an air carrier is not operating safely [...]

Among the incidents of Transport Canada's negligence, the following emerge from the evidence and findings of the trial judge as the most significant. Transport Canada knew of the pressure which Wapiti placed on pilots to fly regardless of weather conditions and equipment maintenance. They knew that pilots who objected to unsafe conditions were generally fired, leading to a turnover of as many as 14 pilots in six months. They knew that planes were not always in operating order, that the necessary manufacturer's checks were not performed on schedule, and sometimes not done at all. They knew that such maintenance deficiencies as were discovered were often not logged. Transport Canada suspected that Wapiti planes had broken weather minima on 43 occasions prior to the crash, despite their lack of equipment to handle even satisfactory weather conditions properly. Under Transport Canada's own guidelines, approval for night VFR was supposed to be based on making sure there was adequate communication and weather reporting. No such communication existed at High Prairie. They knew that, when Wapiti did employ a co-pilot, that person might be unqualified for the job. Wapiti did not like to use co-pilots because the co-pilot's seat could be occupied by a paying passenger. At least four Wapiti pilots had complained to Transport Canada about safety conditions before the crash. Transport Canada must, or should, under its own guidelines, have been aware that Delbert Wells was unqualified to hold the position of operations manager, as his knowledge of flying was minimal and he did not seem to comprehend the danger he was courting in cutting every possible corner. Transport Canada was well aware that Wells was willing to trade safety for profit.²²³

Even though Wapiti was a high-risk operation, TC failed to take any corrective or enforcement action to protect the travelling public.²²⁴ This was "entirely inconsistent with [TC's] function of promoting passenger safety"²²⁵ and its corresponding enforcement duties under the *Aeronautics Act*.²²⁶ In the FCA's opinion, this negligence inevitably contributed to the materialization of the crash:

Transport Canada's failure to take any meaningful steps to correct the explosive situation which it knew existed at Wapiti amounted to a breach of the duty of care it owed the

perform their duties in a reasonably competent way, to behave as would reasonably competent inspectors in similar circumstances, no more and no less. In evaluating their conduct, courts will consider custom and practice, any legislative provisions and any other guidelines that are relevant. The risk of harm and its severity will be balanced against the object and the cost of the remedial measures. In the end, the court must determine whether the employees of the defendant lived up to or departed from the standard of care demanded of them, in the same way as in other negligence cases."

²²³ *Ibid*, at 438-430.

²²⁴ Swiecicki, *supra* note 52 at 300-301.

²²⁵ Swanson, *supra* note 60 at 433.

²²⁶ Swiecicki, *supra* note 52 at 296-297.

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passengers. Transport Canada officials negligently performed the job they were hired to do; they did not achieve the reasonable standard of safety inspection, and enforcement which the law requires of professional persons similarly situated. [...] It is incomprehensible that a professional inspector of reasonable competence and skill would choose not to intervene in a situation which one of his own senior staff predicted was virtually certain to produce a fatal accident.²²⁷

With regards to causation, the FCA acknowledged that it was uncontested that the pilot and Wapiti both contributed to the accident. But it also concluded that if TC had taken reactive measures in response to the various complaints and infractions at Wapiti, either by revoking or suspending its operating license, or by issuing hefty fines following numerous infractions, the accident would not have occurred.²²⁸ By recognizing TC's sufficient proximity and causal link with the crash of Flight 402, the FCA concluded that negligence in TC's oversight and lack of enforcement measures against Wapiti—*State Factors*, contributed to the lax safety environment²²⁹ that was the *conditio sine qua non* for this northern tragedy.²³⁰

²²⁷ Swanson, *supra* note 60 at 433.

²²⁸ *Ibid*, at 436–437: “While Transport Canada cannot prevent a pilot from flying negligently or from endangering the lives of passengers, if he or she so chooses, it can reduce the risk that this will occur. They can stop an airline from using shoddy equipment. They can minimize, through inspection and enforcement, the occasions when such negligence will occur. Transport Canada cannot prevent airlines from trying to run their businesses as cheaply and profitably as possible, but they can seek to enforce compliance with the safety rules. The desire to promote passenger safety led to legislation and regulations under which the Crown was given the duty to ensure that certain safety standards were established and maintained. The *Aeronautics Act* obviously presumes a connection between the fulfilment of these duties and the maintenance of safe air travel. Had Transport Canada taken the vigorous enforcement measures warranted by its knowledge of the danger, Vogel might have had a co-pilot on the night of the crash, or felt confident that there would be an operating autopilot. He might have had two direction finders. Wapiti might not have encouraged Vogel to break weather minima. Vogel might have been taught a way of approaching High Prairie which was consistent with passenger safety. When he tried to contact High Prairie, better communication with the ground might have existed. Better management personnel might have been in place. Or, if none of the above was possible, perhaps Wapiti might not have been flying the Edmonton-High Prairie route at all, due to their stubborn and repeated failure to comply with safety standards. Perhaps most importantly, however, as the trial judge found, the failure to inspect and enforce regulations contributed to the development of a lax safety environment at Wapiti. An unsafe environment existed at Wapiti because Transport Canada failed to act upon the complaints it received from pilots and the other warning signals evident in Wapiti's sloppy maintenance and single-pilot IFR practices. A practice of careless flying was allowed to develop and was condoned by the defendant. Although it was the Wells family which adopted the airline's unsafe practices, it was Transport Canada which initially gave them government approval to operate and which later failed to take steps which its own governing Act and regulations required when these problems were brought to its attention. Pilots at Wapiti who were concerned about safety conditions had nowhere to turn: if they went to Wells, they would be fired, and if they went to Transport Canada they were met with inaction. Small wonder that they became careless and took the dangerous short cuts they were pressured to take.”

²²⁹ Harris, *supra* note 210 at 201.

²³⁰ Swanson, *supra* note 60 at 438: “But for it, the accident would not have occurred. There is adequate evidence here to satisfy the demand for a link between the negligent conduct of the defendant [Transport Canada] and the fatal crash.”

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This was a particularly significant ruling, as it formally recognized—for the first time in Canadian aviation case law—that the federal Crown’s liability could be triggered when there is a definable causal link between the negligent conduct by TC inspectors, i.e., a *State Factor*, and accidents involving northern air operators. The Wapiti tragedy also illustrated how civil aviation safety can sometimes be compromised in the pursuit of profit,²³¹ and *vice versa*, how market-based mechanisms often intervene following accidents when *State Factors* are visibly impeding on air safety, namely by expelling unsafe carriers from the market.²³² Wapiti Aviation was indeed shut down shortly after the 1984 crash but there is no doubt that the victims of Flight 402 would “gain little comfort in knowing that Adam Smith’s invisible hands vindicated their deaths by strangling the economic life out of [Wapiti Aviation].”²³³

Moreover, this accident “clearly demonstrated the hazards of flying in the treacherous northern wilderness.”²³⁴ It also brought to light how northern indigenous populations must often travel by air to access basic public services (e.g., medical treatment) that would otherwise be accessible by vehicle for most Southern Canada residents, whilst being confronted to higher safety risks associated with the limited pool of small operators that service their isolated communities. As a resident of a remote indigenous settlement, one of the casualties—Ms. Noskiye—had no choice but to travel by air to go to/from a hospital for medical care. Had she lived in Southern Canada and/or near a hospital, air travel onboard an unsafe small carrier would not have been required to access the medical services she needed. More importantly, she would not have perished as a result of TC’s inadequate oversight over this industry sector.

²³¹ Swanson, *supra* note 60 at 414.

²³² See generally Paul P Fitzgerald, “Questioning the Regulation of Aviation Safety” (2012) 37 *Annals of Air and Space Law* 1–46.

²³³ Paul Stephen Dempsey & Andrew R Goetz, *Airline Deregulation and Laissez-Faire Mythology* (Westport, Connecticut: Quorum Books, 1992) at 306.

²³⁴ “Scorning Safety in the Northern Skies”, *Maclean’s* (1985).

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The tragic story of Ms. Noskiye truly exemplifies how indigenous people must often rely on air services that are on the fringe of regulatory compliance and outside TC's main coverage area, in stark contrast with the reality of Canadians living in Southern Canada who can simply take a vehicle to visit a doctor or call an ambulance to go to the hospital. It also illustrates how indigenous people are discriminated against under Canada's civil aviation regime. They continue to suffer from the consequences of inadequate oversight rooted in a pattern of neglect towards indigenous people. Consequently, northern indigenous people have been "abandoned by a broken, underfunded and discriminatory system."²³⁵

In contrast, the serious safety issues experienced at Wapiti Aviation would never be tolerated in Southern Canada, both by a major carrier and the regulator. TC would never allow major airlines (e.g., Air Canada) to continue operating to/from major Canadian cities following multiple safety violations. Yet, the pernicious effects of *State Factors* up North and their deadly effects on the safety of small carriers persist in Northern Canada even to this day, as we will see in the next two case studies.

²³⁵ See *Modified Application for Authorization to Institute a Class Action and to Obtain the Status of Representative 2 (Lucy Tookalook and Tanya Jones v Attorney General of Quebec and Attorney General of Canada)* (Superior Court, Province of Quebec, District of Montreal, 2022) at para 1.10.

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6.2 Provincial Airlines Limited (PAL) Flight 960—Davis Inlet, Newfoundland (1999)



Figure 4—Davis Inlet in the 1990s

The dark history of Davis Inlet, including the PAL crash, is a seminal case illustrating the multilayered effects of Canada's discriminatory approach towards indigenous people. During a 2007 hearing before the House of Commons, a former TC inspector and whistleblower²³⁶ stated that the 1999 PAL crash in Davis Inlet "is an important study of what ails [TC's] regulatory program."²³⁷ This tragedy was also—as we will see—a symptom among many others of generalized systemic discrimination within the local indigenous community that was facing yet again another calamity in a series of misfortunes that had afflicted its residents throughout the last century.

²³⁶ Standing Committee on Transport, Infrastructure and Communities, "Testimony - Mr. Hugh Danford (Former Civil Aviation Inspector, Transport Canada, As an Individual)", (14 May 2007), online: *Open Parliament* <<https://openparliament.ca/committees/transport/39-1/51/hugh-danford-1/only/>>.

²³⁷ *Ibid*; *Evidence - Number 51, 1st Session, 39th Parliament*, by Standing Committee on Transport, Infrastructure and Communities (Ottawa, ON: Parliament of Canada, 2007).

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At the time, Davis Inlet (see Figure 4)²³⁸ was a remote Mushuau Innu First Nations community in the Province of Newfoundland and Labrador, established on the icy coast of the Labrador Sea near the 55th northern parallel.²³⁹ Historically, it was an excessively underprivileged community with a dark colonial past of forced relocation by the clergy and federal authorities. Substance abuse was particularly rampant in the troubled community²⁴⁰ and even led to the transfer of many indigenous children by child social services into foster homes.²⁴¹ At the time, the community even inherited the infamous title of the “the most suicide-ridden people of the world.”²⁴² In the decade preceding the 1999 PAL crash, Davis Inlet was a shantytown: it had no running water or sewage disposal system, and housing was limited to overcrowded ramshackle homes.²⁴³ If Hell had a northern equivalent, Davis Inlet would have been a well-qualified candidate; social problems were so widespread that the federal government eventually relocated the entire community yet again in 2002 to Natuashish—a settlement 15 km away,²⁴⁴ alas, with no positive results to this day.²⁴⁵

Due to its geographic isolation, Davis Inlet—now abandoned—was only accessible by boat or by airplane at the time, with the latter being the most efficient mode of transport year-

²³⁸ Source: Azzo Rezori, “Rezori: Canada’s aboriginal record and a Davis Inlet legacy”, (25 May 2014), online: *CBC News* <<https://www.cbc.ca/news/canada/newfoundland-labrador/rezori-canada-s-aboriginal-record-and-a-davis-inlet-legacy-1.2649239>>.

²³⁹ Pierre Bibeau, “Phase 2 Report on a Heritage Study for the Utshimassit Community Relocation Project, Sango Bay, Labrador”, (1996), online: *Government of Newfoundland and Labrador* <<https://www.gov.nl.ca/tcar/provincial-archaeology-annual-report-series/1996-toc/bibeau1996sangbay/>>.

²⁴⁰ “Detox program failed: Rosales”, (6 October 2004), online: *CBC News* <<https://www.cbc.ca/news/canada/newfoundland-labrador/detox-program-failed-rosales-1.489685>>.

²⁴¹ “Official investigated for refusing to send kids to Davis Inlet”, (15 March 2001), online: *CBC News* <<https://www.cbc.ca/news/canada/official-investigated-for-refusing-to-send-kids-to-davis-inlet-1.276498>>; “Horror in Davis Inlet”, *Maclean’s* (15 February 1993).

²⁴² Darrow MacIntyre, Napes Ashini & Brian Tobin, “Report says Innu are the world’s most suicide-ridden people”, *CBC News* (8 November 1999).

²⁴³ “A heart-wrenching cry for help in Davis Inlet”, (28 January 1993), online: *CBC News* <<https://www.cbc.ca/player/play/1769527584#:~:text=Haunting%20images%20of%20gas%20sniffing,on%20CBC%27s%20Prime%20Time%20News.>>>.

²⁴⁴ Ariana Kelland, “Return to Davis Inlet”, (20 November 2022), online: *CBC News* <<https://www.cbc.ca/news/interactives/features/return-to-davis-inlet>>.

²⁴⁵ “Struggling with the hangovers of old Davis Inlet”, (2005), online: *CBC News* <<https://www.cbc.ca/player/play/1769537687>>; Sue Bailey, “New gas-sniffing crisis grips Natuashish Innu”, (15 May 2017), online: *CTV News* <<https://www.ctvnews.ca/health/new-gas-sniffing-crisis-grips-natuashish-innu-1.3414084>>; “Labrador Innu leaders pocketing band money: audit”, (26 October 2005), online: *CBC News* <<https://www.cbc.ca/news/canada/labrador-innu-leaders-pocketing-band-money-audit-1.542105>>.

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round. Commercial air services, such as the flight routes operated by PAL in the 1990s, therefore provided the community with a vital supply chain link. On the morning of March 19, 1999, PAL Flight 960 operated a routine cargo flight from Goose Bay (Newfoundland) to Davis Inlet, with a captain and first officer (FO) onboard. En route to its destination, PAL Flight 960—a de Havilland DHC-6-300 Twin Otter (see Figure 5)²⁴⁶—encountered challenging IFR weather conditions, including gusty winds, low ceilings, poor visibility, blowing snow and ice pellets. In a way, PAL Flight 960 was an archetypal journey through the cold winter skies of Northern Canada.



Figure 5— The Occurrence Aircraft in the 1980s when it was Operated by a U.S. Operator

Near Davis Inlet, the aircrew encountered a whiteout and moderate icing conditions. During their first IFR landing approach, the aircrew could not acquire the necessary visual

²⁴⁶ Source of picture: “De Havilland DHC-6-300 - C-FLWQ”, (2024), online: *Twin Otter World Database* <<https://twinotterworld.com/msn-724>>; There are no pictures publicly available of the occurrence aircraft. However, a review of registration records revealed that it was previously operated in the United States until the mid-1990s. Figure 5 shows the occurrence aircraft when it was operated by the now defunct Eastern Metro Express airlines in the 1980s. “N915MA Sunaire Express DHC-6-300”, (2024), online: *Plane Logger* <<https://www.planelogger.com/Aircraft/Registration/N915MA/658827>>.

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reference prescribed at the minimum descent altitude (MDA)²⁴⁷ and subsequently executed a missed approach (“go-around”). On the second landing approach, the captain deviated from standard procedures as well as the CARs; he flew below the designated MDA and pressed on despite the FO voicing his concerns about not acquiring the minimum visual reference prescribed under law for that approach. The aircrew subsequently lost situational awareness²⁴⁸ and moments later, the aircraft crashed onto the frozen surface of the Labrador Sea. The aircraft was completely destroyed. The captain was seriously injured, and the FO was killed on impact.

The subsequent TSB investigation revealed that the captain had a history of multiple regulatory infractions and was involved in two previous accidents that shared similarities with the Davis Inlet accident.²⁴⁹ Even though the captain had a documented propensity to break the law, TC inspectors never took any measures to fine him, nor did they ever suspend or revoke his license. The captain’s file at TC further noted that he had “a habit of ignoring IFR procedures,”²⁵⁰ a “flagrant disregard for established rules” and was a likely repeat offender.²⁵¹ Following an offence in 1992, a TC inspector even noted in the captain’s file that “previous sanctions have not changed this individual’s methods of operating” and even foreshadowed that TC would “hear from this gentleman again.”²⁵² Unfortunately, that prophecy would be tragically fulfilled seven years later in Davis Inlet, and lead to the death of a twenty-two year-old FO.²⁵³

²⁴⁷ SKYbrary, “Minimum Descent Altitude/Height (MDA/MDH)”, (2024), online: SKYbrary <<https://skybrary.aero/articles/minimum-descent-altitudeheight-mdamdh>>: “The Minimum Descent Altitude (MDA) or Minimum Descent Height (MDH) is a specified altitude or height in a Non-Precision Approach or Circling Approach below which descent must not be made without the required visual reference”; see also *Annex 6 to the Convention on International Civil Aviation (Tenth Edition - Standards and Recommended Practices - Part 1 International Commercial Air Transport - Aeroplanes (Eleventh Edition))*, AN6 2018 at 1–8.

²⁴⁸ Transportation Safety Board of Canada, “Aviation Investigation Report, Controlled Flight into Terrain, Provincial Airlines Limited, de Havilland DHC-6-300 Twin Otter C-FWLQ, Davis Inlet, Newfoundland 2 nm NNE, 19 March 1999, Report Number A99A0036”, (2001), online: *Transportation Safety Board of Canada* <<http://www.tsb.gc.ca/eng/rap-ports-reports/aviation/1999/a99a0036/a99a0036.pdf>>, s 2.6.2: “The crew were preoccupied with gaining visual reference during the descent and did not adequately monitor the aircraft flight instruments. Consequently, they were unaware of their proximity to the terrain”.

²⁴⁹ See TSB Air Safety Investigations A92C0189 & A91C0008.

²⁵⁰ Marcel Jaspar Transport Canada File — Case 17401 (Offence Date: 1990/12/12).

²⁵¹ Marcel Jaspar Transport Canada File — Case 17514 (Offence Date: 1990/10/18).

²⁵² Marcel Jaspar Transport Canada File — Case 21,338 (Offence Date: 1992/11/09).

²⁵³ Shaben, *supra* note 192.

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Similar to the Wapiti tragedy, it was thus apparent that the captain was virtually certain to produce a fatal accident, yet TC once again failed to remove an unsafe element that was endangering flight safety. Accordingly, TC tolerated several risk factors that contributed to this accident and although no reported lawsuit was undertaken following the Davis Inlet crash, it can be presumed based on the FCA's ruling in *Swanson* that TC could have been held partly responsible and liable for this accident.

In contrast with scruffy northern operators, it is also doubtful that such conduct would ever be tolerated if that same pilot had been employed by a major airline in Southern Canada. In fact, it is unlikely that such an unsafe pilot with so many infractions in his record would ever be employed by a reputable airline, such as WestJet, Porter Airlines, Air Canada (etc.), or even allowed by TC to continue flying a large airliner in Southern Canada. Had TC taken harsher measures earlier, such as issuing a hefty fine or suspending the captain's flying privileges, he likely would not have been employed by PAL or would have been deterred from taking the fateful decisions that contributed to the Davis Inlet crash.

From an organizational standpoint, TSB investigators also found that several procedures and regulations had been violated during the PAL flight: the occurrence aircraft was improperly loaded²⁵⁴ and was flown on a VFR (visual flight rules) flight plan, even though the company and aircrew knew that marginal weather conditions were forecasted in the area.²⁵⁵ Despite knowing that there was no alternate airport that could be accessed that day,²⁵⁶ the captain put himself in a

²⁵⁴ Transportation Safety Board of Canada, *supra* note 248, s 1.12: "During the break-up, the cockpit was destroyed, and all of the cabin-area cargo exited through the front of the aircraft. The absence of damage to load securing attachment points and the absence of load restraining devices indicated that the load had not been restrained".

²⁵⁵ In addition, operating the aircraft in instrument meteorological conditions under a VFR flight plan contravened the company operations manual and section 602.115 of the *Canadian Aviation Regulations*.

²⁵⁶ The latter violation was presumably made intentionally due to the fact that an IFR flight plan would have required the aircrew to carry additional fuel to fly to a suitable alternate airport in the event it was not possible to land in Davis Inlet due to meteorological conditions. However, there were no alternate options available that day due to adverse weather across the region, hence why the aircrew likely opted for a VFR flight plan to absolve itself from the more stringent IFR flight plan requirements.

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position where he had no choice but to land the aircraft in Davis Inlet, even though the weather conditions prevented him from doing so *legally* and *safely*—a form of continuation bias.

The TSB further determined in its investigation that the crash was the result of chronic deficiencies at PAL's base of operations in Goose Bay, where recurrent violations and unsafe decisions were routinely made in the period leading up to the accident.²⁵⁷ Upon noting striking similarities between the 1999 PAL crash and five previous accidents,²⁵⁸ the TSB found that recurrent non-compliance with regulations and unsafe behaviour were part of a widespread phenomenon that specifically afflicted many small operators flying to/from remote locations in Canada. But again, the TSB found that TC's oversight was failing to address systemic safety issues afflicting many small operators:

Generally, these accidents have been with smaller commercial operators or during operations in remote areas where oversight is difficult. In these operations, there were clear indications that a culture was allowed to exist in which crews and operators operated outside the safety regulations, with catastrophic consequences. It is recognized that effective safety oversight of smaller or remote operations is a challenging task. Notwithstanding this challenge, the level of acceptable risk should not be greater for passengers and crews who fly on aircraft operated by smaller operators or who operate in or into remote areas, simply because oversight is difficult. [...] These and other accidents indicate that more needs to be done. It appears that the traditional methods of inspection, audit, general oversight, and regulatory penalties have had limited success in fostering appropriate safety cultures in some companies and individuals; consequently, unsafe conditions continue to exist and unsafe acts are still being committed. These serious accidents indicate that some operators and crews have disregarded safety regulations and, consequently, put passengers and themselves at an unnecessary and unacceptably high level of risk.²⁵⁹ (emphasis added)

This was a damning conclusion, as it acknowledged that inadequate oversight was particularly prevalent with small operators flying to/from remote aerodromes, or, in other words, that TC did not provide the same level of surveillance to air carriers and aerodromes outside its

²⁵⁷ Transportation Safety Board of Canada, *supra* note 248, s 4.2: "This occurrence investigation uncovered several serious deficiencies in the conduct of the mission. These deficiencies could be symptomatic of a broader and ongoing disregard for regulations and company standard operating procedures (SOPs). Indicators of the deficiencies are as follows: the presence of poor company loading practices at Goose Bay; inadequate company supervision of the Goose Bay operation; non-adherence to aircraft SOPs; and deliberate operation of the aircraft below the minimum descent altitude (MDA) when adequate visual references for landing were not present".

²⁵⁸ See TSB Air Safety Investigations A00H0001, A99Q0005, A98Q0007, A97C0236 & A97P0207.

²⁵⁹ Transportation Safety Board of Canada, *supra* note 248, s 4.2.

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main area of regulatory coverage. It can be inferred from this finding that northern communities, namely indigenous populations, were not afforded the same benefits and protections under the *Aeronautics Act*, and were exposed to higher safety risks in civil aviation. It also meant that little consideration was given, and fewer resources were allocated, towards the surveillance of smaller operators that predominantly service indigenous settlements. It can be inferred from the TSB report that small operations into remote sites were and continue to be somewhat viewed as “second-class operators” that are regulated and supervised in a lower “caste system”.

The PAL crash demonstrated that TCCA surveillance activities in remote areas are not only lacking but the little actions that are taken are often not provided in a meaningful way. This tragedy once again demonstrates how inadequate oversight in the North, presumably caused by inadequate surveillance processes and insufficient government resources (*State Factors*), leaves air operators in a precarious situation with no safety net available to them. Accordingly, indigenous communities who rely on these operators are discriminated against, in that they do not benefit from the safety and reliability standards available to most Canadians travelling to/from urban parts of the country.

While this accident did not kill any indigenous individuals, it also illustrates how unsafe carriers can jeopardize the reliability of critical air services over time, as aviation occurrences ultimately hinder the ability of local communities from obtaining the basic goods and supplies carried by cargo aircraft. Over time, the socio-economic impacts of these accidents cannot be underestimated, as these repeated crashes contribute to supply chain shortfalls, which inevitably exacerbate the discriminatory effects of other issues experienced by indigenous communities, such as clean water shortages, inadequate housing, insufficient food supplies, timely access to medication (especially for perishable products, such as insulin), etc.

Following its investigation into the Davis Inlet crash, the TSB did issue a recommendation asking the MOT to “undertake a review of its safety oversight methodology, resources, and

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practices, particularly as they relate to smaller operators and those operators who fly in or into remote areas, to ensure that air operators and crews consistently operate within the safety regulations.”²⁶⁰ This was a particularly important recommendation, as it remains the only one to this day specifically addressing the oversight of small carriers in remote areas of Canada. It also acknowledged that a major deficiency existed within TC’s surveillance program over remote operators and aerodromes, and thus warranted urgent action by the MOT.

The MOT fully satisfied this recommendation in 2006, namely by claiming that the implementation of SMS would “meet the challenge of providing effective safety oversight to all areas of the aviation industry in Canada including the provision of air services to and within remote regions of the country.”²⁶¹ However, this commitment would fall through soon thereafter, as air taxi and commuter operators would eventually be excluded from the scope of SMS, as noted previously. In an internal document, TC further stated that it had successfully “increased safety oversight of smaller operators and operators who fly in remote areas to a greater efficiency level,”²⁶² but this statement would prove to be misleading as the first two decades of the new millennium would be marked by an onslaught of crashes involving small operators, in which the lack of oversight and SMS exemptions would be cited as underlying factors in TSB investigation reports.

Even then, the effectiveness of SMS along with TC’s oversight over all northern operators combined—both small and large—would come under scrutiny once again, as we will see in the final case study of this chapter, which confirms that even SMS—when implemented by a carrier—

²⁶⁰ *Aviation Recommendation A01-01 - Reassessment of the Responses from Transport Canada to Aviation Safety Recommendation A01-01 (Regulatory Safety Oversight)*, by Transportation Safety Board of Canada (Gatineau, QC: Transportation Safety Board of Canada, 2001).

²⁶¹ *Ibid.*

²⁶² *Astra Record - TSB Recommendation (Regulatory Safety Oversight) A01-01 Follow Up*, by Transport Canada, 2001/A001 (Ottawa, ON: Transport Canada, 2003).

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cannot prevent tragic accidents if this approach is not supported by adequate State oversight in the North.

6.3 West Wind Aviation Flight WEW282—Fond-du-Lac, Saskatchewan (2017)



Figure 6— The Occurrence Site of Flight WEW282

The crash of Flight WEW282 illustrates very well how Canada's discriminatory legacy towards the indigenous also extends to northern air operations and endures well into the 21st century, despite purported advancements following regulatory and policy reforms (e.g., SMS). Flight WEW282 is a stark reminder that marginalized and neglected northern communities continue to be exposed to higher safety risks and deadly, yet preventable accidents. It also demonstrates how the TCCA has failed to uphold its mandate in protecting *all* Canadians, including indigenous people, by ensuring that northern residents are provided with equal benefits under the law—without delays or service gaps in the provision of essential surveillance activities.



Figure 7—Fond-du-Lac, Saskatchewan

Fond-du-Lac (FDL)²⁶³ is a small northern indigenous community and the home of the Denesuline First Nation.²⁶⁴ Located in northern Saskatchewan on the 59th parallel near the border with the Northwest Territories, FDL is a fly-in community that relies on civil aviation for basic supplies and services. In 2017, FDL only had one short gravel airstrip (3,800 feet) and the community was primarily serviced by one air carrier—West Wind Aviation (West Wind). West Wind was a fairly large company by northern standards that had an SMS in place and flew a wide array of air taxi, commuter and airline operations.²⁶⁵ West Wind also owned a subsidiary company—Transwest Air, which operated under West Wind's operator code.²⁶⁶

On December 13, 2017, an ATR 42–320 flown by West Wind as Flight WEW282 (operated by Transwest Air) was carrying out a typical “milk run”, with a series of scheduled stops in several northern Saskatchewan communities. One of these legs included a stop in FDL, where freezing rain, light snow and low ceilings were forecasted.²⁶⁷ Whilst approaching FDL on a cold winter

²⁶³ Source of Figure 7: “Fond du Lac Denesuline First Nation”, (2024), online: *Eastern Athabasca Regional Monitoring Program* <<https://www.earmp.com/fonddulac.html>>.

²⁶⁴ “Fond du Lac Denesuline First Nation”, (2024), online: *Fond du Lac Denesuline First Nation* <https://www.fonddulac.ca/pages/our_history.html>.

²⁶⁵ Transportation Safety Board of Canada, “Air transportation safety investigation report A17C0146 - Loss of control and collision with terrain, West Wind Aviation L.P., Avions de Transport Régional ATR 42-320, C-GWEA, Fond-du-Lac, Saskatchewan, 13 December 2017”, (October 2021), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rapports-reports/aviation/2017/a17c0146/a17c0146.html#fn271> at 104.

²⁶⁶ An operator code is usually composed of a two-letter code that identifies an air carrier. *Ibid* at 14.

²⁶⁷ *Ibid* at 32.

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evening, Flight WEW282 encountered moderate icing conditions and started accumulating ice on its airframe surfaces. Upon receiving an icing warning in the cockpit alert system,²⁶⁸ the ATR's de-icing boots and anti-icing systems were activated during the landing phase,²⁶⁹ however, both systems were unable to remove all the ice and residual icing remained on the ATR's surfaces.²⁷⁰

Although the aircraft landed uneventfully in FDL as part of a stopover, the rest of Flight WEW282's tragic story shares uncanny resemblances with the Air Ontario crash at Dryden in 1989 (see Chapter 3). In the 48 minutes during its transit on the ground in FDL, where a changeover of passengers occurred, the ATR-42 accumulated additional ice and frost on its critical surfaces.²⁷¹

Before its planned departure to its next stop in Stoney Rapids (Saskatchewan), the FO completed an external inspection of the aircraft in the dark, albeit to a limited extent since there was no adequate inspection equipment available onsite, nor any aerodrome lighting to properly observe all aircraft surfaces.²⁷² The FO did observe ice contamination on the aircraft's critical surfaces and informed the captain, however, both pilots agreed to takeoff without de-icing the aircraft—in clear violation of the CARs²⁷³ and the company's procedures.²⁷⁴ Flight WEW282 commenced its takeoff roll in FDL with 22 passengers and 3 aircrew onboard; the rest is—yet again—history, and would give many aviation professionals a disturbing feeling of *déjà vu*:

²⁶⁸ *Ibid* at 45.

²⁶⁹ *Ibid* at 8: "According to post-accident analysis of the data from the flight data recorder, the aircraft's drag and lift performance was degraded by 28% and 10%, respectively, shortly before landing at Fond-du-Lac Airport. This indicated that the aircraft had significant residual ice adhering to its structure upon arrival".

²⁷⁰ *Ibid* at 149.

²⁷¹ *Ibid* at 154: "Weather conditions on the ground were conducive to ice or frost formation, and this, combined with the nucleation sites provided by the residual mixed ice on the aircraft, resulted in the formation of additional ice or frost on the aircraft's critical surfaces".

²⁷² *Ibid* at 138–139.

²⁷³ *Canadian Aviation Regulations*, SOR/96–433, at ss 602.11(2): "No person shall conduct or attempt to conduct a take-off in an aircraft that has frost, ice or snow adhering to any of its critical surfaces."; Transport Canada, TP 14371E (2017-2), *Transport Canada Aeronautical Information Manual (TC AIM)*, Air—Airmanship (12 October 2017), at s 2.12.2: The reasons for the regulations are straightforward. The degradation in aircraft performance and changes in flight characteristics when frozen contaminants are present are wide ranging and unpredictable. [...] It is imperative that takeoff not be attempted in any aircraft unless the pilot-in command has determined that all critical components of the aircraft are free of frost, ice or snow contamination".

²⁷⁴ Transportation Safety Board of Canada, *supra* note 265 at 132–138.

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As a result of the ice that remained on the aircraft following the approach and the additional ice that had accreted during the ground stop, the aircraft's drag was increased by 58% and its lift was decreased by 25% during the takeoff. Despite this degraded performance, the aircraft initially climbed; however, immediately after liftoff, the aircraft began to roll to the left without any pilot input. This roll was as a result of asymmetric lift distribution due to uneven ice contamination on the aircraft. Following the uncommanded roll, the captain reacted as if the aircraft was an uncontaminated ATR 42, with the expectation of normal handling qualities and dynamic response characteristics; however, due to the contamination, the aircraft had diminished roll damping resulting in unexpected handling qualities and dynamic response. Although the investigation determined that the ailerons had sufficient roll control authority to counteract the asymmetric lift, due to the unexpected handling qualities and dynamic response, the roll disturbance developed into an oscillation with growing magnitude and control in the roll axis was lost. This loss of control in the roll axis, which corresponds with the known risks associated with taking off with ice contamination, ultimately led to the aircraft colliding with terrain 17 seconds after takeoff.²⁷⁵

Unlike the Dryden crash, the ATR-42 did not explode, nor was there any post-impact fire, but the aircraft was completely destroyed. The aircrew and passengers were all injured at varying degrees of severity,²⁷⁶ and one passenger—a 19-year-old indigenous passenger with a disability—subsequently died of his injuries a few days later on Christmas Day.²⁷⁷

Given the significant *g-force* experienced on impact,²⁷⁸ the outcome of this accident was (partly) a miracle as there was a substantial fuel leak that soaked many passengers when the main fuselage fractured and collapsed.²⁷⁹ Moreover, the mangled airframe considerably impeded

²⁷⁵ *Ibid* at 9.

²⁷⁶ *Ibid* at 21.

²⁷⁷ "Passenger in Fond-du-Lac plane crash has died, family says", (27 December 2017), online: *CBC News* <<https://www.cbc.ca/news/canada/saskatchewan/passenger-in-fond-du-lac-plane-crash-has-died-family-says-1.4465220>>; The Canadian Press, "'No longer with us': Disabled passenger dies after Saskatchewan plane crash", (27 December 2017), online: *CTV News* <www.ctvnews.ca/canada/no-longer-with-us-disabled-passenger-dies-after-saskatchewan-plane-crash-1.3736544>; "Man hurt in Fond du Lac plane crash dead at 19", (27 December 2017), online: *CKOM News* <www.ckom.com/2017/12/27/man-hurt-in-fond-du-lac-plane-crash-dead-at-19/>; "Lawsuit alleges negligence led to fatal Fond du Lac plane crash", (24 January 2018), online: *CTV News* <<https://saskatoon.ctvnews.ca/lawsuit-alleges-negligence-led-to-fatal-fond-du-lac-plane-crash-1.3773740>>; "Two Fond du Lac teens take own lives as community recovers from plane crash", (15 January 2018), online: *Nanaimo News Now* <<https://nanaimonewsnow.com/2018/01/15/two-fond-du-lac-teens-take-own-lives-as-community-recovers-from-plane-crash/>>; Colette Derworiz, "Saskatchewan First Nation in mourning after two teens die by suicide", (15 January 2018), online: *The Globe and Mail* <www.theglobeandmail.com/news/national/saskatchewan-first-nation-in-mourning-after-two-teens-die-by-suicide/article37615467/>. Shortly thereafter, it was reported that two indigenous FDL teenagers committed suicide, with media reports raising potential links with the community's trauma and mourning following the recent crash.

²⁷⁸ Transportation Safety Board of Canada, *supra* note 265 at 167.

²⁷⁹ *Ibid* at 169.

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the evacuation of the ATR; many occupants were rendered unconscious and/or trapped in the cold and unlit wreckage of Flight WEW282 for up to three hours after the crash.²⁸⁰

Had there been a single spark, the resulting explosion and fire would have quickly consumed the aircraft and would have likely taken the lives of most individuals onboard.²⁸¹ The ensuing loss would have mimicked almost perfectly the tragic outcome of the Dryden crash. But even if it did not result in a multi-fatality occurrence, this accident did fulfill Justice Moshansky's 2009 prediction that a deadly accident similar to Air Ontario Flight 1363 was inevitable due to the ineffectiveness of SMS and the lack of effective surveillance.²⁸²

On the night of December 13, 2017, it was as if nothing had changed, nor progressed since Flight 1363's crash in 1989, in spite of all the recommendations, political promises and regulatory amendments. The TSB investigation report would eventually reveal that Northern Canada remains a high-risk sector to operate in, where government intervention is ineffective in addressing longstanding safety deficiencies, or simply absent from the area and focused more on high-profile aeronautical interests in Southern Canada and abroad. The striking similarities between the FDL and Dryden accidents also raised many questions. Why did West Wind's management allow the scheduling of a flight into an airport without de-icing capabilities, knowing fully well that icing conditions were forecasted? Why did the aircrew takeoff with known contamination on the ATR's critical surfaces, despite knowing it was against the law and could endanger their safety by adversely affecting the performance of the aircraft? Almost three decades after the Dryden tragedy, how could a large airliner repeat the same mistakes as Air Ontario Flight 1363?²⁸³

²⁸⁰ *Ibid* at 81–82

²⁸¹ *Ibid* at 169.

²⁸² CBC News, "Transport Canada cutbacks troubling, says Dryden crash inspector", *CBC News* (10 March 2009), online: <www.cbc.ca/news/canada/transport-canada-cutbacks-troubling-says-dryden-crash-inspector-1.862620>.

²⁸³ Justice Moshansky issued an explicit recommendation calling for the prohibition of flying an aircraft with contaminated surfaces. See Recommendation MCR-2. The Honorable Justice Virgil P. Moshansky, *supra* note 6 at 1203: "The Department of Transport immediately develop and promulgate an Air Navigation Order applicable to all

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The TSB investigation was able to answer some (but not all) of these questions. It found that there was no adequate de-icing equipment available in FDL, aside from a portable container holding a limited quantity of de-icing fluid (insufficient to cover all surfaces of a large aircraft)²⁸⁴ connected with a primitive hand-held spray hose and two standard ladders²⁸⁵—both too short to access all the critical surfaces on an ATR-42.²⁸⁶ These were similar to the portable tanks and hose sprayers typically sold in hardware stores for gardening purposes.

Moreover, the TSB found that flying with contaminated surfaces had become a common practice, not only at West Wind and in FDL,²⁸⁷ but throughout Northern Canada, which contributed to the normalization of deviance, i.e., the acceptance of unsafe behaviour over time, that likely influenced the aircrew's decision to depart with known icing on the airframe. As part of its investigation, the TSB also conducted a comprehensive survey with pilots in Northern Canada, which yielded the following findings:

- In the past 5 years, 74% of respondents had “seen aircraft take off with contaminated surfaces, in contravention of regulations and the clean aircraft concept;”²⁸⁸
- Only 37% of pilots reported that “they can have their aircraft de-iced effectively at remote airports;”²⁸⁹ and

aircraft that would prohibit take-offs when any frost, snow, or ice is adhering to the lifting surfaces of the aircraft, and the Department of Transport provide guidelines to assist aviation personnel in conforming to the amended orders”.

²⁸⁴ Transportation Safety Board of Canada, *supra* note 265 at 154: “The equipment available for inspecting and de-icing West Wind aircraft at CZFD consisted of [...] a 20 L container of type I de-icing fluid. There was an additional small, heated hand-held spray system belonging to another operator that was available for use, containing another 20 L [...] The ATR 42's main wing is 3.76 m above ground, and its horizontal stabilizer is 7.75 m above ground. These critical surfaces have a combined surface area of more than 66 m². The recommended fluid quantity to de-ice an aircraft is 1 L/ m². In the case of an ATR 42, this would require more than 66 L”.

²⁸⁵ *Ibid*: “The equipment available for inspecting and de-icing West Wind aircraft at CZFD consisted of 2 ladders, the tallest of which had a maximum standing height of 2.77 m [...] The ATR 42's main wing is 3.76 m above ground, and its horizontal stabilizer is 7.75 m above ground”.

²⁸⁶ *Ibid* at 138–140.

²⁸⁷ *Ibid* at 111: “The investigation determined that from 2014 until the occurrence flight, West Wind conducted 188 ATR 42 stopovers at CZFD, 101 of which were during the months of October, November, and December. The 188 flights had an average stopover time of 25 minutes. This quick turnaround time indicates that the ATR 42 was likely never de-iced, and that no takeoffs from CZFD were ever delayed or cancelled because of icing conditions. In fact, investigation data indicate that some takeoffs likely proceeded with ice on the aircraft. Although the 188 flights to CZFD represent a low percentage of West Wind's total ATR 42 operations, they are considered representative of West Wind's operations into remote locations”.

²⁸⁸ *Ibid* at 146.

²⁸⁹ *Ibid* at 145.

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- Only 15% of pilots reported that “they can have their aircraft anti-iced effectively at remote northern airports.”²⁹⁰

In other words, Flight WEW282’s experienced aircrew²⁹¹ was put in a very difficult situation given the unavailability and inadequacy of de-icing equipment in FDL, and likely on a routine basis across the North as well. Yet, this serious safety issue was never recorded in the carrier’s SMS, thus illustrating its overall ineffectiveness at managing risks.²⁹² Notwithstanding the above, the pilots could have—in theory—grounded the ATR-42 that evening to have it de-iced properly, however this likely would have required them to spend the night in a remote northern location (FDL) until proper equipment could be flown in. This would have significantly delayed the journey of Flight WEW282’s passengers and generated significant expenses for the company. We will never know if there was organizational pressure to “get the job done”, but just like Air Ontario Flight 1363, a mix of technical, human, organizational factors were at play. In the end, the aircrew was not given the required support, tools and infrastructure by their employer to effectively balance safety and efficiency, and thus make the right decision.²⁹³

But beyond these factors were also several *State Factors*, i.e., TC’s inability to identify the widespread practice of flying with contaminated surfaces up North, nor intervene effectively to correct this systemic safety issue, likely due to its lack of meaningful presence and situational awareness in Northern Canada. TC did not provide northern operators with sufficient oversight to identify and address the systemic issues pertaining to de-icing capabilities and practices up North, even though in-person inspections across northern aerodromes could have easily detected these risks. Or perhaps TC was aware of these issues but simply decided not to intervene.

²⁹⁰ *Ibid.*

²⁹¹ *Ibid* at 22. The Captain and the First Officer (also a trained captain on the ATR-42 at West Wind) had 5990 and 15,769 flying hours respectively.

²⁹² *Ibid* at 180–183.

²⁹³ *Ibid* at 42: “There is no de-icing/anti-icing facility or service provider at CZFD [FDL], nor is such a facility or provider required by regulations”.

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Accidents such as this one will continue to occur in the North unless meaningful oversight actions and infrastructure investments are undertaken by TC to correct regulatory disparities. Given the high risks associated with icing during most of the year in Northern Canada,²⁹⁴ the TSB issued two urgent recommendations during its investigation—before the final report was published in 2021—asking TC to (1) “take action to increase compliance with *Canadian Aviation Regulations* subsection 602.11(2) and reduce the likelihood of aircraft taking off with contaminated critical surfaces,”²⁹⁵ and (2) “collaborate with air operators and airport authorities to identify locations where there is inadequate de-icing and anti-icing equipment and take urgent action to ensure that the proper equipment is available to reduce the likelihood of aircraft taking off with contaminated critical surfaces.”²⁹⁶ Both recommendations were still not fully satisfied at the time of this writing.

The final investigation report would also reveal that the crash of Flight WEW282 was directly caused by a combination of other *State Factors*, including TC’s failure to consistently apply surveillance policies and procedures in response to documented safety issues at West Wind prior to the 2017 accident:

Transport Canada’s inconsistent application of its own policies and procedures for the 2016 assessment of West Wind and subsequent post-assessment corrective action plan verifications, as well as the *ad hoc* approach to enhanced monitoring, resulted in ineffective oversight of an operator that had a history of system-level (i.e., safety management system) and systemic (e.g., operational control) non-compliance issues.²⁹⁷

²⁹⁴ Transportation Safety Board of Canada, “TSB Recommendation A18-03: Compliance with Canadian Aviation Regulations subsection 602.11(2)”, (December 2018), online: <<https://www.bst-tsb.gc.ca/eng/recommandations-recommendations/aviation/2018/rec-a1803.html>>: “The duration of cold weather and icing conditions varies widely across Canada. Many remote northern airports have an icing season of 10 months or more. Icing conditions can be both severe and persistent. [...] Accidents related to contaminated aircraft will continue to occur until the industry and the regulator approach the issue as systemic and take action to eliminate underlying factors that can negatively affect pilot compliance”.

²⁹⁵ *Ibid.*

²⁹⁶ Transportation Safety Board of Canada, “TSB Recommendation A18-02: De-icing and anti-icing equipment”, (December 2018), online: *Government of Canada* <<https://www.bst-tsb.gc.ca/eng/recommandations-recommendations/aviation/2018/rec-a1803.html>>.

²⁹⁷ Transportation Safety Board of Canada, *supra* note 265 at 179.

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Indeed, West Wind was not a model carrier prior to the 2017 FDL accident; it had a history of widespread safety deficiencies, non-satisfaction of regulatory requirements, inadequate training and competency levels, and substandard SMS processes dating back to 2010, as documented by repeated TC audit findings.²⁹⁸ However, West Wind was not subjected to any surveillance by TC between 2013 and 2016,²⁹⁹ in spite of these persisting issues, namely because major audit findings were incorrectly recorded in TC's database and thus resulted in West Wind being assigned to a 4-year surveillance interval, rather than a shorter one.³⁰⁰ Consequently, "TC did not have an accurate understanding of the risks present at the company" during that period.³⁰¹

In 2016, a thorough inspection was carried out by TC and revealed a number of significant issues with respect to West Wind's compliance with the CARS, SMS requirements and aircrew training specifically on the ATR-42, which led to the temporary suspension of all flights on that aircraft type.³⁰² Even if TC did advise the company in late 2016 about its intention to enhance its monitoring over West Wind, the TSB could not find any evidence that TC ever developed a plan to do so after the carrier's authorization to operate the ATR-42 was reinstated.³⁰³ No enforcement action was ever taken until 5 days after the deadly crash in FDL, when TC finally decided to suspend West Wind's operating privileges.³⁰⁴

²⁹⁸ *Ibid* at 97.

²⁹⁹ *Ibid* at 99.

³⁰⁰ *Ibid* at 104.

³⁰¹ *Ibid* at 176.

³⁰² *Ibid* at 100.

³⁰³ *Ibid* at 102 & 178: "There is no record of an EM surveillance plan for West Wind being prepared or approved by the regulator".

³⁰⁴ Transportation Safety Board of Canada, *supra* note 265 at 102–103; "West Wind Aviation grounded by Transport Canada", (22 December 2017), online: *Skies Magazine*; The Canadian Press, "West Wind Aviation cleared for takeoff after crash", (8 May 2018), online: *CTV News* <<https://saskatoon.ctvnews.ca/west-wind-aviation-cleared-for-takeoff-after-crash-1.3920954>>; The air carrier eventually resumed operations in 2018 and has since been rebranded as Rise Air with both former entities, West Wind and Transwest Air, now merged into a single company. See Theresa Kliem, "West Wind Aviation, Transwest Air consolidating northern Sask. operations, rebranding as Rise Air", (23 January 2021), online: *CBC News* <<https://www.cbc.ca/news/canada/saskatchewan/west-wind-aviation-transwest-air-merger-1.5885257>>; "Rise Air - About Us", (2024), online: *Rise Air* <<https://riseair.ca/about-us>>; Ivan Nadalet, "Canada's West Wind, Transwest Air to merge, rebrand", (26 January 2021), online: *CH-Aviation* <<https://www.ch-aviation.com/news/99801-canadas-west-wind-transwest-air-to-merge-rebrand>>; Jeff D'Andrea, "West Wind and Transwest will both fly under one name: Rise Air", (23 January 2021), online: *Prince Albert Right Now* <<https://panow.com/2021/01/23/west-wind-and-transwest-will-both-fly-under-one-name-rise-air/>>.

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It must also be noted that West Wind was under the jurisdiction of TC's PNR. Based on the previously discussed issues, one can only assume that this region's overextended resources and poor regulatory coverage were factors that inhibited TC's ability to conduct effective surveillance over the region and proactively intervene at West Wind before disaster struck. In its final investigation report, the TSB indeed noted that the PNR's "strategies for dealing with West Wind were not consistent with national-level surveillance policies and procedures at the time,"³⁰⁵ which "allowed unsafe conditions to persist at West Wind."³⁰⁶

The FDL crash thus confirms that reforms for improved safety that were promised by Canada following numerous crashes up North have still not fixed longstanding issues with northern air operations flying to/from remote indigenous communities. Even under SMS, the PNR's inconsistent application of oversight policies and procedures up North allowed safety deficiencies and regulatory infractions to go unnoticed and/or unaddressed at West Wind for extended periods of time, and eventually contributed to the hazardous environment that led to the tragic FDL crash in 2017.

Based on the foregoing, we can conclude that the TCCA's unequal application of oversight policies in this case was discriminatory, as the gross neglect of the PNR in this particular case denied the essential oversight measures that northern populations are owed under the *Aeronautics Act*. Consequently, indigenous people were exposed to higher risks, which materialized into tangible consequences in the FDL crash, i.e., severe injuries and one death. This crash is thus a perfect illustration of how the MOT has created a discriminatory system that fails to ensure that northern populations receive substantively equal safety benefits, namely by providing adequate oversight over the air carriers they depend on.

³⁰⁵ Transportation Safety Board of Canada, *supra* note 265 at 177.

³⁰⁶ *Ibid.*

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Unfortunately, this complacent approach and asymmetric treatment of northern civil aviation appear to be part of a systemic phenomenon, as shown by the poor oversight documented in both the Wapiti and PAL case studies discussed *supra*.³⁰⁷ TC's promise in 2001—in response to the Davis Inlet tragedy—that SMS would resolve longstanding issues with respect to its oversight in remote areas of the country has visibly fallen through. Also, unlike the Dryden crash, Flight WEW282 has prompted little change in TC's surveillance of civil aviation in Northern Canada. In fact, this tragedy never gained much traction in the media nor any meaningful attention from the general public, presumably because most Canadians are simply not informed about accidents that occur in distant indigenous communities up North. One must also wonder how differently politicians would have reacted if a similar accident had occurred near Ottawa for instance, with an aircraft loaded with white-collar public servants.³⁰⁸

Unfortunately, the crash of Flight WEW282 has remained off the radar of the general public, as well as their elected representatives,³⁰⁹ and reflects a missed opportunity to make

³⁰⁷ But unlike the Wapiti and PAL accidents, TC's liability would likely never be triggered in this case, since its shortcomings leading up to the FDL crash were directly linked to non-operational policy imperfections within its implementation of ICAO Annex 19. In this context, we can assume that with the advent of SMS, TC has effectively absolved itself from any potential liability under the *Crown Liability and Proceedings Act*, RSC, 1985, c. C-50, and has thus transferred the burden to operators, manufacturers, aircrews etc. In most accidents linked to inadequate oversight, deficiencies within TC's surveillance are quite likely to be linked to its inadequate implementation of SMS and its State Safety Program, rather than operational decisions by its inspectors, which are now narrowly defined by TC policies and guidelines, such as SUR-001. The implementation of SMS has left little discretion for purely operational decisions to be carried out by TC's lower-level personnel and thus trigger its liability, particularly with the SCC's strict approach when examining Crown liability in 21st century case law.

³⁰⁸ For example, when an Air Transat flight was delayed for 6 hours on the tarmac at Ottawa's Macdonald-Cartier International Airport on July 31, 2017, a full inquiry was launched by the Canadian Transportation Agency (CTA) to examine whether the carrier had properly applied the terms and conditions set out in its tariff as required under law. It eventually prompted the CTA to embark on a major regulatory reform, including the adoption of modern passenger rights under the *Air Passenger Protection Regulations* (APPR). With the Air Transat aircraft presumably loaded with mostly white-collar passengers, where no one was incapacitated or died, one must wonder why an analogous inquiry was not launched following the crash at FDL? Was this a subtle manifestation of systemic discrimination? See Determination No. A-2017-194 by the Canadian Transportation Agency (Agency) as to whether Air Transat failed to properly apply the terms and conditions of carriage set out in its International Scheduled Services Tariff, CTA (A) No. 4 (Tariff) and whether Air Transat's applicable Tariff provisions are reasonable, pursuant to subsections 110(4) and 111(1) of the *Air Transportation Regulations*, SOR/88-50, as amended (ATR).

³⁰⁹ For instance, the media and public attention given to the FDL crash was far more inferior than the ensuing coverage of a fatal crash that occurred one day later (December 14, 2017) in Southern Ontario, involving a Hydro One helicopter carrying powerline workers, which quickly eclipsed the media's coverage on the FDL tragedy. See Transportation Safety Board of Canada, "Air transportation safety investigation A1700264 - Collision with terrain, Hydro One Networks Inc., Airbus Helicopters AS 350 B2 (helicopter), C-GOHS, Tweed, Ontario, 8 NM NNE, 14 December 2017", (30 October 2019), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/enquetes-investigations/aviation/2017/a17o0264/a17o0264.html>>.

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meaningful changes in the way regulatory surveillance is carried out in Northern Canada. Both the public's lack of attention and the government's questionable response to the FDL crash reveals a form of discriminatory bias wherein northern accidents involving aircraft flying into indigenous settlements may never receive the same political treatment and sympathy in comparison with an accident in Southern Canada.

7. Chapter 4—Summary & Key Takeaways

Chapter 4 demonstrated how the MOT's oversight policies and resources are discriminatory towards northern indigenous people, as its repeated actions or lack thereof—*State Factors*—have exposed those who rely on northern air services to unacceptable safety risks. There are indeed several documented instances where TC has denied northern indigenous residents from the benefit of elementary oversight defences, which has resulted in devastating impacts on their safety. Chapter 4 has thus proven that northern indigenous people have suffered from decades of discrimination and harm inflicted due to a discriminatory civil aviation regime that prioritizes the interests of major air carriers in the South at the expense of the North, which has fewer safeguards against tragic accidents. It can therefore be concluded that “[d]espite its constitutional, legal, and historic obligations to Indigenous peoples, Canada [has] adopted a policy of abandonment, avoidance, and apathy”³¹⁰ in all aspects of society, including civil aviation.

While effective enforcement remains “the most powerful tool at the disposal of an aviation regulator,”³¹¹ the three case studies examined in this chapter show that in our world where State resources are limited, there can be a trade-off between safety goals and other policy goals within the MOT,³¹² particularly in historically marginalized areas such as the North where many

³¹⁰ *Statement of Claim - Bella Rachel McWatch et al. v His Majesty the King in Right on Ontario and the Attorney General of Canada*, CV-22-00691039-00CP (Toronto, Ontario: Ontario Superior Court of Justice, 2022) at para 4.

³¹¹ Parnell, *supra* note 65 at 645.

³¹² Borins, *supra* note 3 at 598.

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communities are air-dependent.³¹³ Consequently, northern indigenous people still suffer from gaps, denials and delays in the provision of essential surveillance measures, which are otherwise afforded to air carriers operating to/from urban centres in Southern Canada.

Despite TC being aware of these longstanding safety issues, adverse *State Factors* appear to persist year after year in Northern Canada, which continues to sustain a poor air safety record at the expense of the livelihood and wellbeing of its indigenous residents who rely on civil aviation as a means of survival. Although the regulator “cannot be present everywhere and prevent every possible unsafe situation,”³¹⁴ many accidents in the North are attributable to TC's inability to effectively monitor northern operators, identify safety deficiencies, intervene and enforce safety standards on a timely and consistent basis.

Even though adequate public resources are paramount in preventing accidents and protecting lives, recent funding reductions within TC's oversight programs and its dwindling workforce since the start of the 21st century have impeded on its ability to prevent accidents in Northern Canada³¹⁵—an industry sector infamous for its unique safety hazards and operational challenges. While safety norms and public resources should be allocated throughout the country in proportion to known risks,³¹⁶ there is an apparent asymmetry between TC's application of its surveillance policies and procedures in the North in comparison with Southern Canada, where safety standards are monitored and upheld more consistently by the regulator. In the North, this

³¹³ As noted during the Dubin Inquiry, “the majority of the enforcement problems occur in the more remote areas of Canada which are totally dependent upon air service.” Privy Council Office, *supra* note 3 at 375.

³¹⁴ Swiecicki, *supra* note 52 at 308.

³¹⁵ Standing Committee on Transport, Infrastructure and Communities, “Aviation Safety - 42nd Parliament, 1st Session, Meeting No. 53”, (6 April 2017), online: *Parliament of Canada* <<https://www.ourcommons.ca/DocumentViewer/en/42-1/TRAN/meeting-53/evidence>>. See Justice Moshansky's statement before the Parliament of Canada in 2017: “For the past 15 years, Transport Canada has become complacent. Funding has been cut, and the inspectorate has dwindled to numbers not seen since the days before the Dryden crash. [...] My main message to you is that without properly funded direct operational oversight conducted by qualified and trained inspectors, SMS will not improve safety or protect air passengers. SMS was never intended to replace direct operational oversight, yet Transport Canada has done precisely that. Direct operational oversight through audits and no-notice inspections are the exception, not the rule. For the past 15 years, Transport Canada has been progressively dismantling its oversight program, and now it is eliminating safety surveillance of entire sectors of the industry”.

³¹⁶ Michael Milde, “Aviation Safety and Security - Legal Management” (2004) 29 *Annals of Air and Space Law* 1–18 at 2.

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asymmetry results in a lack of meaningful State presence and a substandard form of oversight unable to “ensure that operators are able to effectively manage the safety of their operations.”³¹⁷

Intentional policy decisions have therefore resulted in *unintentional* consequences that have deprived northern indigenous people from equal safety benefits under the *Aeronautics Act*. These effects are rooted in the apathy, racism and disinterest that the Canadian government has demonstrated towards the broader safety and wellbeing of indigenous people across the Canadian society. It has been noted that even though systemic underfunding and neglect is “on the surface, less overtly racist than the policies of the past, they [are] no less discriminatory and destructive in their result.”³¹⁸ Budgetary considerations are not valid justifications for the discriminatory treatment of northern indigenous populations, merely because they reside in remote and low-density areas of the country. In the contrary, Canada must ensure that their rights and equal benefits under the *Aeronautics Act* are fulfilled to the full extent of the country’s available resources in order to eradicate this form of discrimination.³¹⁹

While southern operators usually have the financial “luxury” to meet and exceed safety standards, the same cannot be said about northern air operators,³²⁰ as they ultimately face thinner profit margins and smaller consumer pools.³²¹ Accordingly, the remoteness, extreme conditions and financial stress under which many northern air carriers must operate warrant additional surveillance resources in order to offset these organizational risks, however, the MOT appears to

³¹⁷ Transportation Safety Board of Canada, *supra* note 265 at 179.

³¹⁸ *Modified Application for Authorization to Institute a Class Action and to Obtain the Status of Representative 2 (Lucy Tookalook and Tanya Jones v Attorney General of Quebec and Attorney General of Canada)* (Superior Court, Province of Quebec, District of Montreal, 2022) at para 1.

³¹⁹ *First Nations Child & Family Caring Society of Canada et al. v Attorney General of Canada (representing the Minister of Indigenous and Northern Affairs Canada)*, 2020 CHRT 20 at paras 69–70.

³²⁰ Borins, *supra* note 3 at 599: “... there might be situations where the airline industry structure leads to sub-optimal investment in safety. A Transport Canada study of the safety situation in northern Ontario argued that relatively easy entry for small carriers coupled with provincial government contracting practices resulted in fierce competition among airlines and low profits. The carriers were in such dire financial straits that they had too short a planning horizon to greatly concern themselves with safety. (Dubin, 1981b:346.) If we accept these rationales for government involvement, then by devoting more resources to inspection and increasing penalties for failure to meet standards, the level of safety could be increased”.

³²¹ See John McKenna’s testimony in: Standing Committee on Transport, Infrastructure and Communities, *supra* note 315.

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have done the complete opposite by focusing its resources on southern air networks. By failing to adjust the allocation of resources to account for the unique circumstances faced by northern air carriers, the safety of northern indigenous people has been systematically disregarded.

In any country, “[t]he organization charged with the task of defining and enforcing technical standards cannot avoid playing a role in weighing the conflicting values which a national or international air transportation system must encompass.”³²² Yet, the MOT continues to turn a blind eye to the unacceptable risks and air tragedies that prevail in the North. In Northern Canada specifically, this political and financial conjecture within the Canadian government—a root cause of the Dryden crash in 1989³²³—has effectively left northern operators vulnerable to regulatory failures stemming from prevalent market and operational pressures that remain “hanging like Damocles’ sword over the Canadian air-travelling public today.”³²⁴

Historically, whether it be through traditional oversight, SMS or a combination thereof, TC has demonstrated a weak propensity to uphold elementary safety norms in the North. These *State Factors* have directly and indirectly contributed to numerous accidents that would likely have been prevented in the South where the regulator’s sustained presence, adequate resources and effective coverage is far superior. In contrast with Southern Canada, there are indeed several *State Factors* that are particularly prevalent in the North and thus increase the probability that more accidents will occur in that region:

- Due to TC's organizational structure, resource allocation and the location of its offices, the frequency and scope of regulatory inspections in the North are inferior to the level of service provided in Southern Canada. As a result, northern operators do not benefit from

³²² Harris, *supra* note 210 at 201.

³²³ Standing Committee on Transport, Infrastructure and Communities, *supra* note 315.

³²⁴ *Ibid.*

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the same regulatory and surveillance coverage, which increases the potential for unsafe operational environments to emerge and contribute to deadly accidents.

- Under the CARS, the current exemption of air taxi and commuter operators from SMS requirements creates an incongruity in TC's current oversight methods and strategies, which are predominantly designed for SMS-compliant operators. This creates a deadly legal vacuum, wherein small operators may be left unattended as a result of traditional oversight methods being phased out and replaced by a systems-based oversight approach that remains inapplicable, but also incompatible with non-SMS enterprises. Consequently, a vital defence layer has been removed in a particularly high-risk industry sector that has a large presence in the North.

A succession of government policies, anemic funding and lack of commitment towards the equal treatment of northern indigenous populations who rely on air services has resulted in the latter enduring unreliable air connectivity, physical injuries and even fatalities as a result of accidents. Under this discriminatory system, Canada has failed to promote and implement a uniform civil aviation regime across Canada where the safety and welfare concerns of higher-risk and underprivileged markets up North are also duly considered and addressed by the regulator. More concerning, these *State Factors* are not limited to civil aviation; the TSB has also investigated several marine and rail occurrences in Northern Canada involving safety issues similar or identical to those discussed throughout this chapter,³²⁵ thus revealing the multimodal scope of this systemic pattern of neglect.

³²⁵ See Transportation Safety Board of Canada, "Marine transportation safety investigation report M18C0225 - Grounding, Passenger vessel Akademik Ioffe, Latitude 69°43.043' N, Longitude 091°20.951' W, Astronomical Society Islands, Nunavut 24 August 2018", (21 May 2021), online: *Government of Canada* <<https://www.bst-tsb.gc.ca/eng/rapports-reports/marine/2018/m18c0225/m18c0225.html#3.0>>; Transportation Safety Board of Canada, "Marine Investigation Report M14C0219 - Bottom contact, Tanker Nanny, Deer Island, Chesterfield Inlet, Nunavut, 14 October 2014", (14 March 2016), online: *Government of Canada* <<https://www.bst-tsb.gc.ca/eng/rapports-reports/marine/2014/m14c0219/m14c0219.html>>; Transportation Safety Board of Canada, "Marine Investigation Report M10H0006 - Grounding, Passenger vessel Clipper Adventurer, Coronation Gulf, Nunavut, 27 August 2010", (26 April 2012), online: *Government of Canada* <<https://www.bst-tsb.gc.ca/eng/rapports-reports/marine/2010/m10h0006/m10h0006.html#>>

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Accordingly, Chapter 4 has revealed that the MOT has consistently lacked any interest and shown no meaningful commitment towards the safety of northern transportation, arguably as a subconscious form of discrimination against the local indigenous populations who rely on these services. With the majority of Canadians travelling to/from urban centres, southern operators also have a higher visibility and are therefore the beneficiaries of most government resources, public scrutiny and surveillance initiatives. If there is an accident in the South, “[t]he response from the public is often loud and immediate, calling for responsive action from both the industry and the government to ensure that the issue never occurs again.”³²⁶ Northern operators usually experience a complete opposite treatment: they do not have the same media visibility and public outcry when accidents occur. With public opinion and interest likely weighing in the government’s allocation of resources and planning of surveillance activities, the safety of northern operators is at risk of falling well below ICAO norms, thus resulting in further inequalities in the North’s safety levels and accident statistics.³²⁷

Because the MOT has the ultimate spending authority, it must bear the responsibility for its discriminatory treatment towards northern indigenous people, and its failure to provide them with equal safety benefits under the *Aeronautics Act*. Accordingly, it is responsible for implementing a sustainable remedy to ensure that civil aviation regulations, programs, policies and funding formulas are designed and operate to ensure substantive equality by taking into account the unique circumstances, history and hazards of the North.³²⁸

3.0>; Transportation Safety Board of Canada, “Rail transportation safety investigation report R18W0237 - Main-track train derailment, Hudson Bay Railway Freight train, 995-15 Mile 99.59, Wekusko Subdivision Ponton, Manitoba 15 September 2018”, (23 April 2020), online: *Government of Canada* <<https://www.bst-tsb.gc.ca/eng/rapports-reports/rail/2018/r18w0237/r18w0237.html>>; Transportation Safety Board of Canada, “Railway Investigation Report R06V0183 - Runaway and derailment, White Pass and Yukon Route, Work train 114, Mile 36.5, Canadian Subdivision, Log Cabin, British Columbia, 03 September 2006”, (25 July 2008), online: *Government of Canada* <<https://www.bst-tsb.gc.ca/eng/rapports-reports/rail/2006/r06v0183/r06v0183.html>>.

³²⁶ Michelle Northcutt, “General Aviation Accident Rate: How General Aviation Differs from Commercial Airline Flight and How to Correct the Discrepancy” (2013) 78:2 *Journal of Air Law and Commerce* 381–416 at 401.

³²⁷ *Ibid.*

³²⁸ See *First Nations Child & Family Caring Society of Canada et al. v Attorney General of Canada (representing the Minister of Indigenous and Northern Affairs Canada)*, 2017 CHRT 14 para 73.

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Until the attitudes of the general public and the MOT are changed, namely to increase the funding of surveillance activities and the regulator's presence up North, accidents will unfortunately continue to occur in or near remote indigenous communities, and take the lives of its residents. Sadly, as we will see in the following chapter, this asymmetric treatment is also reflected in other key sectors of Canadians aviation, specifically when it comes to the (un)availability of aeronautical infrastructure, services and equipment in Northern Canada.

CHAPTER 5 – THE INADEQUACY OF AERONAUTICAL INFRASTRUCTURE, EQUIPMENT AND SERVICES IN NORTHERN CANADA

1. Introduction

Chapter 5 is a story about Canada's systemic neglect and underfunding in the provision of elementary aeronautical infrastructure, equipment and infrastructure to support the safe operation of flights to/from northern indigenous communities. Chapter 5 will uncover a more subtle form of discrimination stemming from a century of multilayered *intentional* State decisions, in some cases completely unrelated to indigenous matters, that have resulted in *unintended* adverse consequences for the safety of northern air operations. The condition and (in)sufficiency of aeronautical infrastructure in Northern Canada is the by-product of several historical, economic, legal and political factors, including the creation of Canada's first major airline, two world wars, socio-economic imperatives, government budget constraints, etc.

Despite its colonial roots in Northern Canada, civil aviation has grown into a vital link for many remote communities who depend on air services for transportation, basic commodities and essential services. Yet, that same vital link is currently plagued by numerous aeronautical infrastructure deficiencies, which have played a role in past accidents and continue to expose northern indigenous people to unacceptable safety risks.

Accordingly, the purpose of Chapter 5 is to highlight how these *State Factors* once again reflect an understated, yet impactful form of discrimination, as those affected by these shortcomings are predominantly indigenous people. To successfully make this argument later in Chapter 6, it is necessary to provide the reader with a critical analysis of Canada's failings in the governance of northern airports and how national policies favouring southern markets have left airports up North in a state of disarray, with substandard infrastructure and equipment that drastically increase the probability of accidents. Chapter 5 will then assess how the compounded

effects of government decisions, policies and inaction have contributed to the emergence of systemic *State Factors* with respect to the (in)adequacy and (in)sufficiency of aeronautical infrastructure, equipment and services in Northern Canada, and analyze through case studies their contributing role in northern air accidents.

2. The Governance of Canadian Airports: A Legacy of Longstanding Policies Neglecting the North

2.1 Background—Key Policy Considerations

From a high-level perspective, we must acknowledge that airports play an invaluable societal and economic role across Canada—not just in the North. A recent study revealed that Canadian airports contributed to CAD19 billion dollars in the national economy; provided 194,000 direct jobs, including CAD13 billion in wages; and generated CAD 6.9 billion in federal, provincial and municipal taxes,¹ for a total direct contribution of CAD 48 billion towards Canada's gross domestic product.²

The MOT is in large part responsible for this positive economic standing through its involvement in the continued development of Canadian civil aviation over the past century, including its role in the provision of supporting infrastructure, equipment and services. As part of its duty to promote, develop and regulate civil aviation, the MOT has the statutory mandate to, *inter alia*, “construct, maintain and operate aerodromes and establish and provide other facilities and services relating to aeronautics.”³ It also has the mandate to “provide financial and other assistance to persons, governments and organizations in relation to matters pertaining to aeronautics.”⁴

¹ Canadian Airports Council, “Economic Impacts”, (2024), online: *Canadian Airports Council* <<https://canadasairports.ca/about-canadas-airports/economic-impacts/>>; InterVistas, “Economic Impact: Canada's Airports in 2016”, (2016), online: *Canadian Airports Council* <<https://canadasairports.ca/wp-content/uploads/2019/07/Economic-Impact-of-Canadas-Airports-Final.pdf>>.

² InterVistas, *supra* note 1 at 22 & 25. Including indirect and induced impacts, Canada's airports contribute an estimated \$35 billion in total GDP.

³ *Aeronautics Act*, RSC, 1985, c A-2, at para 4.2(1)(c).

⁴ *Ibid.* at para 4.2(1)(l).

Chapter 5 — The Inadequacy of Aeronautical Infrastructure, Equipment and Services in Northern Canada

Accordingly, we can understand why the federal government has a long-standing history of owning, funding and operating civil aviation infrastructure and aeronautical services across the country,⁵ albeit with an obvious preference for the interests of airlines operating to/from major Canadian cities. In addition to their catalytic role in the growth of the Canadian economy, airports in particular have played an indispensable role in the connectivity of Canadians. In contrast with Europe for example, where aviation supplements other modes of transportation (e.g., railways), civil aviation remains in many cases the only practicable method for travelling between Canadian cities.⁶

In the North, civil aviation has an even more critical role: it is often the only year-round link between northern settlements and the rest of the world. As such, adequate aeronautical infrastructure, equipment and services are of utmost importance to ensure this critical connection. Airports have arguably become indispensable for the survival for many indigenous populations,⁷ as noted by an indigenous witness during the Dubin Inquiry:

North Spirit Lake is a small community of only 250 people.⁸ Our community is accessible only by air. There is no all-weather airstrip, no navigational aids, no beacon, no weather information. Yet we are totally dependent on air travel. Planes are no luxury to us. Planes are our buses, trains and cars. Planes bring in our supplies, evacuate our ill, take us to visit friends and relatives and, increasingly, take us south to meetings with governments.⁹

Given the North-South divide in Canada, the governance of airports reveals a paradox in the way they are viewed and treated by elected representatives and their constituents. On the one part, there is a common expectation that as a public transportation infrastructure, airports

⁵ George Petsikas, "The Dysfunctional Relationship Between NAV CANADA and Government 25 Years After the So-Called 'Commercialisation' of Air Navigation Services in Canada" (2021) 46 *Annals of Air and Space Law* 1–36 at 6 & 11.

⁶ If we take for example an individual who wants to travel from Toronto to Vancouver, it would take that person approximately 5 hours to arrive at his/her destination with a direct flight. However, it would take that same person 3 days by train or 41 hours by car to travel between Toronto and Vancouver.

⁷ *Report of the Commission of Inquiry on Aviation Safety / Commissioner the Honourable Mr. Justice Charles L. Dubin.*, by Privy Council Office (Ottawa, ON: Government of Canada, 1982) at 12: "For many of us in this country to fly by air, although most practicable, is, nevertheless, a matter of convenience and a luxury. However, for those who live in the remote areas it is a matter of necessity".

⁸ North Spirit Lake First National is an Oji-Cree community located in Northern Ontario.

⁹ Statement by Chief Stanley Rae of the North Spirit Lake Band Council. Privy Council Office, *supra* note 7 at 12–13.

ought to be accessible to all at a relatively minimal cost, if not for free; this view is particularly prevalent in rural and northern communities. On the other hand, there is an opposing view, particularly in urban centres, that airports “should be self-supporting financially, just like a commercial shopping mall, factory or shoe store.”¹⁰

The latter opinion is not entirely compatible with the reality of civil aviation in Canada, at least not for smaller airports whose total number represents the large majority of Canadian aerodromes, but also the weakest proportion of air traffic. It is even less realistic in the context of remote northern airports with low passenger volumes, as they lack the necessary level of activity to remain financially self-sufficient. Accordingly, there are many reasons why northern aerodromes should be funded and maintained like any other public transportation infrastructure, such as public highways. As stated by the Canadian Owners and Pilots Association (COPA), “[n]obody expects roads and sidewalks to be self-supporting”; the same should be equally applicable to Canadian airports,¹¹ even more so in the North. As such, northern residents in particular should have access to well-equipped, modern airports.

In any country, adequate airport infrastructure, including proper runways, terminal buildings, and air navigation systems, are indeed “vital to the effectiveness of air transportation.”¹² Yet, few are aware that many northern airports are operated by non-governmental corporations or administered by provincial or territorial bodies under a governance model that can adversely influence the quality and sufficiency of critical airport infrastructure. While “the ownership and operation by the State of highly capital-intensive air transport support infrastructure remains a

¹⁰ *The COPA Guide to Public Airports*, by Canadian Owners and Pilots Associations (Ottawa, ON: Canadian Owners and Pilots Associations, 2011) at 5.

¹¹ *Ibid* at 6: “The role of all transportation infrastructure is to act as economic generators and bring business into your community. There are effective ways to generate revenue from airports and some smaller airports can be self-supporting even without airline service”.

¹² *One Size Doesn't Fit All: The Future Growth and Competitiveness of Canadian Air Travel*, by Dennis Dawson & Stephen Greene (Ottawa, ON: Standing Senate Committee on Transport and Communications, 2013) at 5.

Chapter 5 — The Inadequacy of Aeronautical Infrastructure, Equipment and Services in Northern Canada

common governance model in most of the world to this day,”¹³ Canada took a different approach when it divested most of its civil aviation infrastructure over three decades ago.

In the North, the economic incompatibility of this model has contributed to the emergence of several *State Factors* that have played a deadly role in accidents. The remainder of Section 2 of this chapter will therefore provide a critical analysis of Canada’s historical involvement in the development and administration of Canada’s aeronautical infrastructure in the North, in order to understand why these *State Factors* persist to this day and how they disproportionately affect the safety and wellbeing of indigenous people.

2.2 The History of Canadian Airports

2.2.1 The Birth of a National Airport System

The diversity of Canada’s 1,300 registered and certified airports¹⁴ mirrors the country’s geographical and demographic distinctiveness,¹⁵ as well as the generalized contrast between southern and northern air operations, with the latter continuously susceptible to generalized disparities. These inequalities are better understood by conducting a closer examination of the complex regime that governs Canadian airports, which was forged by a unique history within ICAO’s membership.

The construction of Canada’s initial airport network as we know it today was largely driven by Canada’s war efforts during the Second World War (WWII), a defining period when most existing airports were either expanded or originally built for military purposes,¹⁶ before eventually transitioning towards commercial and recreational purposes following the war.¹⁷ Earlier in the 20th

¹³ Petsikas, *supra* note 5 at 7.

¹⁴ Prasad Taksal & Laura Safran, “In brief: airport operations in Canada”, (2022), online: *Lexology* <<https://www.lexology.com/library/detail.aspx?g=6f01a004-ef2e-440f-a63c-b559b34a0890>>.

¹⁵ Transport Canada, “Chapter 6 — Airports”, (14 August 2017), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/publications/sharing-skies-guide-management-wildlife-hazards-tp-13549/chapter-6-airports>>.

¹⁶ *Airport Policy in Canada*, by Mary-Jane Bennett, Policy Series 139 (Toronto, ON: Frontline Centre for Public Policy, 2012) at 7.

¹⁷ Institute of Air and Space Law McGill University, *Legal, economic and socio-political implications of Canadian air transport* (Montréal, QC: Centre for Research of Air and Space Law, 1980) at 18.

century, Canada's federal government was initially reluctant about any involvement and financial commitment towards the construction and administration of aerodromes.¹⁸ Shortly after WWII, the federal Air Board even "recommended against federal airports, urging municipalities, towns and cities to establish airports themselves,"¹⁹ namely to promote competition within Canada's nascent civil aviation market and avoid economic stagnation under an interventionist approach.²⁰

This proposal was eventually tempered and reversed by numerous government policies in the 1920s and 1930s aiming to foster the development of commercial aviation and airports. The federal government implemented key incentives during this period, such as the subsidization of local airfields hosting flying clubs, the establishment of a national air mail system and eventually creating in 1937 a national airline administered by the Canadian government—Trans-Canada Air Lines,²¹ which would later be rebranded as Air Canada in 1965²² before being privatized in the late 1980s.²³

The latter initiative—the creation of Air Canada's predecessor—became a major socio-economic policy instrument and was an important catalyst in the development of Canada's airport network.²⁴ To support its national airline, the federal government would subsequently call for the construction and/or upgrade of intermediate aerodromes between major cities, which eventually resulted in a comprehensive air network—the Trans-Canada Airway—linking Canadians from

¹⁸ *Air Administration in Canada in 1919* (Public Archives Canada, RG 24 DOC 3564 1011-1-15).

¹⁹ Bennett, *supra* note 16 at 5.

²⁰ *Ibid.*

²¹ Trans-Canada Air Lines was "the country's first publicly owned airline, as a subsidiary of the publicly owned CN, and with a monopoly over the international and transcontinental routes, and over airmail service". Canadian Transportation Agency, "At the Heart of Transportation: A Moving History", (2017), online: *Canadian Transportation Agency* <<https://otc-cta.gc.ca/eng/publication/at-heart-transportation-a-moving-history>>.

²² "Trans-Canada Air Lines (TCA)", (2024), online: *Canada's Aviation Hall of Fame* <<https://cahf.ca/trans-canada-airlines/>>; James Marsh, "Trans-Canada Airlines", (2015), online: *The Canadian Encyclopedia* <<https://www.thecanadianencyclopedia.ca/en/article/trans-canada-airlines>>; "Trans-Canada Airlines was created 10 April 1937 by Act of Parliament as a subsidiary of Canadian National Railways to provide air service to all regions of Canada. TCA began with 2 passenger aircraft and a small bi-plane, which was used to survey new routes. Passenger service began between Vancouver and Montréal 1 April 1939, and 2 years later TCA provided scheduled flights across the Atlantic Ocean".

²³ See Annie Bergeron-Oliver, "Air Canada's privatization, 25 years later", (12 April 2013), online: *iPolitics* <<https://www.ipolitics.ca/news/air-canadas-privatization-25-years-later>>; *The Canadian Airline Industry*, by John Christopher & Joseph Dion, 89–2E (Ottawa, ON: Transport Canada, 2002).

²⁴ David Gillen, Tae Hoon Oum & Michael Tretheway, "Privatization of Air Canada: Why It Is Necessary in a Deregulated Environment" (1989) 15:3 Canadian Public Policy 285–299 at 286–287.

coast to coast (see [Appendix I](#)).²⁵ However, for various political and economic reasons, not every major Canadian municipality was initially included in the Trans-Canada Airway, most notably Montréal and Ottawa,²⁶ which fragmented Canada's airport network. In 1936, the federal government sought to bridge this gap²⁷ and decided to assume all costs associated with the development and operation of non-participating airports.²⁸ However, northern airports were completely ignored and excluded from the Trans-Canada Airway, whose underlying policy made no strategy or effort to fund, nor administer any air North-South connection. As we will see later in this chapter, the adverse effects of this silent treatment unfortunately still linger to this day.

2.2.2 *The Catalyst: World War II*

Between 1939 and 1945, Canada became an important aircraft manufacturer,²⁹ as well as the main training site for the Commonwealth air force while WWII was raging in the European and Pacific theatres.³⁰ During the war, Canada operated a large network of approximately 270 airports to accommodate the British Commonwealth Air Training Plan (BCATP—see [Appendix II](#)),³¹ which trained most Commonwealth airmen from countries such as Great Britain, Australia, New Zealand and Canada. Canada also became a vital air connection between North America and Europe, namely to ferry aircraft and supplies to the Allied forces, hence why its airport network grew considerably during that period.³² In addition to becoming a global force in aviation,³³ many Canadian communities inherited local aerodromes that were built over the war or saw their

²⁵ With construction underway, the Minister of National Defence took to the air waves to explain the project to Canadians, proudly claiming that: "When the TransCanada Airway is completed, it will bring about a revolution comparable in our generation to that achieved by the Fathers of Confederation in the building of the Intercolonial and Canadian Pacific Railways". Bennett, *supra* note 16 at 6.

²⁶ *Ibid.* at 7.

²⁷ Canadian Transportation Agency, *supra* note 21.

²⁸ Bennett, *supra* note 16 at 7.

²⁹ Transport Canada, "Over 100 Years of Canadian aviation", (20 February 2020), online: *Government of Canada* <<https://tc.canada.ca/en/campaigns/national-aviation-day-february-23/over-100-years-canadian-aviation>>. During the Second World War, aircraft manufacturing and training aircrew were one of Canada's key contributions to the wartime effort. By 1945, the aviation industry employed 120,000 people, including 25,000 women.

³⁰ Canadian Transportation Agency, *supra* note 21.

³¹ McGill University, *supra* note 17 at 14.

³² *Ibid.*

³³ *Ibid.* at 14–15: "At the end of the war, Canada ranked fourth in the world in aviation, surpassed only by the United States, the U.S.S.R. and Britain".

existing infrastructure significantly upgraded and modernized.³⁴ As such, WWII was a major catalyst in the expansion of Canada's airport network:

When World War II began, the Canadian government was front and centre in its ability to provide viable airports for training. Under the British Commonwealth Air Training Plan, the Department of Transport was given jurisdiction to select and build airports. Airports that had been part of the Trans-Canada Airway were brought into the program and suitable municipal airports were leased, upgraded and expanded by the federal government. By the end of the war, an astonishing 149 new airports had been built and 73 existing facilities had been expanded.³⁵

Propelled by the war, many of these aerodromes would grow into larger, well-equipped airports that would soon be utilized by commercial air services and recreationally by the Canadian public.³⁶ That being said, the BCATP's airport network largely ignored the North (see [Appendix II](#)), which prevented this region from gaining any civil aviation infrastructure benefits resulting from the war effort.

In any case, the benefits of WWII were short-lived for certain communities; many airports that were requisitioned for the BCATP had been leased to the Canadian government by local municipalities during the war,³⁷ resulting in many aerodromes being subjected to a form of joint government administration after WWII ended. Concerned with the lack of uniformity across Canada's airport infrastructure and navigation equipment, the MOT soon realized that Canada's airports had to be maintained with a higher degree of sophistication in order to meet the anticipated civil aviation demands following the war.³⁸ Conversely, municipalities soon grasped the complexity and onerous cost of operating airports in a post-war era with a blooming and

³⁴ "The British Commonwealth Air Training Plan", (14 February 2019), online: *Veterans Affairs Canada* <<https://www.veterans.gc.ca/eng/remembrance/history/second-world-war/british-commonwealth-air-training-plan>>.

³⁵ *Ibid.*

³⁶ McGill University, *supra* note 17 at 18: "Most major Canadian cities had, with Government assistance, built airports before the Second World War which were good enough to be used in the transcontinental operations. These were leased for training or other military purposes during the Second World War and many facilities were enlarged and considerably improved as a result of their war-time use. By the end of the War, airline operations had acquired such a high degree of satisfaction that the airport proper merely provided a convenient base around which other airline services could be concentrated".

³⁷ *Airports in Transition*, by Joseph Dion, PRB 02-41E (Ottawa, ON: Transport Canada, 2002): "The National Airports Policy allows for the long-term lease (60 years plus a 20-year renewal option) of NAS airports".

³⁸ McGill University, *supra* note 17 at 18.

competitive civil aviation market on the horizon.³⁹ In order to ensure the sustainability of the national aviation industry, the MOT realized that maintaining a viable airport network could only be achieved if corresponding airport operations and maintenance expenses were handled directly by the federal government.⁴⁰

Consequently, the MOT offered to acquire the responsibility over any airport from a municipality that was financially unable or simply uninterested to operate it. While some municipalities retained control over their local airports, many agreed to transfer theirs to the MOT.⁴¹ Airports that remained under municipal control continued to benefit from federal subsidies, which allowed them to ensure the safe operation of their local civil aviation infrastructure.⁴² In this context, the Canadian Air Transportation Administration would manage the operations of Canadian airports starting in the 1960s, by drawing on a national capital fund for maintaining and acquiring runways, terminals and other airport infrastructure.⁴³ While expensive to run, this federal program treated airports, at least implicitly, as a public utility benefiting all Canadian taxpayers that warranted State funding, hence why airports “were not required to be self-financing or to break even” at the time.⁴⁴

2.2.3 *A Contemporary Approach to Austerity: The Defunding of Canadian Airports*

This honeymoon ended abruptly in the 1970s when federal subsidies for municipal aerodromes, otherwise referred to as community airports, were capped and eventually reduced,⁴⁵

³⁹ *Ibid.*

⁴⁰ Bennett, *supra* note 16 at 7–8.

⁴¹ McGill University, *supra* note 17 at 18.

⁴² Bennett, *supra* note 16 at 8: “Airports that remained under the jurisdiction of their municipalities were still eligible for federal subsidy. Besides a capital subsidy, there were operating subsidies that ranged from 1 cent to 5 cents per square yard of paved surface. Increasingly the subsidies were insufficient to meet airport requirements and, by 1953 the federal government began adding new ad hoc grants, one being based on the airport’s square footage of public space. In 1958, a new policy established five different types of airports (main line, satellite, local, remote or development), with grants awarded contingent upon classification”.

⁴³ Revenues were generated by raising “landing fees, terminal charges and a ticket tax”. *Airport Governance Reform in Canada and Abroad*, by Jed Chong, 2017-17-E (Ottawa, ON: Library of Parliament, 2017) at 2.

⁴⁴ *Ibid.*

⁴⁵ *The Future of Canadian Air Travel: Toll Booth or Spark Plug?*, by Dennis Dawson & Stephen Greene (Ottawa, ON: Standing Senate Committee on Transport and Communications, June 2012) at 1.

thus preventing many local airports from meeting market demands and regulatory standards on a continuing basis.⁴⁶ Some provincial governments stepped in to offer capital cost assistance, loans and/or grants, which successfully bridged the gap for some community airports. However, the assistance varied from one province to another, which resulted in unevenly funded aerodromes and infrastructure levels across the country.⁴⁷

In 1979, the federal government completely halted federal subsidies towards community airports, although it continued to fund airports that were part of Canada's national airway.⁴⁸ The MOT reinstated a limited form of funding for local airports in 1982, however, only airports with an economic potential for the community remained eligible for federal subsidies moving forward.⁴⁹ With many northern communities facing no prospect for commercial enterprises, this meant that remote and underprivileged communities up North were precluded from obtaining any funding to operate and maintain their local airstrips.

Confronted with severe budgetary constraints in the mid-1980s, the federal government was struggling to cover the operating costs of its airports, which hovered at approximately CAD135 million a year.⁵⁰ The MOT subsequently embarked on a crusade of austerity to distance itself from the bankrolling, maintenance and management of Canadian airports. In 1987, the federal government articulated for the first time its intention effectively divest its entire airport network by transferring its airports to non-for-profit capital corporations created in accordance

⁴⁶ *Ibid.* at 8.

⁴⁷ *Ibid.*

⁴⁸ Bennett, *supra* note 16 at 8.

⁴⁹ *Ibid.*

⁵⁰ "Airport Privatisation in Canada: Transport Policy Review", (21 March 2016), online: CAPA - Centre for Aviation <<https://centreforaviation.com/analysis/reports/airport-privatisation-in-canada-transport-policy-review-271346>>; Canadian Airports Council, "Airport Governance and Accountability", (2022), online: *Canadian Airports Council* <<https://canadasairports.ca/about-canadas-airports/airport-governance-and-accountability/>>.

with the *Canada Corporations Act*⁵¹ and operated under individual by-laws pre-approved by the MOT.⁵²

Faced with an annual deficit of approximately CAD 35 billion dollars,⁵³ but also a degrading and outdated civil aviation infrastructure,⁵⁴ this announcement fell under a larger economic strategy at the time where the Canadian government sought to divest and broadly liberalize civil aviation services across Canada, which would lead to the deregulation of air routes in the late 1980s, the privatization of Air Canada in 1988⁵⁵ and the devolution of Canada's air navigation system (ANS) to NAV CANADA in 1996 (as discussed *infra*).⁵⁶ This marked policy shift would become an important building block for the sustainability of today's airport network, but also set the stage for the persisting safety issues that now imperil northern airports well into the 21st century.

2.3 The National Airport Policy (1994—Present)

2.3.1 Divestment Framework & Process

In 1994, the MOT officially launched its *National Airport Policy* (NAP), under which it would designate 26 of Canada's *essential*⁵⁷ airports as part of Canada's *National Airports System*

⁵¹ *Canada Business Corporations Act*, RSC, 1985, c C-44.

⁵² *Airport Transfers: National Airports System*, Chapter 10, by Auditor General of Canada, Chapter 10 (Ottawa, ON: Auditor General of Canada, 2000) at 7: "Airport authorities are responsible for all airport operations and for capital projects such as expanding terminal buildings and improving runways. Among other things, they are also responsible for providing emergency services, developing airport lands for various uses (for example, hotels and other commercial activity) and for renting space used for shops, restaurants and the many other businesses that service the travelling public. Airport authorities [...] are largely monopolies and enjoy a captive market. They can, without regulation set fees (for example, landing fees) to fund capital works and operations at airports, make any type of investment, and accumulate large reserves, tax-free. Thus, many large airports in the NAS have been given a financial position that enables them to carry out very large projects in a short period of time".

⁵³ Tegan Hill, Milagros Palacios & Jason Clemens, "Federal Deficits Then and Now Is Canada Repeating the Fiscal Mistakes of 1965 to 1995?", (August 2019), online: *Fraser Institute* <<https://www.fraserinstitute.org/sites/default/files/federal-deficits-then-and-now.pdf>>.

⁵⁴ Petsikas, *supra* note 5 at 11–12.

⁵⁵ *Air Canada Public Participation Act*, RSC, 1985, c 35, 4th Supp.

⁵⁶ *Civil Air Navigation Services Commercialization Act*, SC 1996, c 20 [CANSCA].

⁵⁷ Dawson & Greene, *supra* note 45 at 6.

(NAS),⁵⁸ in accordance with the *Airport Transfer (Miscellaneous Matters) Act*.⁵⁹ However, only Canada's largest and busiest airports, which represented nearly 94% of the country's passenger and cargo volume,⁶⁰ were to be transferred to these authorities.⁶¹ The remaining aerodromes—nearly 98% of Canada's total number of registered and certified aerodromes—were divested to “provincial, territorial, or local authorities for a nominal fee, and provided lump sum funding for near-term safety needs.”⁶² By favouring key NAS interests mostly in the South, little heed was paid to the public interest under this policy, which left smaller airports at the mercy of market forces:

The [NAS] criteria for admission required the airport to be in a provincial capital or service more than 200,000 passengers per year. The federal government would maintain ownership and lease airport management. The second tier of airports included 71 regional or local airports which were to be offered for transfer to their provincial or municipal governments, to local airport authorities or to private entities. By 1999 most of those airports had been divested. The remaining classifications were: small airports, satellite airports, remote airports and Arctic airports.⁶³

Under the current NAP, the MOT effectively created three categories in its divestment strategy. The first tier is composed of 26 designated NAS airports viewed as being the most essential (and profitable) elements of Canada's air transportation system.⁶⁴ To this day, the NAS is arguably composed of Canadian airports with the most favourable economic outlook. The second tier is composed of regional and local airports who serve regular scheduled air services

⁵⁸ Transportation Safety Board of Canada, “Air transportation safety issue investigation report A18Q0140 - Occurrences in Quebec and Nunavut on runways undergoing construction that are reduced in width”, (20 January 2022), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/etudes-etudes/a18q0140/a18q0140.html#9.0>>, s 3.1.1.

⁵⁹ *Airport Transfer (Miscellaneous Matters) Act*, SC 1992, c. 5.

⁶⁰ Taksal & Safran, *supra* note 14.

⁶¹ Bennett, *supra* note 16 at 11.

⁶² CAPA, *supra* note 50; Canadian Airports Council, “Canada's National Airports - A Primer on Canada's National Airports System”, (2016), online: *Canadian Airports Council* <https://cyqm.ca/wp-content/uploads/2016/10/CAC-Canadas_National_Airports_A_Primer_FINAL_EN.pdf>.

⁶³ Bennett, *supra* note 16 at 12.

⁶⁴ Dion, *supra* note 37; Auditor General of Canada, *supra* note 52 at 7.

under 200,000 passengers annually.⁶⁵ The third tier includes the residuum of Canada's airport network, comprised of small, remote and Arctic airports.⁶⁶

While the lucrative NAS airports were transferred to well-organized corporations administered by qualified executives, the second and last tier airports were transferred to non-for-profit entities (in some cases administered by provincial, territorial or municipal entities),⁶⁷ with a few exceptions remaining under federal government operation.⁶⁸ Pursuant to the NAP, TC maintained ownership over the divested airports,⁶⁹ but leased out their management, operation and development to non-for-profit entities.⁷⁰ These authorities effectively took on—starting in the mid-1990s—onerous operating responsibilities previously under the purview of the MOT:⁷¹

[A]irport authorities were [now] responsible for all airport operations and capital projects such as airport expansion, runways, the development of airport lands and airport commercial space. The federal government, acting as a landlord, held the leases for a term of sixty years, with an option for a twenty-year renewal.⁷²

As a result of the NAP, airport authorities are now solely responsible for meeting onerous regulatory and operational requirements, effectively doing the heavy lifting to maintain Canada's airport network, whilst the MOT collects lucrative lease payments from the divested airports.⁷³ The NAP's framework therefore reveals a striking paradox in the lease structure of these immovable assets; generally, a landlord must ensure that rented premises are up to code, insured and well maintained, in exchange for a rent paid by the lessee. Under the NAP, lessees bear each

⁶⁵ Dion, *supra* note 37.

⁶⁶ Transport Canada, *supra* note 15 at 6.

⁶⁷ Chong, *supra* note 43 at 3.

⁶⁸ Transport Canada, "List of airports owned by Transport Canada", (2020), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/operating-airports-aerodromes/list-airports-owned-transport-canada>>.

⁶⁹ For instance, with regards to NAS airports, "The transfer agreements were complex, lengthy documents. Key clauses for these first NAS airports were: (1) the agreements were leases, meaning that ownership was to remain with the government; and (2) the leases were to be in effect for a period of 60 years. Another key clause was the amount of rent to be paid to the government by the local authority; this amount varied by airport". Dion, *supra* note 37.

⁷⁰ Auditor General of Canada, *supra* note 52 at 5.

⁷¹ *Ibid.* The transfer of Canada's largest and busiest airports occurred between 1992 and 1999.

⁷² Bennett, *supra* note 16 at 10.

⁷³ Institute for Governance of Private and Public Organizations, "The Governance of Canadian Airports: Issues and Recommendations", online: *Institute for Governance of Private and Public Organizations* <https://igopp.org/wp-content/uploads/2014/04/igopp_gouvernanceaeroport_en_web_lowres.pdf> at 7.

of these responsibilities, with the MOT reaping all the financial benefits—an inequitable model that may succeed with profitable airports, for example in Vancouver, Calgary, Toronto and Montréal,⁷⁴ but less so in smaller northern markets where the relationship between airports and the MOT is closer to a form of medieval serfdom. The MOT thus achieved the best of both worlds: Canadian airports were neither (fully) privatized, nor did the MOT lose its ownership over the divested airports,⁷⁵ yet it managed to remove their operating costs from the government's accounting books and transfer their operational burden and liability onto third parties.

With the exception of certain airports still owned and operated by TC,⁷⁶ the NAP “clearly confirmed the government's intention to withdraw from the business of operating airports.”⁷⁷ Its purported objective was to implement a policy under which Canadian airports would—in theory—become self-sufficient, by encouraging commercially-focused business models. Drawing upon a liberalized economic approach, the NAP sought to deregulate airports, foster market competition, increase funding opportunities, and promote the long-term development and viability of Canadian airports.⁷⁸ However, with the MOT bowing out of its former role, the NAP inevitably shifted the paradigm with respect to safety, insurance⁷⁹ and financial considerations,⁸⁰ as the MOT was no longer the guarantor for meeting the mandatory safety standards associated with the operation of airports; the airport authorities now held this crucial responsibility:⁸¹

In accordance with its National Airports Policy (NAP), the government of Canada retains the role of safety and security regulator and the ownership of the NAS airports, but has divested itself of the responsibility for financing, operating, managing and developing those airports by entering into long-term leases with Canadian airport authorities (CAAs). The latter are arm's-length, not-for-profit provincial corporations entrusted with the twin

⁷⁴ See Dawson & Greene, *supra* note 45.

⁷⁵ Transport Canada, *supra* note 68.

⁷⁶ See Transportation Safety Board of Canada, *supra* note 58, s 3.1.1.

⁷⁷ Auditor General of Canada, *supra* note 52 at 12.

⁷⁸ *Ibid.* at 6.

⁷⁹ Transport Canada, *supra* note 68: “Traditionally, government-operated airports were self-insured. As airport operations were transferred to the private sector, liability insurance—the risk management tool of last resort—became a necessity”.

⁸⁰ *Ibid.*: “In light of the growing complexity in airport operations, there has been a renewed focus on traditional approaches to safety management.”

⁸¹ Auditor General of Canada, *supra* note 52 at 10.

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goals of providing the services required, while working toward economic self-sufficiency through earned revenue.⁸² (emphasis added)

With airport authorities now entrusted with the duty to “fully develop the potential of their airports, reduce costs, tailor levels of service to local demand, and attract new and different types of business,”⁸³ the MOT’s role would—in a short period of time—drastically change from its traditional owner/operator role to an owner/landlord of the divested airports, with the latter being limited to a supervisory role from a safety standpoint, which as discussed previously does not bode well in the North.

2.3.2 The Impact of the NAP on Smaller Airports in the North

The effects of the NAP on remote northern aerodromes is relatively absent in the mainstream discourse, yet these aerodromes were perhaps the most impacted by this policy. A review of the existing literature analyzing the results of the NAP is overwhelmingly focused on the overall performance of large NAS airports today,⁸⁴ their competitive disadvantage *vis-à-vis* foreign airports⁸⁵ due to the NAP’s relatively onerous rent formula system⁸⁶ (which can ultimately account for up to 30% of an airport’s budget),⁸⁷ and whether this governance model was truly beneficial for the average Canadian taxpayer.⁸⁸

⁸² Taksal & Safran, *supra* note 14.

⁸³ Dion, *supra* note 37.

⁸⁴ Bennett, *supra* note 16 at 27: “Canadian airports are burdened by major competitive hurdles on pricing with their US counterparts. Unlike Canadian airports, airports in the US pay neither rents nor property taxes. Further, US airports receive government grants for longterm capital projects and are able to finance through the issuance of tax-free bonds. With Canadian airports restricted to raising funds through [airport improvement fees] and airport revenue, a wide advantage falls to US airports. To remain competitive, airport rent in Canada is a file in need of urgent attention and redress”.

⁸⁵ Benjamin Dachis, “Full Throttle: Reforming Canada’s Aviation Policy”, (2014), online: *CD Howe Institute* <https://www.cdhowe.org/sites/default/files/attachments/research_papers/mixed/Commentary_398_0.pdf>; see also Alexandre Moreau, “Air Transport: High Taxes and Fees Penalize Travellers”, (2018), online: *MEI* <<https://www.iedm.org/81591-air-transport-high-taxes-and-fees-penalize-travellers/>>.

⁸⁶ See Blake Lee-Whiting, “Blake Lee-Whiting: Want the economy to take off? Reform the National Airport Service”, (2022), online: *The Hub* <www.thehub.ca/2022-01-13/want-the-economy-to-take-off-reform-the-national-airport-service/>.

⁸⁷ The federal government “has collected CAD5 billion in airport rent since 1992, already well in excess of the value of the assets transferred, and is estimated to collect at least CAD12 billion more over the next 40 years”. CAPA, *supra* note 50.

⁸⁸ See *Vision and Balance - Report of the Canada Transportation Act Review Panel*, by Minister of Public Works and Government Services Canada (Ottawa, ON: Minister of Public Works and Government Services Canada, 2001) c 9.

But what about the marginalized individuals that use northern airports, i.e., indigenous populations? There is surprisingly very little research regarding the NAP's impact on northern airports, specifically those servicing remote indigenous communities, hence why it is important to further examine the NAP's adverse legacy on the safety of northern aerodromes.

In 2005, the federal government acknowledged that northern regions, particularly Canadian territories (Yukon, Northwest Territories and Nunavut), could not realistically fund their airport infrastructure without supplementary assistance.⁸⁹ In other words, the NAP's funding model is discriminatory by design, as it impedes on the provision of adequate aeronautical infrastructure, equipment and services to safely support the air carriers servicing northern indigenous communities. On paper, the political objective of the NAP was to allow market forces to "dictate the size and level of operations appropriate to the passenger demand"⁹⁰ for all airports, regardless of their size, traffic volume and local density population. However, the MOT failed to recognize that the location, consumer pool and market volume of many northern airports were unlikely to ever foster financial viability and operational autonomy in the long run without sustained federal assistance.

Uninformed and inexperienced local communities who inherited the responsibility to run airports did so with the belief that their municipalities would not bear the full operating and maintenance costs, but this soon proved to be a false expectation.⁹¹ Airports were purposefully divested from the MOT to local entities with a view of completely outsourcing their management and operation to third parties. While there are notable success stories, particularly with airports servicing well-populated cities with a high air traffic volume and strong economy,⁹² many smaller

⁸⁹ See *Looking to the Future: A Plan for Investing in Canada's Transportation System* (Ottawa, ON: The Council of the Federation, 2005).

⁹⁰ Dion, *supra* note 37.

⁹¹ Canadian Owners and Pilots Associations, *supra* note 10 at 6.

⁹² There are exceptions where divested regional airports experienced some success under the NAS. For instance, the Fort McMurray Airport experienced an increase in traffic and revenues in the late 1990s onwards, however this was due to the booming oil industry in that region. See Dawson & Greene, *supra* note 45 at 6.

airports, particularly in the North, have since struggled to bear the cost and burden of operating divested aerodromes.⁹³

Granted, the theoretical grounding of the NAP was arguably consistent with the existing nature of NAS airports, as most of them were situated in provincial and territorial capitals, and/or benefited from lucrative passenger markets. However, the NAP's approach would prove to be flawed in remote areas of the country, as smaller airports, particularly in the North, were never viewed, nor conceived as profitable businesses (unlike NAS airports). In reality, these airports were and still are an essential public commodity ensuring the survival and interconnectivity of northern indigenous communities,⁹⁴ as mentioned *supra*.

In a valiant effort to rationalize public spending, the NAP did seek—presumably in good faith—to shift the financial burden of operating Canadian airports from the taxpayer to the users of Canada's civil aviation system.⁹⁵ This approach certainly had its benefits and rationale, particularly with regards to large and complex airports in the South, but this idealistic approach would—once again—inevitably fail in the North. Prior to the NAP, the MOT's revenues generated nationwide from its airport operations were pooled into a national fund and distributed equitably across the country to meet the needs of the entire airport network.⁹⁶ This fund was thus “a means

⁹³ “Virtually all of the \$19 billion that has been invested into airport infrastructure in Canada since then has come from the private corporations that operate Canada's airports on a not-for-profit basis using funds generated by airport authority operations.” Moreover, airport entities managing NAS airports pay a combined \$300 million CAD on a yearly basis. Perhaps the selection of these specific airports reflects one of the underlying issues of the NAP: many Canadian policymakers have likely never landed in a remote northern airport, and reside in major cities with modern, well-equipped and thriving airports. Some bureaucrats may also view air transportation as a means to travel for business and for recreational purposes, in contrast with the North where aviation represents an essential lifeline for indigenous communities. See Canadian Airports Council, *supra* note 62.

⁹⁴ See *Northern Connections: A Multi-Modal Transportation Blueprint for the North*, by Government of Northwest Territories, Government of Yukon & Government of Nunavut (Iqaluit, Nunavut, 2008) at 5; The Canadian Press, “‘It’s a way of life’: Northern commuters say charter flights like taking the bus”, (26 January 2024), online: *National Post* <<https://nationalpost.com/pmn/news-pmn/canada-news-pmn/its-a-way-of-life-northern-commuters-say-charter-flights-like-taking-the-bus>>.

⁹⁵ See *Regional and Small Airports Study*, by Transport Canada, TP 14283B (Ottawa, ON: Government of Canada, 2004) at 8.

⁹⁶ *The Future of Canadian Airport Management*, by Transport Canada, Airports Task Force (Ottawa, ON: Government of Canada, 1986) at 19.

for cross-subsidization whereby surplus revenues generated at the large, busy airports could be transferred to smaller airports with scarcer revenues.”⁹⁷

Following the implementation of the NAP, this fund was phased out and smaller airports, particularly in the North, were suddenly left without a major source of funding to cover essential expenses,⁹⁸ such as repairing and expanding runways, modernizing their facilities, acquiring APUs, snowplows and de-icing equipment, etc. Even if prior to the NAP, smaller airports were already experiencing “challenges raising funds to sustain operations and investments to maintain critical infrastructure and meet ever-evolving safety and security regulations.”⁹⁹ In the 1990s onwards, small airports were suddenly ousted from the federal government’s focus, now centred on its prized NAS airports, and saw their main funding sources vanish overnight. As a result, the NAP significantly increased the economic vulnerability and sensitivity of small airports to market forces. The impact of the NAP was particularly damaging for small northern airports who lost access to federal subsidies, with the exception of transition agreements and sporadic assistance funding.¹⁰⁰

Furthermore, while the NAP purportedly transferred smaller airports to local entities in order to “better determine and provide the level of service appropriate to the business environment and needs of the local community,”¹⁰¹ it was evidently a policy of deregulation seeking to offset the MOT’s former operating responsibilities over Canadian airports.¹⁰² Concurrently, the financial and safety responsibility over remote northern aerodromes whose local

⁹⁷ Dion, *supra* note 37.

⁹⁸ *Ibid*: “Moving from a regime of system-wide charges that can be juggled and re-allocated, as was the case with the Revolving Fund, to a regime requiring each airport to pay its own way likely does promote certain efficiencies. However, it also has disadvantages. It places pressure on each airport to ensure it generates sufficient revenue to cover expenses even when passenger traffic declines—possibly encouraging the introduction of inappropriate and ultimately inefficient charges. It fails to take into account the system benefits that favour the hubs. Moreover, some efficiencies can be achieved only on a system-wide basis”.

⁹⁹ *Canada’s Airports: Working for Travellers, Working for Communities in an Era of Climate Change and Adaptation - Written Submission for the Pre-Budget Consultations in Advance of the 2020 Federal Budget*, by Canadian Airports Council (Ottawa, ON: Canadian Airports Council, 2020) at 3.

¹⁰⁰ Transport Canada, *supra* note 95 at 5.

¹⁰¹ *Ibid.* at 8.

¹⁰² Bennett, *supra* note 16 at 26.

communities depend on air services, was relegated to underprivileged and/or uninterested authorities who lacked the resources, knowledge and expertise to operate airports¹⁰³—one of the most vital elements in any civil aviation system, and even more in these remote northern regions.

By maintaining ownership over the transferred airport, the MOT further exacerbated these financial issues, not only through its lease payments, but also by preventing smaller airports from holding tangible guarantees and securing viable financing options with lenders, as they do not possess a formal title on the land.¹⁰⁴ With small airports simultaneously compelled to modernize and upgrade their infrastructure¹⁰⁵ in order to comply with growing regulatory requirements,¹⁰⁶ the NAP's framework became a fatal recipe for smaller airports that were already in a dire situation:

By delegating the day-to-day management of Canada's major airports to the regions in 1992, the federal government evaded the impending financial burden it would otherwise have had to assume in order to modernize defective, obsolete and inadequate facilities.¹⁰⁷

Faced with more pressing socio-economic issues, the constrained budgets of many northern remote indigenous communities remain a persisting issue that often aggravates the degradation of their local airstrips. Consequently, costly airport investments are often disregarded in favour of more immediate needs, such as housing, road maintenance, sewage and water filtration systems, electrical power infrastructure, waste disposal, etc. With many smaller communities unable to even pave their own streets, one can imagine that repairing a crumbling runway, replacing expensive airport lighting systems or acquiring proper ground equipment—all costly expenses—may not be at the forefront of political and budgetary considerations up North,¹⁰⁸ particularly in indigenous communities facing far more serious social crises.

¹⁰³ Institute for Governance of Private and Public Organizations, *supra* note 73 at 8.

¹⁰⁴ *Ibid.* at 54: "In this context, a potential solution that has been proposed would be for the MOT to "offer provinces and municipalities the opportunity to acquire the real estate assets and equipment of Canadian airports" at a reasonable cost, which would likely yield a lighter debt burden in comparison with the current lease fees and allow them to expand their long-term financing options".

¹⁰⁵ *Ibid.* at 14.

¹⁰⁶ Dawson & Greene, *supra* note 12 at 3–4.

¹⁰⁷ Institute for Governance of Private and Public Organizations, *supra* note 73 at 9.

¹⁰⁸ Institute for Governance of Private and Public Organizations, *supra* note 73 at 49: "Aside from the issue of their impacts on people who live near them and are directly affected by them, airports generate only limited interest among

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As such, the NAP effectively squeezed the finances of many northern communities, which explains why critical aeronautical infrastructure (e.g., adequate runways –in length, composition, and condition, terminal buildings, hangars, airport lighting, etc.), essential equipment (e.g., de-icing equipment, APU's, snowplows etc.), and qualified staff, are lacking throughout Northern Canada. It thus comes to no surprise that well-established airlines lack any interest in establishing regular flights into these substandard and unappealing airports. More concerning is also the potential for a ripple effect, i.e., fewer flights can be expected into struggling airports due to a lack of essential infrastructure, which can impede on their revenue streams, exacerbate existing financial constraints and prevent these airports from ever improving their situation. In these dire circumstances, northern airports are thus at the mercy of serious organizational factors without a sustainable access to financial resources.

2.3.3 TC Study on Small Airports (2004)

Contrary to TC's purported objectives, northern communities are not "in a better position to plan and make business and investment decisions to suit the changing aviation environment of their communities,"¹⁰⁹ under the current NAP framework. Following the inception of the NAP, it quickly became apparent that TC's passive and naïve approach to deregulation effectively transferred a considerable operational and financial burden onto small airports up North, with very little governmental supervision and accountability to support underprivileged communities.¹¹⁰ As such, small remote airports in the North never had any realistic prospect of generating profits

most municipal councillors; the regions and their communities do not appear to be concerned with the management of these facilities, which survive in an administrative limbo; local airport authorities' strategic decisions are not examined by the public, the media or special-interest groups".

¹⁰⁹ Transport Canada, *supra* note 95 at 33.

¹¹⁰ *Report in Response to the October 2000 Report of the Auditor General of Canada (Transport Canada — Airport Transfers: National Airports System)*, by Standing Committee on Public Accounts, 21 (Ottawa, ON: Parliament of Canada, 2002): "Transport Canada's Director General of Airport Programs and Divestiture, Dr. David Bell, agreed with the audit's observation that the Department had not begun to fully exercise its role as landlord. The report indicates that the Department had yet to define its role eight years into the transfer process. The former Auditor General pointed out that since 1992, Transport Canada 'has adopted a predominantly hands-off approach' to its landlord responsibilities and has been 'largely passive about monitoring and overseeing the NAS.' Dr. Bell's answer that 'many of the airports were newly transferred and it's hard to start to force them to do a lot of things on day one until they learn the business' falls well short of a satisfactory explanation. The National Airports System is worth billions of dollars, is a key pillar of the Canadian economy and transportation system, and this is no longer 'day one'".

under the NAP and were left at the mercy of market forces that eroded away their operational capabilities. In this context, TC conducted a study in 2004 regarding the situation of regional and small airports that were divested by the federal government 10 years before under the NAP. The study concluded *inter alia* that:

As a result of air industry changes over the past few years, regional and small airport operators have expressed concerns regarding their ability to sustain and operate their airports effectively over the long term. These concerns include insufficient revenues to cover operating expenses, the financial impact of evolving regulations, limited sources for funding non-safety capital projects, and the volatile nature of air services to smaller communities.¹¹¹ [...]

[A]irports currently experiencing operating deficits almost all have the same obstacle. They lack a sufficient potential passenger base to attract or support significant air carrier service. There is a lack of users to support the level of airport facilities and services maintained. The demography of each catchment area, such as population, income and industry has a direct bearing on the operational and financial opportunities available to airport operators.¹¹²

In cases where airports are continuing to experience difficulty in covering their costs, a number of options suggest themselves. Airport operators could further rationalize airport infrastructure and services to match demand, increase user fees, or implement a combination of these measures. Additionally, other jurisdictions which benefit from these airports may choose to offer financial support.¹¹³

Generally speaking, the study acknowledged that low-traffic-volume airports in sparsely populated areas were unable to generate sufficient revenues to cover their expenses and make critical capital investments,¹¹⁴ particularly given “the financial impact of evolving regulations, limited, sources for funding non-safety capital projects, and the volatile nature of air services to smaller communities.”¹¹⁵ The report thus inferred that the NAP placed northern airports at a significant disadvantage with the South, as they did not have the necessary user volume to generate sufficient revenues, i.e., from the purchase of ancillary services by transiting aircraft

¹¹¹ Transport Canada, *supra* note 95 at 5.

¹¹² *Ibid.* at 2.

¹¹³ *Ibid.*

¹¹⁴ *Ibid.* at 15.

¹¹⁵ *Ibid.* at 7–8.

(e.g., landing and parking fees, de-icing services, terminal charges, aircraft fuel, oil and fluids sales, hangar rentals, food catering, etc.).¹¹⁶

The study also noted that while some smaller airports were financially healthy, these success stories were mainly limited to (1) regions that were densely populated; and (2) airports located in or near a community with a population above 15,000 residents.¹¹⁷ Airports with a population below that threshold and situated in or near (1) a declining population, (2) a community with an average individual income lower than the national average, and/or (3) an employment rate lower than the median Canadian population,¹¹⁸ were more likely to experience a deficit and thus face difficulties in maintaining essential infrastructure and equipment.¹¹⁹ The report thus highlighted that the compounded effects of local socio-economic factors had a direct correlation with the viability of surrounding airports.¹²⁰

Coincidentally, all the adverse socio-economic factors that have the demonstrated potential to hinder the viability of smaller airports, as noted in TC's study, are common issues that afflict many, if not the majority of indigenous communities in Northern Canada. Accordingly, TC's data implied that due to the prevailing issues in these communities (e.g., the declining population of indigenous reserves,¹²¹ the lack of sustainable economic activities up North, the lower income

¹¹⁶ CAPA, *supra* note 50.

¹¹⁷ Transport Canada, *supra* note 95 at 6.

¹¹⁸ *Ibid.* at 26–27: “Individuals with higher income are more likely to travel by plane for leisure or business purposes, There is a significant correlation between average income and the financial success of the airport serving the catchment area”.

¹¹⁹ *Ibid.* at 14 & 7: “In 82% of the cases where airports are unable to cover their operating costs, population of the catchment area has been declining”.

¹²⁰ *Ibid.* at 24. “The economic activity of the catchment area of an airport has a direct impact on its financial situation. Airports benefiting from a captive passenger base have a better chance of producing positive results. The size of population is an indicator of the number of potential passengers. [...] The concept of catchment area is used in all market analysis. In a commercial sense, a catchment area can be defined as the geographical zone, which contains the regular clients of a defined commercial centre. The same concept can be applied to an airport where the catchment area is a geographical zone containing the potential users and passengers of the airport”.

¹²¹ Mark Milke, “Increasing number of Aboriginals choose not to live on reserves”, (2022), online: *Fraser Institute* <<https://www.fraserinstitute.org/article/increasing-number-aboriginals-choose-not-live-reserves>>; Statistics Canada, “Projections of the Indigenous populations and households in Canada, 2016 to 2041”, (6 October 2021), online: *Government of Canada* <<https://www150.statcan.gc.ca/n1/daily-quotidien/211006/dq211006a-eng.htm>>: “In 2041, from 439,000 to 485,000 Registered or Treaty Indians are projected to live on reserve, compared with 386,000 in 2016. As a proportion, 42.4% of the population with Registered or Treaty Indian status lived on reserve in 2016. This proportion is projected to decline, ranging from 34.0% to 39.2% in 2041”.

average, substandard education levels and weaker employer rate for indigenous people, combined with the very low-density population in Northern Canada), northern airports that service indigenous communities are less likely to attract sufficient traffic to cover their costs, maintain the airport properly and acquire the necessary equipment to ensure the safe operation of aircraft.

Accordingly, the NAP is by design discriminatory, in that it disproportionately affects northern indigenous people, both from a socio-economic and safety perspective. By removing a vital financial lifeline previously provided by the MOT until the 1990s, the NAP weakened the viability of northern airports and exacerbated existing inequalities within neighbouring indigenous communities. In other words, the NAP mirrored widespread patterns of systemic discrimination onto the *quality* and *safety* of aeronautical infrastructure, services and equipment in the North.

In its study, TC acknowledged that many smaller airports were unable “to become innovative in revenue generation and operational efficiency,”¹²² presumably because of the local demographics and prevailing socio-economic issues. However, TC vigorously defended its NAP by stating that “[t]he impact of divestiture on airports must be separated from the impact on communities.”¹²³ But how can we separate the socio-economic issues experienced by indigenous communities up North and the devastating impact of the NAP on the viability and safety of Northern Canada’s airport network?

Both areas are evidently interlinked, as the quality (or lack thereof) and (in)sufficiency of airport infrastructure—*State factors*—can have detrimental effects on the wellbeing and economic growth of northern communities. Suitable airport facilities are essential for the viability, dependability and safety of local air services, whose resulting (un)reliability can either aggravate or mitigate existing socio-economic issues.¹²⁴ Conversely, this triggers a vicious cycle, as socio-

¹²² Transport Canada, *supra* note 95 at 35.

¹²³ *Ibid.* at 33.

¹²⁴ See generally Barry Prentice & Matt Adaman, “Economics of cargo airships for food transport to remote northern communities” (2017) 25:1 Transportation Business & Management 87–98.

economic issues can deter carriers from establishing regular air routes to/from these communities, and leave local airports with insufficient resources to meet regulatory safety standards.

With the concept of organizational factors in mind, TC had to know that the NAP's resulting financial difficulties experienced by these underprivileged communities would soon hinder their ability to effectively balance safety and commercial considerations, and thus contribute to a slow, yet marked erosion of their safety levels. Despite these obvious shortcomings, TC looked the other way and partly misrepresented the results of its NAP before the House of Commons by stating that the airport divestiture was "one of the most successful airport commercialization undertakings in the world."¹²⁵ TC even stated that its policy had "attracted \$5 billion from the private sector *without the government having to put a penny in this*" (emphasis added).¹²⁶

These irresponsible statements would reveal TC's underlying mentality where it considered that investments into critical aviation infrastructure could be delegated to market-forces, whilst ignoring the adverse socio-economic impacts on vulnerable and underprivileged areas of the country, as well as the long-term safety consequences of a deregulated approach in Northern Canada. Coincidentally, a decade after the implementation of the NAP, the former MOT minister responsible for this policy—the Honourable M. Douglas Young—would eventually admit publicly that aviation infrastructure divestments in Canada had been the "worst decisions" of his political career.¹²⁷ This decision would also, as we will see in the next sections of this chapter, trigger catastrophic and discriminatory effects on the safety of northern indigenous people.

¹²⁵ Standing Committee on Public Accounts, *supra* note 110.

¹²⁶ *Ibid.*

¹²⁷ Petsikas, *supra* note 5 at 10.

2.3.4 The Southern Focus of the NAS and the Neglected North

It has been recommended that “future air transportation regulations, policies and funding programs take into account the special needs and unique challenges in regions and the North.”¹²⁸ However, it is obvious that indigenous populations were clearly not a consideration when the NAS was first designed and implemented, as northern airports did not benefit from any incidental policy or funding package that was tailored to their specific needs and constraints. Consequently, the unequal relationship between the North and the South stripped many northern indigenous groups from the ability to meaningfully participate in the development of the critical air services they rely on.

The lack of consultation or involvement with the indigenous people with respect to the development of their northern air services has contributed—in part—to the significant socio-economic and safety disparities that afflict northern communities, in contrast with the rest of the population. It has been noted that this type of discriminatory treatment “forms part of Indigenous peoples’ cultural heritage, with the result that individuals and communities remain in situations of extreme cultural, relational, social and economic vulnerability.”¹²⁹ By excluding most of the North from the NAS, the MOT has effectively excluded the North from any meaningful participation, not only in the development of civil aviation, but more broadly with the rest of Canada’s economy and society.

It must also be emphasized that by selecting its NAS airports based on their national *essentiality* for Canadians,¹³⁰ the MOT inferred that non-NAS airports, including those that serve fly-in indigenous communities, were *non-essential* from a national perspective. This overt form of exclusion once again uncovers a indirect, yet malignant form of discrimination. In addition to the

¹²⁸ Dawson & Greene, *supra* note 12 at 4.

¹²⁹ See *Statement of Claim - Bella Rachel McWatch et al. v His Majesty the King in Right on Ontario and the Attorney General of Canada*, CV-22-00691039–00CP (Toronto, Ontario: Ontario Superior Court of Justice, 2022) at para 4.8.

¹³⁰ Dawson & Greene, *supra* note 45 at 6.

socio-economic and safety effects of the NAP discussed previously, the invidious design of this discriminatory policy has thus contributed to serious prejudicial effects, in that essential northern air routes are neglected in favour of the specific commercial interests of Southern Canada.

At the time of this writing, 23 essential airports remained under the MOT's ownership but were leased to and operated by airport authorities under TC's NAS,¹³¹ and 3 northern airports (Yellowknife, Iqaluit and Whitehorse) were owned and operated by territorial governments as part of the NAS¹³² (see [Appendix III](#)).¹³³ An overview of Canada's NAS map reveals that most designated airports fall within the core flight network of major Canadian airlines, particularly Air Canada which has maintained a multi-decade dynasty over these prized flight routes. In fact, the NAS closely mirrors the network design of the former Trans-Canada Airway,¹³⁴ that was specifically created to support the nascent operations of Trans Canada Airlines early in the 20th century, thus revealing the NAS' historical, commercial and political ties to Air Canada.

Considering that the NAS stems from political decisions articulated in the 1980s, when Air Canada was still fully-owned by the Canadian government, one must wonder if its designated airports were selected primarily on its key criteria (airports "considered essential to Canada's air transportation system"),¹³⁵ or perhaps were they also selected because the majority of NAS airports were key hubs for Air Canada at the time. In the latter (speculative) scenario, one could say that these aerodromes were indeed essential to *Air Canada's* air transportation network.

¹³¹ Victoria (CYYJ), Vancouver (CYVR), Prince George (CYXS), Kelowna (CYLW), Edmonton (CYEG), Calgary (CYYC), Saskatoon (CYXE), Regina (CYQR), Winnipeg James Armstrong Richardson (CYWG), Thunder Bay (CYQT), London (CYXU), Toronto Pearson (CYYZ), Ottawa Macdonald-Cartier (CYOW), Montréal-Pierre Elliott Trudeau (CYUL), Mirabel International Airport (CYMX), Québec City Jean Lesage (CYQB), Fredericton (CYFC), Greater Moncton (CYQM), Saint John (CYSJ), Charlottetown (CYYG), Halifax Stanfield (CYHZ), Gander (CYQX) & St. John's (CYYT).

¹³² Transport Canada, *supra* note 68: "21 airport authorities operate these airports, with Mirabel and Montreal Trudeau operated by the same authority. Kelowna (YLW) is the only airport listed that's not operated by an airport authority. The City of Kelowna operates this airport under a long-term lease with Transport Canada. The 21 airport authorities operate pursuant to the *Airport Transfer (Miscellaneous Matters) Act*. They are not-for-profit, non-share capital corporations".

¹³³ Source: Auditor General of Canada, *supra* note 52 at 8.

¹³⁴ See Appendix I. As noted previously, this airline was the predecessor of Air Canada.

¹³⁵ Dion, *supra* note 37.

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At the time of this writing, all active NAS airports, with the exception of Iqaluit¹³⁶ and Mirabel,¹³⁷ were serviced by Air Canada (or its subsidiaries), now a fully privatized airline with 6.4% of its shares still owned by the Government of Canada.¹³⁸ Based on these historical facts, one could therefore suppose that the NAS was designed around Air Canada's legacy air routes to further its commercial interests, as well as Canada's other key airlines, and protect their key bases of operation in Southern Canada. This may explain why major investments and government attention are more likely to be steered towards southern airports and potentially ignore prevailing safety issues at northern aerodromes.

Moreover, while there are 5 NAS airports located within the defined boundaries of Northern Canada (Thunder Bay, Prince George, Whitehorse, Yellowknife and Iqaluit), four of these locations are accessible by road. As such, there is only one northern NAS airport—Iqaluit—that truly relies on air services given its lack of road connection with the rest of Canada.¹³⁹ Yet, given its relatively small population,¹⁴⁰ Iqaluit's inclusion in the NAS could be a red herring from a

¹³⁶ Government of Nunavut, "Iqaluit - Getting Here", (2024), online: *Government of Nunavut* <www.iqaluit.ca/visitors/getting-here>; CBC News, "Air Canada discontinues Iqaluit flights", (2011), online: *CBC News* <www.cbc.ca/news/canada/north/air-canada-discontinues-iqaluit-flights-1.1125944>.

¹³⁷ While Mirabel is in theory part of the NAS and was initially built to operate international flights to/from Montréal, with Dorval (CYUL) handling domestic flights, its planned purposed never fully materialized. Nowadays, Mirabel is mainly used for cargo and medevac flights, whilst also supporting the onsite manufacturing activities of Airbus. See Skies Magazine, "Mirabel terminal demolition nears completion", (2016), online: *Skies Magazine* <<https://skiesmag.com/news/mirabel-terminal-demolition-nears-completion/>>.

¹³⁸ See Noah Zivitz, "'Holy cow': Feds take stake in Air Canada as airline lands \$5.9B in aid", (2021), online: *Bloomberg* <www.bnnbloomberg.ca/holy-cow-feds-take-stake-in-air-canada-as-airline-lands-5-9b-in-aid-1.1589311>; Jim Byers, "Canadian Taxpayers Now Own Part of Air Canada", (2021), online: *Travel Pulse* <<https://www.travelpulse.ca/news/airlines-airports/canadian-taxpayers-now-own-part-of-air-canada>>; Puja Tayal, "Will the \$5.9 Billion Bailout Save Air Canada From COVID-19?", (2021), online: *Yahoo Finance* <<https://ca.finance.yahoo.com/news/5-9-billion-bailout-save-121742271.html?guccounter=1>>.

¹³⁹ Iqaluit is also serviced by marine transport on a seasonal, but aviation remains the most efficient means to ensure a viable supply chain for its residents throughout the year. See Matisse Harvey, "Le port d'Iqaluit n'a toujours pas de plan opérationnel", (2023), online: *Radio-Canada* <<https://ici.radio-canada.ca/nouvelle/1980638/nunavut-iqaluit-port-eaux-profondes-plan-amenagement>>; *Governing Marine Transportation in the Canadian Arctic: Iqaluit, Nunavut*, by Natalie Carter, Jackie Dawson & Melissa Weber, Arctic Corridors and Northern Voice (Ottawa, ON: University of Ottawa, 2020); *Nunavut Air Services System Implementation Options - Summary*, by Department of Community Government & Transportation (Iqaluit, Nunavut: Government of Nunavut, 2003).

¹⁴⁰ In 2021, Iqaluit had a meagre population of 7,429 residents. Statistics Canada, "Iqaluit, Nunavut - Census Profile, 2021 Census of Population", (2021), online: *Government of Canada* <www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&GENDERlist=1&STATISTIClist=1&HEADERlist=0&DGUIDlist=2021A00056204003&SearchText=iqaluit>.

policy perspective, as Nunavut's capital was presumably included for political optics in order to achieve a fair representation with at least one NAS airport in each Canadian province and territory.

It is somewhat paradoxical that a national air transportation policy purportedly aiming to ensure an essential connectivity across the country would focus almost exclusively on airports already connected by road, marine and/or rail transportation, and exclude remote communities who depend on air services for indispensable services and basic supplies.¹⁴¹ One must also wonder why the NAP did not include, as a subdivision of Canada's national airport policy, a strategy to ensure the viability of northern airports with a broader goal of maintaining efficient and relatively affordable flight routes to/from/within Northern Canada, namely by ensuring a sustained source of funding for the North's truly indispensable airport network.

Granted, the NAS does encompass the main air network for the bulk of the Canadian travelling public, but its discriminatory design nonetheless infers that remote northern communities, whose survival depends on air services, are not essential for Canada's civil aviation network. The entire NAP was developed around major Canadian cities, yet no specific measures were taken to address the unique nature of northern airports, despite the vital link they provide to indigenous communities. By its design, the NAP subtly disenfranchised northern aerodromes and precluded them from having a legitimate presence within Canada's NAS.

By treating them as a lower tier category of aerodromes, the design of the NAS effectively cloaks northern airports from public scrutiny and reduces the MOT's inclination to fund a northern airport network that is not deemed "essential" by current policies. In its three decades of existence, the NAP has consistently favoured the commercial and safety interests of southern airports, whilst removing at the same time the financial lifeline that previously enabled northern airports to sustain

¹⁴¹ Government of Northwest Territories, Government of Yukon & Government of Nunavut, *supra* note 94 at 8.

their operations safely. As we will see later in this chapter, this eventually led to a marked erosion of critical aeronautical infrastructure, equipment and services across Northern Canada.

3. The Manifestation of Deadly *State Factors* Within Canada's Northern Aviation Infrastructure

3.1 A History of Neglect: The More Things Change, the More They Stay the Same

Canadian airports differ from one community to another (i.e., North versus South), and “so do their exposure to risk.”¹⁴² The success or failure of Canadian airports, including those up North, will necessarily depend “on the level of safety and economic viability that can be achieved.”¹⁴³ With organizational factors in mind,¹⁴⁴ an airport's exposure to risks can thus be mitigated with good management, which necessarily requires sufficient resources to attain and uphold acceptable safety norms. From a broader governance outlook, however, insufficient resources and resulting safety risks—*State Factors*—can be fatal ingredients for the operational sustainability of any airport.

In the North, the despicable state of aviation infrastructure reflects the long-term consequence of the MOT's institutionalized neglect and discriminatory approach towards the interests of northern indigenous populations. It is difficult for the average Canadian and even the most seasoned air law experts to appreciate the infrastructure challenges and hazards faced by northern air operators on a daily basis. By analogy, imagine having to drive an old car in a single-lane, unpaved and poorly maintained road filled with potholes and wildlife hazards; with unpredictable weather and unexpected road closures; with no enforced speed limits, traffic signs or street lighting; no gas stations, shelters or first responders nearby, nor any cellphone coverage to help navigate—day after day as part of your full-time job.

¹⁴² Transport Canada, *supra* note 15.

¹⁴³ *Ibid.*

¹⁴⁴ See Annex 19 to the Convention on International Civil Aviation - Safety Management Standards and Recommended Practices - Second Edition, AN14 2016, International Standards and Recommended Practices.

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In the 21st century, pilots in the North constantly face analogous hazards, in part due to outdated, inadequate and/or inexistent infrastructure to support their daily operations into remote locations. This description is unfortunately far too common across most of Northern Canada and is partly rooted in a form of discrimination towards the indigenous who now rely extensively on these airports.

With the NAP's historical roots and objectives in mind, we can understand how the devolution of Canada's civil aviation infrastructure put northern airports at a significant disadvantage, which explains in part how they have degraded so rapidly over the past decades. That being said, the generalized neglect towards northern aviation infrastructure is a long-standing issue that goes back several decades, whose blame cannot be solely attributed to the NAP. Since the dawn of Canadian aviation, the MOT has systemically favoured southern aviation markets due to overriding political and economic motives, as illustrated in the previous sections of this chapter.

Well before the NAP, Justice Charles L. Dubin noted in the early 1980s that the safety of northern aviation was well below an acceptable level,¹⁴⁵ in part due to insufficient and inadequate civil aviation infrastructure in remote communities.¹⁴⁶ It may seem obsolete to cite potentially outdated evidence from the 1980s in the context of a thesis written four decades later. But much to the author's surprise, very little has since changed, hence why Justice Dubin's findings remain quite relevant even to this day.

¹⁴⁵ Privy Council Office, *supra* note 7 at 351.

¹⁴⁶ *Ibid.* at 804: "During Phase III (Enforcement) and Phase IV (Nay Aids), the Commission heard a great deal of evidence relating to the provision of air services in northern areas of Canada. In many instances, the standard of safety provided has been found lacking, and without exception the lack of enroute nav aid facilities, together with inadequacies in airport and weather information services have been cited as the main reason for difficulties encountered by most [northern] air carriers".

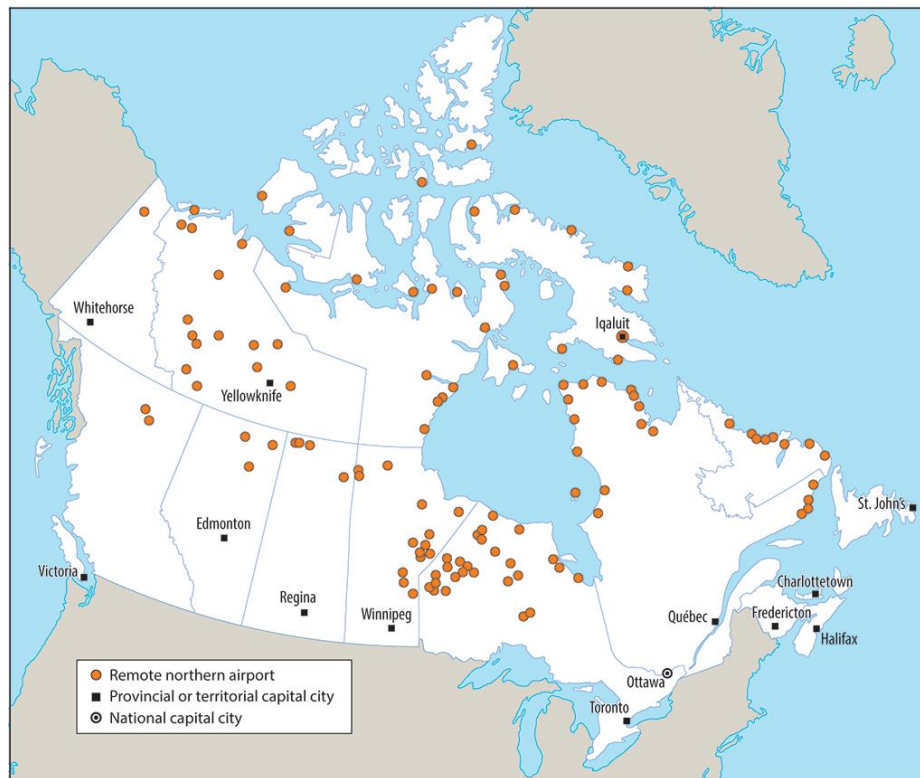


Figure 1—Airports Examined by the OAG Report (2017)

Indeed, the Office of the Auditor General of Canada (OAG) published an incriminating report in 2017 regarding the deteriorating condition of civil aviation infrastructure in the North. Its audit, which focused on 117 remote airports (see Figure 1),¹⁴⁷ noted a crucial need to invest in northern airport infrastructure, whose lighting, navigational aids, runways and weather services were in a state of disarray,¹⁴⁸ and inhibited “the timely delivery of essential goods and public services, such as medical emergency evacuations.”¹⁴⁹ Furthermore, the OAG found, among many other damning conclusions, that:

Transport Canada was aware of information documented since 2005 about remote northern airports’ safety- and efficiency-related infrastructure needs, such as the need for improved runway lighting and navigational aids. However, the Department had not taken a leadership role in addressing these needs by leading efforts and working collaboratively

¹⁴⁷ Source: *Civil Aviation Infrastructure in the North—Transport Canada*, Report 6, by Office of the Auditor General of Canada, Report 6 (Ottawa, ON: Government of Canada, 2017).

¹⁴⁸ *Ibid* at para 6.18.

¹⁴⁹ *Ibid* at para 6.20.

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with its provincial, territorial, and industry partners to enhance the safety and improve the accessibility and efficiency of remote northern airports.¹⁵⁰

These findings were not particularly surprising, as they echoed the conclusions of previous government studies regarding the aging civil aviation infrastructure in the North, where local indigenous communities are often unable to assume the financial costs associated with the operation of their nearby airports ever since the MOT's civil aviation divestments during the 1990s.¹⁵¹ Consequently, financial constraints have eroded safety margins at many northern airports, which are now plagued by overlapping hazards that endanger the safety of indigenous people who travel by air.

As mentioned *supra* in Chapter 3, insufficient State funding to operate, maintain and update civil aviation infrastructure, or the lack thereof, will inevitably create latent conditions in the Swiss Cheese that can induce systemic safety issues across an entire industry sector and eventually contribute to tragic accidents. Inadequate or insufficient civil aviation infrastructure does not *directly* cause accidents *per se*, but it does remove important safety defences. As we will see later in this chapter, pilots are left with fewer options to make the right decision(s) and operate safely; aircraft performance and capabilities can be significantly limited; and operators may not have all the necessary information in hand to safely plan their operations and proactively manage risks. More concerning, poor civil aviation infrastructure can induce situational adaptations, i.e., operational shortcuts by frontline staff and management, which can endanger the safety of flights over time.¹⁵²

¹⁵⁰ *Ibid* at para 6.14.

¹⁵¹ Government of Northwest Territories, Government of Yukon & Government of Nunavut, *supra* note 94.

¹⁵² Transportation Safety Board of Canada, "Air transportation safety investigation report A17C0146 - Loss of control and collision with terrain, West Wind Aviation L.P., Avions de Transport Régional ATR 42-320, C-GWEA, Fond-du-Lac, Saskatchewan, 13 December 2017", (October 2021), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rapports-reports/aviation/2017/a17c0146/a17c0146.html#fn271> at 126: "Situational adaptations are deviations when there is pressure to get the job done and/or there are constraints on the availability of resources. These include the design and condition of the work area, equipment availability and design, time pressure, number of staff, supervision, and external environmental factors. [...] When adaptations of any type are performed with no adverse consequences, they can persist and become standard practice. This way of working becomes normalized and can erode the safety margins that the rules and procedures were intended to provide. As the adaptations slowly become normal behavior, it becomes less likely that the persons involved will recognize the risk with the associated adaptation."

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Inadequate or insufficient civil aviation infrastructure—a *State Factor*—can therefore play an indirect, yet influential role in the chain of events leading up to accidents, namely by impairing the behaviour and decision-making of frontline personnel.¹⁵³ Yet, MOT officials have previously stated that the federal government is “not responsible for assessing and addressing airport infrastructure needs.”¹⁵⁴ In the author’s view, the MOT’s opinion in this regard is utterly flawed; ignores elementary tenets in air law; and is in opposition with the MOT’s statutory mandate under the *Aeronautics Act*.¹⁵⁵ Because States ultimately bear the responsibility to build, operate and maintain civil aviation infrastructure, as per the *Chicago Convention*,¹⁵⁶ a failure to uphold this legal responsibility and its subsequent role in an accident, namely by inducing adverse effects on the behaviour of air carriers and aircrews, is a clear manifestation of a *State Factor* in the causation of aircraft accidents. The following section will therefore provide an overview of the latent conditions that generally prevail within Canada’s northern infrastructure and illustrate how they have contributed to actual accidents in the past.

3.2 The Legal Scope of Canada’s Civil Aviation Infrastructure

Before analyzing individual components found at substandard northern airports, a distinction must be drawn between aviation infrastructure pertaining to *airport facilities and equipment*,¹⁵⁷ versus *air navigation services*. Before the 1990s, TC was responsible for providing, maintaining and operating both categories of infrastructure and services. Since then, the MOT’s

Without regular supervision, education, and enforcement of the expected boundaries, individuals are likely to continue to adapt procedures until the edge of the actual unsafe boundary is found, by crossing it, and becoming involved in an accident”.

¹⁵³ *Ibid.* at 123: “Decision making in general is a cognitive process that involves identifying and choosing a course of action from several alternatives. Decision making for pilots occurs in a dynamic environment and includes 4 steps: gathering information, processing information, making a decision, and acting on that decision. [...] There are several risks that can affect decision making: for example, information gathered may be incorrect or incomplete; competing tasks may hinder the gathering and processing of information; or decision makers may be affected by cognitive biases when processing that information. These risks can result in the selection of a choice that is less than ideal”.

¹⁵⁴ Office of the Auditor General of Canada, *supra* note 147 at para 6.45.

¹⁵⁵ *Aeronautics Act*, *supra* note 3 at s 4.2.

¹⁵⁶ See *Convention on International Civil Aviation*, 7 December 1944, 15 UNTS 295, ICAO Doc 7300/6, [*Chicago Convention*] s 28.

¹⁵⁷ Aerodrome infrastructure is defined by ICAO as “physical elements and related facilities of the aerodrome”. See *Procedures for Air Navigation Services - Aerodromes (Second Edition)*, by International Civil Aviation Organization, Doc9981 (Montréal, QC: International Civil Aviation Organization, 2016) at 1-1–1.

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responsibility over airport facilities and equipment has mostly been divested to private, provincial, territorial or local entities.

Pursuant to the *Civil Air Navigation Services Commercialization Act* (CANSCA),¹⁵⁸ Canada's ANS system had a similar fate during the same period. In 1996, it was divested and sold for a bargain price—CAD 1.5 billion—to NAV CANADA, a not-for-profit/non-share capital corporation that has since been entrusted with the development, management and operation of Canada's ANS system,¹⁵⁹ as well as providing a “range of services to aircraft owners and airport operators, such as air navigation and aviation weather information services.”¹⁶⁰ But as stated by George Petsikas, “the term “commercialization” of ANS in Canada has always been put in quotes [...] because it was a smokescreen by the State to dump costs,”¹⁶¹ hence why interrelated deficiencies are now found in both Canada's airport and ANS infrastructure.

Even though Canada's civil aviation infrastructure (i.e. *airport facilities* and *ANS system*) is now governed under two distinct regimes and business models, it must be emphasized that Canada remains responsible under international law for providing both levels of infrastructure and equipment in accordance with its responsibilities under Article 28 of the *Chicago Convention*¹⁶²

¹⁵⁸ CANSCA, *supra* note 56.

¹⁵⁹ NAV CANADA, “NAV CANADA - About Us”, (2024), online: NAV CANADA <<https://www.navcanada.ca/en/corporate/about-us.aspx>>; NAV CANADA, “Roles and Responsibilities”, (2024), online: NAV CANADA <<https://www.navcanada.ca/en/air-traffic/airspace-reviews/roles-and-responsibilities.aspx>>; Petsikas, *supra* note 5 at 13–14: “The CANSCA authorised the federal minister of transport, acting as the delegated representative of Her Majesty in right of Canada in this matter, to sell Canada's ANS to the designated entity i.e., NAV CANADA. Once the assets were transferred pursuant to the above-mentioned negotiated agreement, it would create a statutory obligation and monopoly in favor of NAV CANADA for the provision of ANS services to civil aviation operations in Canada going forward (military flights were specifically excluded). It also subjected ANS delivered by NAV CANADA to the operational, safety oversight, compliance and service-level requirements of the *Canadian Aviation Regulations* (CARs)”.

¹⁶⁰ Office of the Auditor General of Canada, *supra* note 147 at para 6.7.

¹⁶¹ Petsikas, *supra* note 5 at 35.

¹⁶² *Chicago Convention*, *supra* note 156, art 28: Air navigation facilities and standard systems—Each contracting State undertakes, so far as it may find practicable, to:

- a. Provide, in its territory, airports, radio services, meteorological services and other air navigation facilities to facilitate international air navigation, in accordance with the standards and practices recommended or established from time to time, pursuant to this Convention;
- b. Adopt and put into operation the appropriate standard systems of communications procedure, codes, markings, signals, lighting and other operational practices and rules which may be recommended or established from time to time, pursuant to this Convention;
- c. Collaborate in international measures to secure the publication of aeronautical maps and charts in accordance with standards which may be recommended or established from time to time, pursuant to this Convention.

and its corresponding ICAO annexes.¹⁶³ The airport and ANS divestments effectively privatized Canada's entire civil aviation infrastructure in the 1990s,¹⁶⁴ however, this merely constituted a delegation of Canada's undertakings under the *Chicago Convention* to private corporations. Notwithstanding the previously discussed jurisdictional limitations under that treaty with respect to purely domestic operations in Northern Canada (see Chapter 2), the MOT remains responsible—from an international air law perspective—for ensuring compliance with regulations and accountable for the resulting safety outcome of the commercialization of Canada's civil aviation infrastructure,¹⁶⁵ namely its airports and ANS system.

Therefore, Canada's aerodrome infrastructure and ANS system are ultimately interdependent elements that ought to be assessed together, rather than separately, as indivisible responsibilities belonging to each State. As a sovereign country, Canada—not NAV CANADA nor the entities that now manage Canadian airports—is ultimately accountable in the end for any failure within Canada's airport and ANS system, regardless of the governance structure chosen to administer these critical infrastructure elements. With this in mind and to reasonably delineate the scope of this thesis, the following section will thus consider the sufficiency and adequacy of northern (1) *air navigation services* and (2) *airport facilities* as whole, i.e., as an indivisible State responsibility under Article 28 of the *Chicago Convention*,¹⁶⁶ whilst nonetheless acknowledging each element's distinctive governance model.

¹⁶³ See *Annex 3 to the Convention on International Civil Aviation - Meteorological Service for International Air Navigation (20th Edition)*, 2018, International Standards and Recommended Practices; *Annex 4 to the Convention on International Civil Aviation - Aeronautical Charts (11th Edition)*, 2009, Standards and Recommended Practices; *Annex 10 to the Convention on International Civil Aviation - Aeronautical Telecommunications (7th Edition)*, 2018, Standards and Recommended Practices; *Annex 11 to the Convention on International Civil Aviation - Air Traffic Services (15th Edition)*, 2018, Standards and Recommended Practices; *Annex 14 to the Convention on International Civil Aviation - Aerodromes (9th Edition)*, 2022, Standards and Recommended Practices.

¹⁶⁴ Petsikas, *supra* note 5 at 12.

¹⁶⁵ Transportation Safety Board of Canada, "Air transportation safety issue investigation report A15H0001 - Raising the bar on safety: Reducing the risks associated with air-taxi operations in Canada", (7 November 2019), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rapports-reports/aviation/etudes-etudes/a15h0001/a15h0001.html>, s 4.2.1.1.

¹⁶⁶ Schubert, Francis, "An Introduction to Air Navigation Services: From Conventional Air Traffic Control to CNS/ATM", (October 2014), online: *Institute of Air and Space Law - McGill University* <www.mcgill.ca/iasl/files/iasl/aspl633-2014-schubert-air-navigation-services.pdf> at 130.

3.3 *Defining Aeronautical Infrastructure, Equipment & Services*

Aeronautical infrastructure, equipment and services include *inter alia* runways and maneuvering areas, terminal buildings and supporting facilities (e.g., hangars), visual aids (e.g., approach lighting, aerodrome beacons, visual approach slope indicator systems, runway and taxiway lighting, markings and markers, etc.), navigational aids (e.g., very high frequency omnidirectional beacons (VORs), non-directional beacons (NDBs), instrument landing systems (ILS), runway visual range systems, distance measuring equipment, etc.), navigational services, such as air traffic controllers, flight service stations (FSS), ground support equipment (e.g., APUs, snow plows, de-icing tools etc.), as well as qualified staff and maintenance services.¹⁶⁷ Together, these represent “critical components for safety and accessibility” at northern aerodromes.¹⁶⁸

But as we will see, various studies and investigations in the past decades have each noted that aviation infrastructure is generally lacking up North,¹⁶⁹ i.e., generalized and discriminatory *State Factors*, which have contributed to aviation accidents that would otherwise have been prevented in Southern Canada, where airports typically benefit from far superior resources.

4. Air Navigation Services and Infrastructure in Northern Canada

4.1 *The Substandard Allocation and Coverage of ANS Resources in Northern Canada*

In the North, ANS disparities are specifically felt with regards to the lack of landing approach aids, weather services, air traffic communications, radar systems and navigational aids.¹⁷⁰ By failing to provide adequate ANS services to support and protect the safety of northern aviation operations, indigenous people continue to experience unreliable air services or worse, deadly accidents. Instead of taking urgent action to address these discriminatory effects, the MOT continues to turn a blind eye to the horrific accidents that occur in the North.

¹⁶⁷ Privy Council Office, *supra* note 7 at 790–791.

¹⁶⁸ Transportation Safety Board of Canada, *supra* note 165, s 4.2.1.1.

¹⁶⁹ Privy Council Office, *supra* note 7 at 805.

¹⁷⁰ *Ibid.*

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But before analyzing the substandard state of northern ANS infrastructure, we must first define its technical scope and policy rationale. From a technical standpoint, air navigation services include “air traffic management (ATM), communications, navigation and surveillance systems (CNS), meteorological services for air navigation (MET), search and rescue (SAR) and aeronautical information services/aeronautical information management (AIS/AIM),”¹⁷¹ which “are provided to air traffic during all phases of operations (approach, aerodrome and en route).”¹⁷²

From a policy standpoint, the anemic ANS infrastructure and services in Northern Canada contrast with the South, as well as with foreign jurisdictions that host bustling aeronautical industries like Canada, where operators generally benefit from extensive and modern ANS capabilities. As shown in [Appendix IV](#),¹⁷³ NAV CANADA facilities in the North are sparsely distributed across a vast area of land, in contrast with the South where the repartition of ANS facilities is much denser and arguably provides a better coverage from a traffic separation, navigation management and weather coverage perspective. Conversely, the smaller number of ANS facilities up North creates blind spots within NAV CANADA’s system (see [Appendix V](#))—almost exclusively in Northern Canada where there is no ANS coverage available.¹⁷⁴ This obviously raises various safety concerns with respect to NAV CANADA’s effective (in)ability to monitor, communicate and provide traffic separation with *all* northern flights. It also highlights the unequal access to elementary civil aviation services for operators who travel to/from remote indigenous communities.

¹⁷¹ *Manual on Air Navigation Services Economics (5th Edition)*, by International Civil Aviation Organization, Doc9161 (Montréal, QC: International Civil Aviation Organization, 2013) at xi.

¹⁷² *Ibid.*

¹⁷³ Source: *Pilot Procedures for Photographic Survey Flights Flight Planning, Coordination, and Control*, by NAV CANADA (Ottawa, ON: NAV CANADA, 2022).

¹⁷⁴ Privy Council Office, *supra* note 7 at 710: “In the absence of radar, separation between aircraft must be based on time, distance, speed and altitude computations. The separation required under such procedures was said to be approximately ten times that required under a radar condition and, therefore, less efficient”.

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Recently implemented technology, such as *space-based automatic dependent surveillance-broadcast* (ADS-B),¹⁷⁵ is now thankfully filling that gap by relying on satellite technology to connect aircraft with ANS units,¹⁷⁶ and thus enabling remotely-based air navigation services¹⁷⁷ without the need for traditional ground-based ANS systems (e.g., antennas and beacons).¹⁷⁸ That being said, ADS-B will only be required by the MOT in all categories of controlled airspace at the earliest by 2026 and there is no indication that it will become required in uncontrolled airspace in the foreseeable future,¹⁷⁹ despite the latter being prevalent across Northern Canada.

Consequently, the gap in ANS coverage up North will persist until ADS-B aircraft equipment becomes mandatory under law for all aircraft throughout Canadian airspace, in contrast with the U.S. for example where it has been a legal requirement since 2020.¹⁸⁰ For the time being, vast areas of land remain outside NAV CANADA's current radio communication range

¹⁷⁵ Transport Canada, "Advisory Circular (AC) No. 700-009 - Automatic Dependent Surveillance - Broadcast (ADS-B) Operational and Maintenance Considerations", (2 July 2021), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/reference-centre/advisory-circulars/advisory-circular-ac-no-700-009>>: "ADS-B: means Automatic Dependent Surveillance Broadcast System and is a surveillance system that uses a global navigation satellite system, aircraft avionics, and ground and/or space-based infrastructure to accurately and quickly transmit flight information. This includes aircraft identification, position, altitude, and velocity between aircraft and air traffic control. This signal can be captured on the ground or in space for surveillance purposes (ADS-B-out) or on-board other aircraft for air traffic situational awareness (ADS-B-in) and airborne separation assistance".

¹⁷⁶ NAV CANADA, "Space-Based ADS-B: Optimizing the Benefits of Space-based ADS-B", (2024), online: NAV CANADA <<https://www.navcanada.ca/en/air-traffic/space-based-ads-b.aspx>>: "An aviation industry milestone was reached in March 2019 with the launch of space-based automatic dependent surveillance-broadcast (ADS-B). This revolutionary system offers full continuous global air traffic coverage extending to the 70 percent of the world's airspace that previously did not have air traffic surveillance. Aireon is providing the first fully global air traffic service (ATS) surveillance system using a space-based ADS-B receiver network hosted on the Iridium NEXT satellite constellation. Each ADS-B payload on the linked network of 66 satellites receives messages from equipped aircraft that include position, speed and heading. These position updates are received by NAV CANADA within two to four seconds of their broadcast by the aircraft transponder".

¹⁷⁷ Transportation Safety Board of Canada, *supra* note 165 at 175: "The structure of air navigation services and air traffic services can reduce sector pressures by using ADS-B technology to use actual aircraft positions to monitor traffic and prevent collisions and in turn increase the safety of the service provided. Furthermore, ADS-B has the potential to improve survivability by providing accurate position information to search and rescue resources so that they can find and rescue survivors in a timely manner".

¹⁷⁸ NAV CANADA, "New ADS-B Mandate to enhance aircraft operations in Canada", (2022), online: NAV CANADA <www.navcanada.ca/en/news/news-releases/new-ads-b-mandate-to-enhance-aircraft-operations-in-canada.aspx>.

¹⁷⁹ *Ibid.*

¹⁸⁰ See *Code of Federal Regulations* at 14 CFR 91.225 and 14 CFR 91.227. Federal Aviation Administration, "ADS-B Air Traffic Control (ATC) Applications", (7 February 2023), online: *Federal Aviation Administration* <https://www.faa.gov/air_traffic/technology/adsb/atc>; Jim Moore, "Canada commences ADS-B trials - Mandatory use remains on hold", (2022), online: *Aircraft Owners and Pilots Association* <<https://www.aopa.org/news-and-media/all-news/2022/january/13/canada-commences-ads-b-trials>>.

and surveillance radar coverage. This effectively leaves northern pilots completely on their own and unreachable when flying into remote areas of the North, such as the Arctic circle,¹⁸¹ often with no reliable means of monitoring by NAV CANADA.

With these examples in mind, it is important to understand the policy origins behind the scarcity of ANS services in the North. In the 1980s, when air navigation services were still provided by the MOT, Justice Dubin noted that the “uniform application of policies, standards and criteria for the provision of air navigation facilities and services in all areas of Canada, including the Arctic, resulted in the Arctic Regions not receiving many of these benefits,”¹⁸² namely due to the lower-traffic volume in the North. In other words, areas with lower traffic volumes lacked justification for critical ANS investments. Four decades later, the same policy and discriminatory effects seemingly continue to prevail in the 21st century, wherein ANS resource allocation still favors southern regions and neglects the North. Why is that?

It must first be acknowledged that this resource allocation is not, in itself, in opposition with how other public resources are typically allocated in Northern Canada, where population density and economic activity volumes are admittedly much smaller. Despite the discriminatory effects on local indigenous populations, there is no *intentional* policy that expressly aims to preclude northern operators from being afforded equal ANS standards and coverage, as compared to the South and internationally (i.e., ICAO SARPs). In fact, the positioning and staffing of ANS facilities has been historically based on a cost-benefit formula that considers annual costs (e.g., building and maintaining facilities, staff salaries and benefits, training, etc.) against the potential safety

¹⁸¹ Despite its remoteness, the Canadian arctic is home to 200,000 inhabitants who rely extensively on civil aviation. See Global Affairs Canada, “Canada and the Circumpolar Regions”, (2024), online: *Government of Canada* <www.international.gc.ca/world-monde/international_relations-relations_internationales/arctic-arctique/index.aspx?lang=eng>.

¹⁸² Privy Council Office, *supra* note 7 at 793.

(accident reduction) and economic benefits (i.e., more efficient and cost-saving flight routes optimized by closer air traffic separation) yielded by nearby ANS services.¹⁸³

In other words, an area with more air traffic, but also less expensive to operate in, is by its very nature more likely to benefit from nearby ANS.¹⁸⁴ *Vice versa*, making an ANS service available in low-volume regions in Northern Canada, further away from urban centres and major highways, is less likely, as it will be more expensive to build¹⁸⁵ and perhaps more costly to staff, especially with the possibility of added isolation and relocation premiums, not to mention the cost of flying up ANS staff to repair, calibrate and upgrade navigational equipment.¹⁸⁶ Moreover, the low traffic volume may not be sufficient—from a strict policy perspective—to justify the presence of ANS assets in remote areas. In other words, the cost to provide northern indigenous communities with adequate ANS coverage exceeds the relative cost to serve southern air networks.

Consequently, this funding and revenue model is not sensitive to the North's actual needs and innate risks. Budget shortfalls and constraints are also more acute in the North. Even if the funding of the North was increased to be equivalent to that of the South, that funding would still fall short of the level of ANS services currently available in other parts of the country. Albeit grounded on a rationale, this long-standing policy is discriminatory and puts the North at an obvious disadvantage, as the volume of activity is lower and the cost of establishing ANS infrastructure is much higher. Consequently, ANS services are generally sparser up North.

¹⁸³ *Ibid.* at 726–727.

¹⁸⁴ E.g., closer to existing urban centres where existing services and infrastructure alleviate the financial burden of establishing an ANS unit, versus the North where living costs for staff and infrastructure expenditures are much higher, particularly since personnel, supplies and equipment may be flown in to establish, operate and maintain these costly facilities.

¹⁸⁵ Dawson & Greene, *supra* note 12 at 6.

¹⁸⁶ See NAV CANADA, “Unusual flight tracks? It’s probably our flight inspection aircraft”, (2024), online: NAV CANADA <<https://www.navcanada.ca/en/news/blog/unusual-flight-tracks-its-probably-our-flight-inspection-aircraft.aspx>>.

This disadvantage is further exacerbated by the unique operational challenges and hazards (e.g., climate, terrain and seclusion) present across the far-flung northern regions of Canada, which arguably warrant stronger ANS backing for pilots. The latter nonetheless experience the opposite treatment with visibly porous defense layers under the Swiss Cheese Model due to inferior ANS coverage. Accordingly, there should be an enhanced form of ANS coverage to support northern operations, as even superficially equal services (to the South) would be grossly inadequate to mitigate the innate risks of the North and the operational challenges of flying into remote and isolated communities.

Yet, the current resources allocation puts northern aviation at a significant disadvantage and in a precarious situation in the absence of a critical safety net which is practically non-existent in certain areas of the North. Consequently, ANS are either lacking or not provided in a meaningful way, thus increasing the discriminatory effects of Canada's civil aviation regime towards northern indigenous communities. As noted by Justice Dubin, by maintaining a policy wherein all ANS resources are invested solely in proportion to an area's population and/or activity volume, Canada remains (to this day) at risk of failing elementary safety requirements up North:

There will be little, if any, improvement if traffic is to remain the sole criterion for determining the need for further facilities. This is the basis of the present plan. What is needed is a re-evaluation so that, in future, greater regard would be given to the special hazards encountered when flying into airports in the remote areas, and a greater emphasis would be given to safety-related requirements.¹⁸⁷

When comparing the North with the South, the unavoidable clash between finite public resources and the vast area of land to cover inevitably results in an asymmetrical ANS coverage,¹⁸⁸ which can, combined with other prevailing hazards found in northern air operation,

¹⁸⁷ Privy Council Office, *supra* note 7 at 810.

¹⁸⁸ *Ibid.* at 792: "It may be noted that the criteria on which the provision of a facility or service can be supported, cater essentially to the scheduled operations. Of course, once provided, all other segments of civil aviation may use these facilities/services. Resources are simply not available to provide sophisticated electronic equipment such as the ILS or weather and communications services at every location where there would be limited usage. Therefore, it is essential to weigh each stated requirement very carefully from a cost-benefit point of view and to establish relative priorities of each project. The only exception, of course, is the urgent provision of a facility or service to meet a safety-related requirement".

further inhibit the safety of northern aviation as well as the wellbeing of its indigenous benefactors. Consequently, indigenous communities are deprived from essential services that are substantively equal to those available to the rest of Canada in its southern regions. Indeed, there have been repeated reports of service gaps, delays and denials due to the gross underfunding of northern ANS services. As we will see in the following three subsections, Canada's long-standing ANS resource allocation model, which predates Canada's devolution of civil aviation infrastructure, has had damaging and persisting effects on the intended safety benefits of ATC/FSS units, weather services and navigational aids.

4.2 Air Traffic Controllers and Flight Service Stations

Across the country, NAV CANADA, relies on air traffic controllers in controlled airspace,¹⁸⁹ as well as on FSS¹⁹⁰ administering designated mandatory frequencies, to manage air traffic. ATC units are mainly situated at busier airports,¹⁹¹ whilst FSS units are usually established at medium-sized airports meeting a certain traffic volume threshold and/or provide remote ANS support for operations in non-controlled airspaces.¹⁹² Regardless of their specific nature, both ATC and FSS services provide invaluable assistance to pilots, namely by offering up-to-date weather information validated by onsite specialists; ensuring situational awareness by tracking

¹⁸⁹ ATC is defined as a "service provided for the purposes of (a) preventing collisions between (i) aircraft; (ii) aircraft and obstacles; and (iii) aircraft and vehicles on the manoeuvring area; and (b) expediting and maintaining an orderly flow of air traffic." ATC units have full authority over aircraft within their airspace, who must abide by ATC orders, whereas FSS units solely provide non-binding advisory services to aircraft within their zone. *Transport Canada aeronautical information manual*, by Transport Canada, TC AIM-TP14371E (Ottawa, ON: Government of Canada, 2021) at 27; see also *Annex 11 to the Convention on International Civil Aviation - Air Traffic Services (15th Edition)*, *supra* note 163 at 2–2.

¹⁹⁰ An FSS is an air traffic service unit "that provides services pertinent to the arrival and departure phases of flight at uncontrolled aerodromes and for transit through a mandatory frequency (MF) area."; Privy Council Office, *supra* note 7 at 739: "[FSS] provide an advisory service to aircraft, and no attempt is made to exercise any form of control. The flight service specialists provide an advisory service to both en route aircraft within approximately 50 miles of the airport and arriving or departing aircraft within approximately 10 miles of the airport. Since most of the airports in Canada are uncontrolled and many of them are in remote areas of the country, the flight service specialists provide an invaluable service to aviation safety". Transport Canada, *supra* note 189 at 31.

¹⁹¹ NAV CANADA, "Our Facilities", (2024), online: NAV CANADA <<https://www.navcanada.ca/en/our-facilities.pdf>>: "At busier airports, air traffic controllers in our towers issue pilots takeoff and landing clearances, along with instructions for maintaining a safe, orderly flow of traffic on runways, taxiways and in airspace immediately surrounding the airport".

¹⁹² *Ibid*: "At less busy airports, flight service specialists in our stations provide advisory services including information on air traffic in the area, runway conditions, wind and weather information, coordinate airport vehicle operations such as snow removal, and emergency assistance".

surrounding aircraft and ground vehicles (visually and on their radars); avoiding mid-air collisions through timely communications; providing *ad hoc* assistance in the event of an emergency; or even responding to occurrences or reporting infractions that may not otherwise be witnessed at an aerodrome with no ANS services.¹⁹³

By providing human eyes on the ground, as well as providing precise knowledge of surrounding weather and air traffic through their modern ANS equipment, ATC and FSS units provide critical support to aircrews, particularly in the challenging operating conditions experienced up North. Unfortunately for northern operators, the majority of ATC/FSS facilities are found in Southern Canada, with many northern regions still unreachable by current NAV CANADA systems, for the reasons outlined in the previous subsection.¹⁹⁴

The remainder of Canadian airspace is *de facto* uncontrolled. In such airspaces, namely in the vicinity of aerodromes, pilots “are responsible for keeping safe distance from all other aircraft,”¹⁹⁵ namely by monitoring designated frequencies and making regular position reports to ensure situational awareness and avoid conflicts. Unlike major airports in the South however, most northern aerodromes are uncontrolled,¹⁹⁶ meaning that operators flying into remote indigenous communities do not have the benefit of onsite ANS staff to provide crucial information (e.g., weather/runway conditions),¹⁹⁷ critical guidance during landing approaches and proper air traffic separation.¹⁹⁸

¹⁹³ Privy Council Office, *supra* note 7 at 750–751.

¹⁹⁴ *Ibid* at 746: “Unfortunately, the financial restraint has had its greatest impact on the remote areas of Canada where flight service stations [...] are most needed. [...] In the determination of the location of control towers the amount of traffic is a major factor to be considered since the principal service supplied is that of separation of traffic. In the determination of the location of flight service stations however, traffic should not be the major criterion. There are many remote areas where there are presently few, if any, navigational aids, and in many of these areas, by reason of terrain and weather, flying conditions are the most hazardous. It is in such areas, even though of limited traffic, that the need for flight service stations and navigational aids is the greatest”.

¹⁹⁵ NAV CANADA, “Canada’s Airspace”, (2024), online: NAV CANADA <<https://www.navcanada.ca/en/canadas-airspace.pdf>>.

¹⁹⁶ Privy Council Office, *supra* note 7 at 739.

¹⁹⁷ Transportation Safety Board of Canada, *supra* note 165 at 40.

¹⁹⁸ When conducting an IFR flight within uncontrolled airspace, pilots must – depending on the specific nature of an aerodrome – obtain clearances from ATC specialists when flying to/from a northern airport. This clearance is provided remotely, meaning that there is no onsite or nearby ANS staff to validate key information. See Transport Canada, “IFR

This obviously removes several safety defences under the Swiss Cheese Model and increases risks, such as mid-air collisions or entering adverse weather unintentionally. More concerning is that IFR flights to/from uncontrolled aerodromes are effectively managed remotely by NAV CANADA, whose staff provides IFR clearances virtually from the comfort of an office, often several hundred miles away from the aerodrome itself, without the benefit of having actual “boots on the ground” to validate key information. This particular gap was a major contributing factor in the deadly accident in Cranbrook, British Columbia, which triggered the Dubin Inquiry.¹⁹⁹

More specifically, IFR flights are routinely cleared to/from uncontrolled aerodromes²⁰⁰ by ANS staff working in area control centres (ACC)²⁰¹ who rely solely on their radar and computer screens to provide basic traffic separation and issue flight authorizations to northern aircraft operating in IFR weather conditions. Even then, not every commercial flight is operated under an IFR flight plan, particularly in the North, which results in many aircraft flying to/from northern indigenous communities—literally “under the radar”—without the benefit of crucial air navigation services.

Procedures at Uncontrolled Aerodromes”, (2024), online: *Government of Canada* <https://tc.canada.ca/sites/default/files/migrated/19_aa_19_tc_ifr_poster_en_01.pdf>.

¹⁹⁹ This was a key deficiency that contributed to one of Canada’s deadliest air tragedies, when Pacific Western Airlines Flight 314, a Boeing 737-200, collided with a snow plow whilst landing in Cranbrook, British Columbia. Cranbrook was an uncontrolled airport; hence Flight 314 was controlled remotely by ATC in Calgary. On approach, Flight 314 was unaware that snow removal operations were ongoing, however, due to miscommunication it attempted to land, then suddenly initiated a go-around when it became aware of the snow plow on the runway, before losing control and crashing left of the runway. 49 occupants were fatally injured in this event, which ultimately triggered the Dubin Inquiry.

²⁰⁰ Privy Council Office, *supra* note 7 at 665: “At a specified point outside of the control zone, the pilot approaching a controlled airport will contact the airport control tower. From this point on the arrival procedures for both VFR and IFR traffic are similar: the pilot must obtain clearance to enter the zone, although IFR aircraft will usually be ‘handed-off’ whereas VFR traffic will be unannounced. Prior to landing at a controlled airport, the aircraft must obtain landing clearance which is given on final approach. After touchdown the aircraft moves clear of the runway and changes to ground control frequency to request clearance to the desired location on the airport. [...] If the airport has a control tower, landing and taxi clearance may be given with the light signals previously mentioned. At uncontrolled airports Transport Canada has designated a mandatory frequency (MF) to be used by all aircraft within a specified distance of the aerodrome. IFR arrivals are obligated to report at a number of points during the instrument approach and VFR arrivals report upon entering the mandatory frequency area, upon joining the circuit pattern and on final approach”.

²⁰¹ NAV CANADA, *supra* note 191: “Canada’s airspace is divided into flight information regions (FIRs), and each one has its own area control centre. Inside these centres, air traffic controllers help ensure pilots keep safe distance from other aircraft by providing information and instructions to enroute traffic as well as aircraft approaching or departing airports. Training, engineering and technical operations employees also work out of these centres to support our services”.

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Needless to say that the above-mentioned factors significantly increase the potential for accidents in the absence of ANS staff to monitor aircraft and mediate traffic conflicts.²⁰² Such risks were highlighted in a 2008 mid-air collision in northern Labrador, when two de Havilland DHC-6-300 Twin Otters, one operated by Air Labrador (Flight LAL205) and the other by PAL (Flight SPR961), collided on a VFR approach to Natuashish in visual meteorological conditions, with both flights originating from Goose Bay, Labrador.²⁰³

The involvement of a PAL Twin Otter was not the only evocative connection with the 1999 PAL crash discussed previously in Chapter 4. Natuashish was coincidentally the newly established reserve for the same Mushuan Innu community that was relocated in 2002 from the now-abandoned settlement of Davis Inlet 10 kilometers away.²⁰⁴ The 2008 mid-air collision was fortunately not as tragic, as both aircraft were able to land successfully without any injury. Nonetheless, the PAL aircraft did suffer *substantial* damage on its right aileron, while the Air Labrador aircraft sustained minor damage to its left horizontal stabilizer, illustrating how this occurrence was inches away from disaster (see Figure 2).²⁰⁵

²⁰² Transportation Safety Board of Canada, “Aviation Investigation Report A08A0147 - Mid-Air Collision, Provincial Airlines Limited, de Havilland DHC-6-300 Twin Otter, C-FWLG and Air Labrador de Havilland DHC-6-300 Twin Otter, C-FGON, Natuashish, Newfoundland and Labrador, 04 November 2008”, (27 April 2010), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2008/a08a0147/a08a0147.html?wbdisable=true#4.0>> at 11: “While recommended by TC, there is no requirement in the CARs for mandatory communications while operating under VFR at uncontrolled airports served by an ATF. This lack of unambiguous guidance and regulation pertaining to radio communication and circuit-joining procedures at uncontrolled airports served by an ATF increases the risk of collision”.

²⁰³ *Ibid.* at 2–3.

²⁰⁴ “A decade after the people of Davis Inlet were relocated, they are still hunting demons”, *The Globe and Mail* (6 March 2015).

²⁰⁵ Transportation Safety Board of Canada, *supra* note 202 at 5: “LAL205’s left horizontal stabilizer impacted SPR961’s right aileron. SPR961’s aileron was partially crushed in a downward and forward direction. LAL205’s horizontal stabilizer’s rubber de-ice boot was torn, the boot had scuff marks consistent with SPR961’s aileron rivet pattern, and the outer tip of the horizontal stabilizer had localized crushing”.

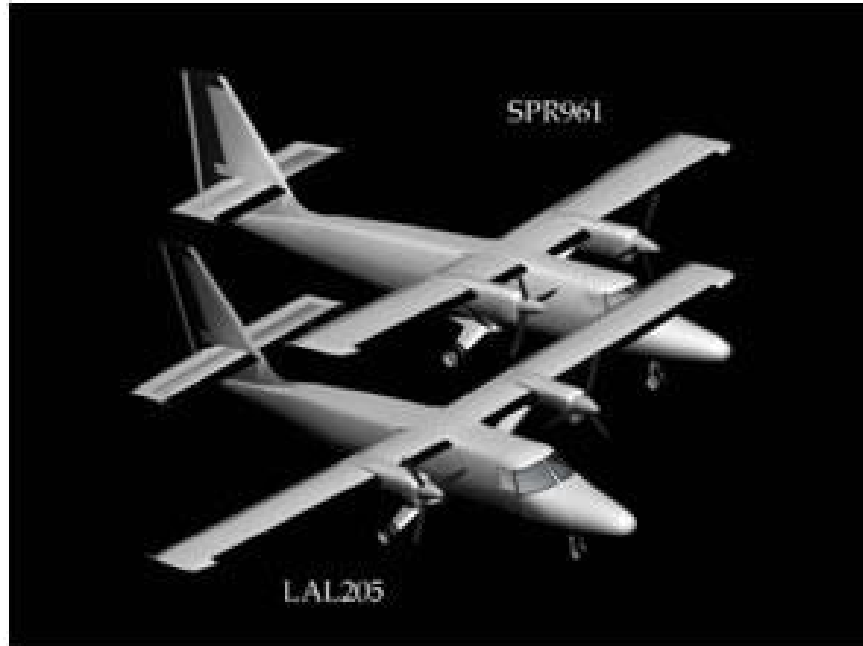


Figure 2—Aircraft Orientation at Impact²⁰⁶

This was indeed a very close call, as a slight difference in the flight path could have led to a violent mid-air collision that would have instantly destroyed both aircraft.²⁰⁷ This would have led to a very tragic outcome for the 14 occupants onboard both aircraft.²⁰⁸ This near miss was a perfect illustration of how disparities in ANS coverage in Northern Canada remove critical safety defences (i.e., air traffic separation) that are otherwise common in southern airports and invaluable in preventing accidents. It is indeed alarming to realize that a northern fly-in settlement—Natuashish, which is serviced by scheduled commercial flights utilizing large aircraft, did not have any form of ANS coverage to provide traffic separation.²⁰⁹

²⁰⁶ *Ibid.*

²⁰⁷ See CBC News, “Who hit whom? Airlines differ over causes of mid-air contact”, (6 November 2008), online: *CBC News* <<https://www.cbc.ca/news/canada/newfoundland-labrador/who-hit-whom-airlines-differ-over-causes-of-mid-air-contact-1.728471>>.

²⁰⁸ Flight SPR 961 was operated by two aircrew members and carrying 10 passengers, and Flight LAL205 was a cargo aircraft with a captain and FO onboard. See Transportation Safety Board of Canada, *supra* note 202 at 3.

²⁰⁹ Moreover, the TSB noted in its ensuing investigation that northern pilots often perceive the risk of conflict with other aircraft as being improbable given the low volume of traffic in northern regions, and thus become complacent over time. This complacency - a human factor - combined with the lack of ANS coverage—a State Factor—therefore create a gaping hole in the Swiss Cheese Model wherein the probability for mid-air collisions increases exponentially in remote northern locations where there are no nearby ATC/FSS units. See *ibid* at 11.

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The TSB investigation further revealed that both aircraft had not followed standard procedures and CARs requirements²¹⁰ for landing at an uncontrolled airport.²¹¹ This occurrence therefore illustrated another benefit of having proper ANS coverage, in that it enhances the regulatory compliance and accountability of northern air operators. Because these units are required to report occurrences and infractions to the relevant authorities, aircrews are less likely to deviate from the CARS as they are fully aware that nearby ATC and FSS will report them to TC if they do not obey with the prescribed safety norms and procedures. As such, the presence of ANS staff can act as a powerful deterrent, and *vice versa*, its absence—combined with the lack of oversight up North—essentially leaves northern operators with little accountability and with free reins to operate outside the legal boundaries prescribed by the CARs.

In this context, a key example of the preventative value of onsite ANS resources can be found in the December 2009 crash of a commercially operated Beechcraft King Air (Flight ET822). Flight ET822 was an air-taxi flight on a typical winter journey across the Province of Québec, between Val-d'Or and Chicoutimi/Saint-Honoré Airport (CYRC), both within the defined boundaries of Northern Canada. At the time, the ATC tower at CYRC was operated under reduced hours and was scheduled to be offline that evening, meaning that no control or advisory services were available at the intended time of arrival for Flight ET822,²¹² similar to the tragic scenario faced by Wapiti Aviation Flight 402.

With the tower closed that night, there were also no available weather services specifically covering CYRC,²¹³ hence why the aircrew was unable to obtain accurate weather updates for their destination, even though they were expected to fly through a challenging low-pressure

²¹⁰ *Canadian Aviation Regulations*, SOR/96-433 at para 602.96(3)(b).

²¹¹ Transportation Safety Board of Canada, *supra* note 202 at 11.

²¹² *Ibid.* s 1.8.1

²¹³ Transportation Safety Board of Canada, "Aviation Investigation Report A09Q0203 - Controlled Flight into Terrain, Exact Air Inc., Beech A100, C-GPBA, 3 nautical miles NW, Chicoutimi/Saint-Honoré Airport, Quebec, 09 December 2009", (8 March 2012), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2009/a09q0203/a09q0203.html>> at 1.

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weather system that night. The aircrew therefore relied on weather reports issued in neighbouring locations where poor visibility, low ceilings, gusty winds and snow showers varying in intensity were forecasted.²¹⁴ Flight ET822 was essentially facing the brunt of the typical challenges associated with winter flying in Northern Canada, yet it could not benefit from the critical guidance and assistance of air navigation services on its evening approach into Chicoutimi.

During its IFR approach, Flight ET822 attempted a non-precision approach but descended below the MDA.²¹⁵ This was another fateful decision mimicking the deadly sequence in the final moments of Wapiti Flight 402 (1984) and PAL Flight 960 (1999). By doing so, and without the support of ANS services, the safety margins were significantly reduced.²¹⁶ Shortly thereafter, the aircraft crashed into a forest approximately 3 nautical miles short of the runway,²¹⁷ injuring two passengers and killing both aircrew members.²¹⁸



Figure 3— The Wreckage of Flight ET822²¹⁹

²¹⁴ *Ibid.* at s 1.4.

²¹⁵ *Ibid.* at 34.

²¹⁶ *Ibid.* at 35.

²¹⁷ *Ibid.* at 3.

²¹⁸ *Ibid.* at 4–5.

²¹⁹ *Ibid.* at 4.

The ensuing TSB investigation could not precisely determine why the aircrew descended prematurely below the MDA.²²⁰ However, the accident clearly demonstrated that in an uncontrolled airspace environment, i.e., without a manned ANS unit onsite, the risk of an accident due to non-compliance with the CARs, or inadvertent deviations from IFR rules, are significantly increased. Had the aircrew benefited from onsite ANS resources and guidance into Chicoutimi, Flight ET822 likely would not have flown below the MDA for several reasons. With ANS staff present at CYRC, the aircrew would have benefited from precise weather information indicating the unfeasibility of the approach. Furthermore, under the watchful eye of ATC, the pilots would have been deterred from flying below the MDA and/or prompted to “go around” by the tower. The tragic crash of Flight ET822 thus illustrates the critical safety value of ANS personnel at northern airports, where challenging weather and operational environments often prevail. This tragedy also demonstrated how the absence or reduced presence of ANS staff in Northern Canada—a *State Factor*—increases the chances of an accident occurring.

Unfortunately, due to the significant costs associated with the salaries²²¹ and specialized equipment and facilities required to operate these services, many Canadian ATC and FSS operations have been compressed, while other ANS units have even been decommissioned over the years, as part of cost-saving measures.²²² This is particularly concerning because the North—an area with infamously challenging flying conditions, inhospitable terrain and unpredictable microclimates—is where the need for ATC and FSS units may be the greatest to effectively support northern air operations.²²³ While this disparity is justified by the lower air traffic volume, it nonetheless exacerbates the risks faced by many northern operators and fails to guarantee an

²²⁰ *Ibid.* at 38: “In this context, 2 plausible scenarios remain: Both pilots were looking outside in the hope of acquiring visual references because they believed that the runway was close in front; or the pilots saw lights in the distance, which induced them to focus their attention outside in order to continue the approach”.

²²¹ Petsikas, *supra* note 5 at 25: “The single biggest cost centre for NAV CANADA has been, and remains labour and their concurrent defined benefit pension funding obligations pursuant to applicable federal regulations in this respect”.

²²² Privy Council Office, *supra* note 7 at 745.

²²³ *Ibid.* at 746.

adequate level of safety for northern air operations.²²⁴ Even though Justice Dubin recommended forty years ago to have at a minimum a FSS unit at each airport serviced by a scheduled commercial air service,²²⁵ many northern operators continue operate to/from uncontrolled aerodrome, where effective air traffic separation is lacking, and the probability of unsafe landing approaches and mid-air collisions is increased.²²⁶

4.2.1 Weather Services

As part of its (delegated) ANS mandate, NAV CANADA is also concurrently the dedicated provider for aviation weather services in Canada.²²⁷ It provides pilot briefing services, in-flight weather updates and a variety of weather observation products (e.g., Meteorological Terminal Air Reports (METAR),²²⁸ weather radar, satellite imagery, aerodrome forecasts, in-flight turbulence and icing projections, weather charts, etc.), which can be accessed 24/7, online or by telephone, and free of charge.²²⁹ To deliver these services, NAV CANADA relies on weather data collected by Environment Canada, as per an agreement between both organizations,²³⁰ to prepare its various weather products,²³¹ but also supplements these with information collected by ANS staff located at ATC and FSS stations across the country.

²²⁴ *Ibid.* at 807.

²²⁵ *Ibid.* at 843.

²²⁶ *Ibid.* at 744 & 766: “Aircraft operations on, or in the vicinity of uncontrolled aerodromes can present a number of problems, some of which have the potential for conflict. In the absence of air (and ground) traffic control, if there is inadequate exchange of information concerning the movement of aircraft, and of aerodrome maintenance equipment, situations detrimental to safety can develop”.

²²⁷ *Aviation Weather Services Guide for Aviation Users*, by NAV CANADA (Ottawa, ON: NAV CANADA, 2017).

²²⁸ Pilot Institute, “How to Read METAR and TAF Reports”, (2020), online: *Pilot Institute* <<https://pilotinstitute.com/metar-and-taf-reports/>>: “The format of METAR reports is standardized by the International Civil Aviation Organization (ICAO) throughout the whole world. A METAR report contains information on the current weather conditions of the facility releasing the report. It is released according to a regular schedule unless sudden or exceptional weather changes occur”.

²²⁹ See generally NAV CANADA, *supra* note 227; NAV CANADA, “Flight Planning and Reporting”, (2024), online: NAV CANADA <<https://www.navcanada.ca/en/flight-planning/flight-planning-and-reporting.aspx>>.

²³⁰ Government of Canada, “How to use aviation weather services”, (2011), online: *Government of Canada* <www.canada.ca/en/environment-climate-change/services/types-weather-forecasts-use/aviation-services.html>.

²³¹ To view all products, see: NAV CANADA, “Aviation Weather - Forecasts and Observations”, (2023), online: NAV CANADA <https://flightplanning.navcanada.ca/cgi-bin/CreePage.pl?Langue=anglais&NoSession=NS_Inconnu&Page=forecast-observation&TypeDoc=html>.

As alluded to earlier, aerodromes operated by ANS staff have the added benefit of relying on manned weather observing systems wherein weather data is automatically collected, but can be further filtered, interpreted and revised by onsite specialists.²³² Consequently, in areas and aerodromes where there is no onsite ANS facility, i.e., most of Northern Canada, aircrews do not have access to more accurate aerodrome forecasts (TAF)²³³ and METARs,²³⁴ which are usually prepared by onsite ANS specialists.²³⁵ When no TAF and METAR is available at an aerodrome, northern pilots must rely *inter alia* on high-level weather forecasts interpreting data obtained from Environment Canada surface weather stations, voluntary pilot reports (PIREPs)²³⁶ and informal updates by local operators.

As a mitigation measure, some uncontrolled northern aerodromes are equipped with Automated Weather Observing Systems (AWOS),²³⁷ but this equipment has fundamental limitations and flaws, particularly with respect to the accuracy of reported ceilings and visibility.²³⁸ Moreover, the TSB has noted that the number of AWOS units currently available in Northern

²³² Éva Mekis et al, “An Overview of Surface-Based Precipitation Observations at Environment and Climate Change Canada” (2018) Atmosphere-Ocean 1–25 at 4–5.

²³³ NAV CANADA, “Aviation Weather - Frequently Asked Questions (FAQ)”, (2023), online: NAV CANADA <<https://flightplanning.navcanada.ca/awws/html/doc/faq/anglais/faq-e.html#decode>>: “An aerodrome forecast (TAF) is the most probable weather conditions, within 5 miles of a given site, at the most probable time of their occurrence”.

²³⁴ SKYbrary, “Meteorological Aerodrome Report (METAR)”, (2024), online: SKYbrary <<https://skybrary.aero/articles/meteorological-aerodrome-report-metar>>. When available, METARs report the “actual weather at a specific location and at a specific time as observed from the ground”, including surface winds, visibility, runway visual range, clouds and ceilings, temperature, dew point, significant recent weather etc.

²³⁵ With the exception of AWOS, see *infra*.

²³⁶ Transport Canada, “Pilot reports (PIREPs)”, (2019), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/general-operating-flight-rules/better-pilot-decision-making/pilot-reports-pireps>>: “Pilot reports (PIREPs) are the only direct source of information on cloud heights, turbulence, visibility, winds and icing between weather reporting stations and at some airports. They’re particularly important on flights below 10,000 feet. When done properly, PIREPs give valuable information to flight service controllers, weather briefers/forecasters and other pilots. One day, your PIREP could save someone’s life”.

²³⁷ NAV CANADA, “Automated Weather Observation System - Frequently Asked Questions”, (2024), online: NAV CANADA <<https://www.navcanada.ca/en/automated-weather-observation-system---faq.pdf>>: “An Automated Weather Observation System (AWOS) is a fully configurable (ex. elevation, magnetic declination, SPECI thresholds) aviation weather system that provides continuous, real-time weather condition information and reports official observations for aviation”.

²³⁸ AWOS are also unable, for instance, to report shallow or patchy fog, tornadoes, hail, snow grains, snow pellets, ice crystal and cloud type. See Jeff Pardo, “AWOS/ASOS Lies”, (2007), online: *Aviation Safety Magazine* <<https://www.aviationsafetymagazine.com/features/awos-asos-lies/>>; NAV CANADA, *supra* note 237.

Canada is insufficient to ensure an effective weather coverage for all of Northern Canada,²³⁹ presumably due to their high unit cost varying between CAD 500,000 and 1 million each.²⁴⁰

As noted by the OAG in its 2017 report and by Justice Dubin in the 1980s, there is an insufficient number of weather stations, all types combined, to cover the vast area flown by northern air operators,²⁴¹ meaning that the accuracy and timeliness of weather data and forecasts may be significantly hindered.²⁴² With many Arctic weather stations shut down in recent years,²⁴³ it quickly becomes apparent that the porous ANS coverage mentioned previously is also emulated in the deficient aviation weather coverage up North, largely due to the fact that the most precise weather data is obtained from the location of existing ATC/FSS units and general-purpose weather stations, which are mainly congregated in Southern Canada. Consequently, with fewer stations separated by larger distances, the coverage of meteorological services is far more inferior in the North.²⁴⁴

The lack of sufficient weather stations in Northern Canada is particularly concerning as it can create “blind spots” in weather reports and forecasts, meaning that no accurate or timely data may be available for pilots flying into remote aerodromes.²⁴⁵ While pilots usually contact NAV CANADA flight service centres to obtain a weather briefing by specialists as part of their routine flight planning preparation,²⁴⁶ even the most proficient weather specialist may not be in a position

²³⁹ Transportation Safety Board of Canada, *supra* note 165 at 42.

²⁴⁰ Dawson & Greene, *supra* note 12 at 6.

²⁴¹ In 2013, NAV CANADA sought co-funding with TC to build 40 AWOS stations, however TC never committed any funds. Consequently, AWOS units were built in some locations by NAV CANADA, but in a very limited number. See Office of the Auditor General of Canada, *supra* note 147 at paras 6.28 & 6.44.

²⁴² Privy Council Office, *supra* note 7 at 806: “The generally poor weather in Northern Ontario, coupled with the lack of communications and weather reporting stations, is of great concern to the operators and could have a potentially adverse effect on safety of flying operations in the area. Quality of forecasts, availability of weather information, and accessibility to aviation weather services were uniformly described as not meeting the level of service required”.

²⁴³ Dawson & Greene, *supra* note 12 at 5.

²⁴⁴ See Figure 1 in Mekis et al, *supra* note 232 at 4.

²⁴⁵ Dawson & Greene, *supra* note 12 at 6: “This lack of meteorological information means that some flights simply cannot go ahead because the required information on weather conditions at the destination airport is unavailable”.

²⁴⁶ NAV CANADA, *supra* note 191: “Flight service specialists working out of our flight information centres deliver flight-planning services, weather information and advisories to pilots, and coordinate with emergency services when an aircraft is missing or overdue on its flight plan”.

to make a 100% accurate assessment and prediction due to the smaller number of stations in that region and the resulting paucity of available information. As a result, northern pilots risk flying blindly and unintentionally into adverse weather that may not have been picked up by Environment Canada and NAV CANADA.

Granted, the advent of the Internet and satellite-based weather services has greatly improved the access to reliable weather data. However, not every remote northern settlement has dependable Internet connections to assist pilots in obtaining accurate weather data, nor does every northern operator have the budget for satellite-based weather services. As such, most northern pilots continue to rely on company dispatchers, local observers, remote flight specialists as well as NAV CANADA's free online access to local airport weather and forecasts, radar imagery, weather maps, etc.

In the absence of in-person specialists and/or comprehensive weather stations onsite, the format of remaining weather products used for northern operations remains vague, difficult to interpret, and can lack specificity for the intended point of departure and/or destination. For example, the weather predictions for many remote areas in the North (that are not covered by nearby ANS services) can only be obtained and interpreted with Graphical Area Forecast (GFA) maps,²⁴⁷ which “consists of a series of temporally adjusted weather charts, each depicting the most probable meteorological conditions expected to occur below 400 Mb (24,000 ft.) over a given area at a specified time.”²⁴⁸

However, GFAs are rather limited as they lay out a convoluted amalgamation of weather data and forecast for a region's ceilings, precipitations, icing, progress of cold and warm fronts,

²⁴⁷ Transportation Safety Board of Canada, *supra* note 165 at 96: “In the absence of weather information from the destination aerodrome, flight planning is often based on area forecasts, as well as pilot position reports and local knowledge”.

²⁴⁸ NAV CANADA, “Information on the Graphic Area Forecast (GFA)”, (2023), online: NAV CANADA <https://flightplanning.navcanada.ca/cgi-bin/CreePage.pl?Langue=anglais&NoSession=NS_Inconnu&Page=info-gfa&TypeDoc=gfa>.

etc. In comparison with a TAF, GFAs are considerably less precise and reliable.²⁴⁹ Moreover, the format and data points used in GFAs ([see Appendix VI](#))²⁵⁰ is frankly—in the author’s opinion and prior experience flying—confusing and imprecise, particularly given the vast areas covered by the seven maps produced periodically for the Pacific, Prairies, Ontario & Quebec (combined), Atlantic, Nunavut, Yukon & Northwest Territories (combined) and Arctic regions.²⁵¹ To the untrained eye, a GFA looks like an expensive *Picasso* painting and even for seasoned pilots, the temptation to look for plain language meteorological information on commonly used websites (i.e., the Weather Network), which offer less specialized and suitable data, may lead to improper flight planning.

In an IFR situation for example, the vagueness and unreliability of some weather products (e.g., GFAs) can result in both the main and alternate destinations being unexpectedly under weather minima at the actual time of arrival,²⁵² thus potentially compelling an aircrew under pressure and/or running out of fuel to illegally attempt an unsafe landing approach at either location.²⁵³ The unpredictability of weather forecasts is further exacerbated by complex microclimates up North, which can unexpectedly change in a short period of time and endanger the safety of a flight, hence why adequate weather coverage is much needed in order to provide northern pilots with all the critical information and tools available to make safer decisions before taking off and whilst in flight.

²⁴⁹ NAV CANADA, *supra* note 233: “An aerodrome forecast (TAF) is the most probable weather conditions, within 5 miles of a given site, at the most probable time of their occurrence. A graphic area forecast (GFA), on the other hand, depicts the range of conditions that are likely throughout a large geographic domain. To have a TAF that is different than the GFA is therefore not unusual. For example, the GFA may indicate that there are isolated thunderstorms over a defined area, but the aviation meteorologist may have good reasons to believe that they may not affect a given aerodrome, so the TAF makes no mention of it. The reverse situation, however, should not occur. For example, if a TAF says freezing precipitation and the GFA does not - that would bear some investigation”.

²⁵⁰ Source: NAV CANADA, *supra* note 231.

²⁵¹ NAV CANADA, “Forecasts and Observations / Graphical Area Forecast (GFA)”, (2023), online: NAV CANADA <https://flightplanning.navcanada.ca/cgi-bin/CreePage.pl?Langue=anglais&NoSession=NS_Inconnu&Page=Fore-obs%2Fgfacn-map&TypeDoc=html>.

²⁵² When filing an IFR flight plan, an aircrew must ensure that the forecasted weather and fuel endurance will allow it to land at an alternate airport in the event that it cannot meet the weather minima at the intended point of destination. See *Canadian Aviation Regulations*, *supra* note 210 at s 705.34 & 705.35.

²⁵³ See Privy Council Office, *supra* note 7 at 659.

Based on the foregoing, the lack of accurate and timely weather coverage in the North arguably creates a palpable blind spot in the flight planning phase for northern operators and their aircrews. In the 1999 PAL crash for instance (see Chapter 4), there was no TAF or METAR available specifically for Davis Inlet. The aircrew thus had to rely on general weather reports in that region (e.g., GFAs), but could not obtain an exact account of the precise weather that was to be expected in that location. As the aircrew could not conclusively determine if an IFR approach into Davis Inlet was legally possible, the absence of accurate weather data for that location may have prevented the aircrew from confirming whether the only IFR approach available—an NDB (non-precision approach with a higher MDA limit)—was feasible that day. Had they known about the low visibility forecasted in Davis Inlet that day, perhaps that flight would have been delayed, diverted or cancelled.

Consequently, another *State Factor*—the lack of adequate weather coverage—likely played a subtle role in the tragic sequence of events that led to the crash of PAL Flight 960. *Idem* for Flight ET822, whose fate may have been more favourable had the aircrew fully grasped the severity of the adverse weather in Chicoutimi that fateful winter evening.

4.2.2 Navigation Aids

Even though State ANS functions are now delegated to NAV CANADA, it must be acknowledged from the outset that the decrepit condition of northern navigational aids is an enduring problem whose safety issues are—from an international law perspective—directly attributable to Canada in its capacity as a sovereign State and member of the *Chicago Convention*.²⁵⁴ Under both ANS governance models (pre-1990s with the MOT & post-1990s with NAV CANADA), Canadian navigational aids have been funded either through taxes, public funds or user charges,²⁵⁵ meaning that the MOT and now NAV CANADA both had the ungrateful task

²⁵⁴ See *Chicago Convention*, *supra* note 156, arts 12, 15, 28 & 37.

²⁵⁵ *Customer Guide to Charges - Effective September 1, 2020*, by NAV CANADA (Ottawa, ON: NAV CANADA, 2020) at 1: “NAV CANADA invoices and collects charges to cover the costs of the air navigation services provided or made

of delicately balancing available resources in order to optimize the overall safety of the Canadian airspace as a whole and allocate the bulk of its navigational equipment where the volume of activity justifies it and/or yields the most ANS revenues, as discussed *supra*.

It must be acknowledged that under this approach, the potential for discriminatory effects in the North are likely aggravated under NAV CANADA's current business strategy. In accordance with the *Civil Air Navigation Services Commercialization Act* (CANSICA),²⁵⁶ NAV CANADA relies on cost-recovery models wherein user charges are billed to operators for the provision of ANS services.²⁵⁷ These revenues are then reinvested proportionally in the air navigation infrastructure, including navigational aids. Once again, this approach mimics the previously mentioned resource allocation dilemma, where areas with higher activity volumes are more likely to receive a corresponding amount of funding.²⁵⁸ Prior to the creation of NAV CANADA, Justice Dubin specifically warned the MOT about the adverse effects of a cost-recovery ANS regime, under which "nav aids and other devices which save lives are given no special priority whatever under the Transport Canada system."²⁵⁹ He further stressed that:

[I]f one reviews Transport Canada's designated mandate 'to provide facilities and to foster the optimum development of the mode of transport consistently ... on a cost-recovery basis to a maximum practical extent', one detects a conflict between the notion of the public sentiment

available by the Corporation or a person acting under the authority of the Minister of National Defence. Before November 1, 1996, air navigation services were provided by the Canadian government and funded mainly through the Air Transportation Tax charged to airline passengers. This tax was rescinded on November 1, 1998. NAV CANADA now provides these services which are funded solely by air navigation fees levied on aircraft operators".

²⁵⁶ CANSICA, *supra* note 56 at s 35.

²⁵⁷ See NAV CANADA, "Details and Principles Regarding Proposed Revised Service Charges", (21 May 2020), online: NAV CANADA <www.navcanada.ca/en/finance/_localized-assets/service-charges/sca-2020_05-details-en.pdf>; NAV CANADA, *supra* note 255.

²⁵⁸ As a corporation, one must wonder if NAV CANADA's cost recovery model, under which it generates *inter alia* revenues through ANS user fees charged in accordance with CANSICA's charging principles, unintentionally fosters Southern Canada; in the South, there are much larger airlines that fly a higher volume of flights annually, in sharp contrast with Northern Canada. If more revenues are generated in the South, then logically any corporation will invest the corresponding proportion in that region to reflect its volume and business needs. Conversely, the North, which generates less revenues for NAV CANADA, is thus at a significant disadvantage if revenues are indeed distributed evenly in proportion with that region's volume, which may explain why airport infrastructure and ANS assets are both insufficient and inadequate in Northern Canada.

²⁵⁹ Privy Council Office, *supra* note 7 at 801.

of safety first and the current policy of cost recovery. It could be that this conflict is the heart of the issue of the establishment of instrument landing systems.²⁶⁰

Historically, before and after the creation of NAV CANADA, the Canadian government has thus favoured a cost-benefit approach, under which it has neglected to make sustained investments in the installation of high-end navigational aids up North, with most asset funding funnelled in the South. Consequently, in the 1980s and up to this day, “the level of navigational aids and airport facilities throughout the northern areas of Canada vary from area to area and at times from point to point, resulting, in many instances, in inadequate levels of safety regardless of the type of aircraft operated by the air carrier.”²⁶¹

More specifically, a common issue experienced at northern airports is the lack of *high-precision* navigational aids that enhance the safety of IFR landing approaches. Poor infrastructure effectively limits the capabilities of many pilots by forcing them to often rely on second-rate navigational aids, namely *non-precision approaches* limited to lateral instrument guidance. In fact, several northern airports serviced by small operators are still to this day only equipped with non-precision approaches.²⁶² Briefly, the purpose (and limitation) of non-precision approaches is “to bring the aircraft to a lateral point where the runway is in view and a visual landing can be performed,”²⁶³ often requiring a bit more maneuvering to adjust the vertical landing path once the runway is in sight. Due to their inherent limitations, non-precision approaches have more restrictive weather minima (e.g., MDAs), and can in turn inhibit an aircraft from (legally) landing into an aerodrome experiencing lower visibility and/or adverse weather.

²⁶⁰ *Ibid.* at 798: “On the other hand, if one reviews Transport Canada’s designated mandate ‘to provide facilities and to foster the optimum development of the mode of transport consistently ... on a cost-recovery basis to a maximum practical extent’ one detects a conflict between the notion of the public sentiment of safety first and the current policy of cost recovery. It could be that this conflict is the heart of the issue of the establishment of instrument landing systems.”

²⁶¹ *Ibid.* at 805–807.

²⁶² Transportation Safety Board of Canada, *supra* note 213 at 39–40.

²⁶³ EUROCONTROL, “RNAV Approaches”, (2012), online: *International Civil Aviation Organization* <www.icao.int/EURNAT/Other%20Meetings%20Seminars%20and%20Workshops/PBN%20TF/PBN%20TF8/PBNTF8%20IP08_RNAV%20approaches.pdf> at 1.

Chapter 5 — The Inadequacy of Aeronautical Infrastructure, Equipment and Services in Northern Canada

Older non-precision technology,²⁶⁴ such as NDBs,²⁶⁵ VORs²⁶⁶ or DMEs,²⁶⁷ which do not have the benefit of vertical guidance by means of an electronic glideslope,²⁶⁸ are also infamous for their technical vulnerabilities and their sensitivity to outside disturbances (e.g., prone to static interference from thunderstorms or signal issues due to topography in mountainous regions and coastline refractions), which can affect their reliability and accuracy. For these reasons,²⁶⁹ non-precision approach aids are being progressively decommissioned across Canada and replaced by more precise and safer GNSS-based²⁷⁰ instrumentation²⁷¹ (e.g., RNAV).²⁷² However, non-precision approaches are still common in some areas of the North.

²⁶⁴ Excluding area navigation (RNAV), see next paragraph.

²⁶⁵ Privy Council Office, *supra* note 7 at 657: "Another transmitter commonly used in Canada is the non-directional beacon (NDB). The signal is much like that of a commercial AM broadcast station. Because it uses the low or medium frequency band (LF/MF), the signal is not limited by line of sight. [...] The airborne radio receiver which a pilot uses to find his position relative to a NDB is called an automatic direction finder (ADF)".

²⁶⁶ See Chapter 4 *supra*.

²⁶⁷ SKYbrary, "Distance Measuring Equipment (DME)", (2024), online: SKYbrary <<https://skybrary.aero/articles/distance-measuring-equipment-dme>>: "Distance Measuring Equipment (DME) is defined as a navigation beacon, usually coupled with a VOR beacon, to enable aircraft to measure their position relative to that beacon. Aircraft send out a signal which is sent back after a fixed delay by the DME ground equipment. An aircraft can compute its distance to the beacon from the delay of the signal perceived by the aircraft's DME equipment using the speed of light".

²⁶⁸ SKYbrary, "Non-Precision Approach", (2024), online: SKYbrary <<https://skybrary.aero/articles/non-precision-approach>>.

²⁶⁹ *Flying RNAV (GNSS) Approaches in Private and General Aviation Aircraft*, by Civil Aviation Authority, CAP 773 (West Sussex, UK: United Kingdom, 2014); SKYbrary, "Area Navigation Systems", (2024), online: SKYbrary <<https://skybrary.aero/articles/area-navigation-systems>>; EUROCONTROL, *supra* note 263: "RNAV approaches have been made possible by the widespread availability of high performance RNAV systems on all types of aircraft and in particular by the use of GNSS. RNAV Approaches are described by a series of waypoints, legs, speed and altitude constraints stored in the onboard navigation database. Safety is improved by providing pilots with better situational awareness than on conventional Non-Precision Approaches (NPA) thereby reducing the risk of controlled flight into terrain (CFIT). Better access can also be provided to runways that are not equipped with precision approach and landing systems".

²⁷⁰ GNSS: Global Navigation Satellite Systems.

²⁷¹ NAV CANADA, "Notice of Change - NAVAID Modernization Program – Phase 5 National", (25 February 2021), online: NAV CANADA <<https://www.navcanada.ca/en/flight-planning/service-notices/2021-02-25-national.aspx>>; NAV CANADA, "Notice of Change - NAVAID Modernization Program – Phase 7 National", (27 January 2022), online: NAV CANADA <www.navcanada.ca/en/flight-planning/service-notices/2022-01-27-national.aspx>; Gordon Gilbert, "Canada To Decommission Hundreds of VORs, NDBs", (2019), online: *AIN Online* <<https://www.ainonline.com/aviation-news/business-aviation/2019-03-04/canada-decommission-hundreds-vors-ndbs>>.

²⁷² SKYbrary, *supra* note 269: "RNAV is a method of navigation which permits the operation of an aircraft on any desired flight path; it allows its position to be continuously determined wherever it is rather than only along tracks between individual ground navigation aids. [...] The advent of Global Navigation Satellite Systems (GNSS), mainly in the specific form of GPS, has now brought a completely new opportunity to derive an accurate three-dimensional (VNAV) position as well as a highly accurate two-dimensional (LNAV) position over an area not restricted by the disposition of ground transmitters. RNAV of sufficient accuracy is now seen ultimately as providing a replacement for all ground-based navigational aids".

RNAV approaches (area navigation systems) can now be designed and programmed by air navigation specialists without the need for traditional ground sensors (e.g., antennas),²⁷³ which are expensive to install and maintain.²⁷⁴ More specifically, global positioning system (GPS) satellite information²⁷⁵ is utilized to design and carry out precision IFR approaches based on azimuth and glide path data. With a relatively affordable investment, most northern aircraft can be upgraded with an IFR-approved GPS installed in the cockpit, enabling aircrews to conduct RNAV approaches.²⁷⁶ Accordingly, NAV CANADA has started rolling out RNAV capabilities across airports in the North, albeit with remaining gaps to this day.

However, not all RNAV approaches are capable of providing dual vertical/horizontal functions.²⁷⁷ Furthermore, because existing RNAV capabilities in Canada do not yet meet ICAO accuracy standards for a precision approach,²⁷⁸ TC does not currently consider RNAVs as “precision” approaches, regardless of the existence of dual functions, and thus subjects them to higher weather minima on par with other non-precision approaches.²⁷⁹ This is due to the lower accuracy of some RNAV approaches, which can be as low as 0.3 nautical miles on final

²⁷³ Neil Singer, “Mentor Matters: RNAV GPS Approach Minimums”, (2016), online: *Aircraft Owners and Pilots Association* <<https://www.aopa.org/news-and-media/all-news/2016/august/pilot/mentor-matters>>.

²⁷⁴ Ritchie Lengel, “Everything You Need to Know about RNAV GPS Approaches”, (2018), online: *Flying Magazine* <<https://www.flyingmag.com/everything-you-need-to-know-about-rnav-gps-approaches/>>.

²⁷⁵ EUROCONTROL, *supra* note 263: “Procedures design criteria have been developed that take into account the onboard VNAV capabilities. RNAV approaches designed to make use of both lateral and vertical guidance are referred to as Approach Procedures with Vertical guidance (APV)”.

²⁷⁶ Civil Aviation Authority, *supra* note 269; *Operational guidelines to conduct RNAV(GNSS) approaches LNAV, LNAV/VNAV and LPV*, by Direction de la sécurité de l’aviation civile (Paris, France: Direction de la sécurité de l’aviation civile, 2011).

²⁷⁷ NAV CANADA, “RNAV Phraseology”, (2020), online: NAV CANADA <<https://www.navcanada.ca/en/rnav-phraseology.pdf>>; Colin Cutler, “What’s The Difference Between LPV and LNAV/VNAV Approaches?”, (2022), online: *Bold Method* <<https://www.boldmethod.com/learn-to-fly/navigation/what-is-the-difference-between-lpv-and-lnav-vnav-and-plus-v-gps-approaches/>>.

²⁷⁸ See Transport Canada, “The vertical challenge”, (2021), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/publications/aviation-safety-letter/issue-1-2021/vertical-challenge>>.

²⁷⁹ See Transport Canada, “Advisory Circular (AC) No. 700-023: Required Navigation Performance Approach (RNP APCH)”, (2013), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/reference-centre/advisory-circulars/advisory-circular-ac-no-700-023>>.

approach²⁸⁰—the equivalent of five American football fields²⁸¹—meaning that landing paths can sustain significant lateral variations, which obviously raises its share of safety concerns.

For both older and newer systems, non-precision approaches are more challenging than precision approaches utilizing lateral and vertical glide paths,²⁸² as the former “require an effective risk assessment at the aircraft operator level and timely risk awareness and risk mitigation on the part of the crews who fly them.”²⁸³ When enabled, the lateral functions are also less precise, making aircraft vulnerable to deviations during landing—the most critical phase of flight—and potentially missing their target. These limitations can be particularly consequential, as they can trigger flight interruptions (i.e., a cancellation, delay or diversion to another airport) and more broadly disrupt the air connectivity of remote indigenous communities.²⁸⁴ Even worse, second-rate navigational aids can wear down or remove critical safety barriers, as non-precision approaches are evidently less accurate by nature.

In addition, most non-precision approaches present a dilemma for many northern pilots. On the one hand, the lower accuracy offered by non-precision navigational aids presents an operational constraint, in that it precludes an aircraft from flying into certain weather conditions, as the MDA is much higher than a precision approach. Conversely, pilots trained and/or accustomed to flying with a lower MDA in precision-approaches found at larger airports may be conditioned and tempted to illegally fly below the MDA, and erroneously (gu)estimate their

²⁸⁰ *Ibid.* at s 1.1.

²⁸¹ An American football field, including both endzones, is 360 feet long.

²⁸² See Transport Canada, *supra* note 278; Tom Turner, “Non-Precision Stability”, (2020), online: *Aviation Safety Magazine* <www.aviationsafetymagazine.com/instrument_flying/non-precision-stability/>; Alton Marsh, “Non-Precision Approaches”, (1998), online: *Aircraft Owners and Pilots Association* <www.aopa.org/news-and-media/all-news/1998/june/flight-training-magazine/nonprecision-approaches>; Thomas Horne, “Diving and Driving: Some Non-Precision Approaches are Better than Others”, (2020), online: *Aircraft Owners and Pilots Association* <<https://www.aopa.org/news-and-media/all-news/2020/march/pilot/on-instruments-diving-and-driving>>.

²⁸³ *Non-Precision Approach Using Ground Aids*, Safety Briefing Note 05 (London, United Kingdom: The Honourable Company of Air Pilots, 2021).

²⁸⁴ Dawson & Greene, *supra* note 12 at 6.

remaining landing path, with deadly consequences as shown by the 1984 Wapiti Aviation and 1999 PAL accidents. In this context, the TSB has concluded that:

A high proportion of Controlled Flight Into Terrain (CFIT) accidents have been shown to occur during non-precision approaches. This is in part a result of loss of situational awareness, e.g., resulting in descent before the initial approach fix; and in part a consequence of the lack of precise vertical guidance, which may involve levelling off at intermediate points between the initial approach fix and MDA/H (a step-down approach).²⁸⁵

The discriminatory effects resulting from the disparate allocation of ANS infrastructure in the North are far from negligible. Upon analyzing accidents involving non-precision approaches, the TSB found that small operators, specifically air taxis which commonly operate in the North, were 12 times more likely to be involved in an accident occurring during the landing phase.²⁸⁶ Conversely, precision approaches, such as instrument landing systems (ILS) found in most major airports in Southern Canada,²⁸⁷ rely on “an instrument landing system [...] which provides both lateral and vertical guidance on a stabilized continuous descent path.”²⁸⁸ Due to their accuracy (generally within 10 degrees on either side of the runway centerline),²⁸⁹ precision approaches are thus more reliable and much safer, as they bring an aircraft to a precise datum point within the expected landing path and positions it perfectly for a safe landing once visual minima is acquired. This precision in turn enables aircraft to safely and legally land in much lower weather minima, often bringing an aircraft within seconds of its intended landing point.

Unfortunately, despite an ICAO resolution urging Member States to implement *precision* IFR approaches *with both lateral and vertical guidance* to prevent CFIT accidents,²⁹⁰ there still exists

²⁸⁵ SKYbrary, *supra* note 268.

²⁸⁶ Transportation Safety Board of Canada, *supra* note 213 at 39.

²⁸⁷ SKYbrary, “Instrument Landing System (ILS)”, (2024), online: SKYbrary <[https://skybrary.aero/articles/instrument-landing-system-ils#:~:text=An%20Instrument%20Landing%20System%20is,the%20correct%20vertical%20descent%20profile](https://skybrary.aero/articles/instrument-landing-system-ils#:~:text=An%20Instrument%20Landing%20System%20is,the%20correct%20vertical%20descent%20profile>:~:text=An%20Instrument%20Landing%20System%20is,the%20correct%20vertical%20descent%20profile)>: “Instrument Landing System (ILS) is defined as a precision runway approach aid based on two radio beams which together provide pilots with both vertical and horizontal guidance during an approach to land”.

²⁸⁸ EUROCONTROL, *supra* note 263 at 1.

²⁸⁹ Thomas Horne, “ILS Basics”, (2015), online: Aircraft Owners and Pilots Association <https://www.aopa.org/news-and-media/all-news/2015/april/pilot/pe_ils>.

²⁹⁰ ICAO Assembly Resolution A37-11.

inequalities in the availability of precision approaches in Northern Canada, which precludes pilots from relying on modern technology, namely dual lateral-vertical guidance functions that can significantly enhance the success and safety margins during landing approaches. While RNAV approaches are progressively filling this gap, NDBs—an archaic technology that was first developed in the 1930s—sometimes remain the only available navigational aid available at some northern airports.²⁹¹

Conventional precision approaches (e.g., ILS) are arguably safer and more reliable, although its supporting navigation aids are relatively costly and more complex to operate, hence why they are less prevalent in the North. One would think, however, that modern technology, namely the accuracy, reliability and versatility of GNSS systems, would have addressed the long-standing limitations with regards to navigational aids up North.²⁹² Satellite-based technology has indeed facilitated the implementation of more accurate and reliable IFR approaches across the globe,²⁹³ namely through performance-based navigation (PBN) technology,²⁹⁴ which has enabled precision approach capabilities up North without the need to invest in costly physical infrastructure.²⁹⁵

GNSS technology is thus particularly promising for the future of remote areas around the world, including Northern Canada, since it yields countless opportunities to design and implement

²⁹¹ For example, at the time of this writing (2022), Fort Severn Airport, which services a remote indigenous settlement in Northern Ontario (Western Swampy Cree First Nation band), was solely equipped with an NDB.

²⁹² In most developed countries, the advent of GNSS indeed ran the death knell for NDB approaches across the globe, but not in Northern Canada.

²⁹³ Safety Briefing Note, *supra* note 283.

²⁹⁴ PBN is defined as “area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace”. International Civil Aviation Organization, *Performance-Based Navigation (PBN) Manual - Doc9613 AN/937*, 3d ed (Montréal, QC: International Civil Aviation Organization, 2008); International Civil Aviation Organization, “Performance Based Navigation (PBN)”, (2024), online: *International Civil Aviation Organization* <www.icao.int/APAC/APAC-RSO/Pages/PBN.aspx>: “PBN defines performance requirements for aircraft navigating on an ATS route, on a terminal or on an approach procedure. Those routes and procedures are composed of way-points which are expressed by WGS 84 coordinates rather than fixes expressed by radial/bearing and distance from ground navigation aids and permit the flexibility of point-to-point operations”.

²⁹⁵ Office of the Auditor General of Canada, *supra* note 147 at para 6.31: “In addition, satellite-based navigation has improved the efficiency of air transportation. These navigation systems allow more direct flight paths, and they allow pilots with aircraft appropriately equipped for satellite-based navigation to land aircraft under conditions with lower cloud bases. Visual aids are important to maximizing the benefits of satellite-based navigation, as they improve a pilot’s ability to see the runway on approach, particularly during periods of reduced visibility”.

precision approaches that would otherwise be impossible or too costly to establish with traditional ground sensors (e.g., due to the topography, lack of available land or impracticability to transport the required equipment to a remote location).

However, Canada has—so far—lacked the initiative to do so and failed to capitalize on these technological advancements, as no major northern strategy has been developed to implement GPS RNAV capabilities across *all* remote airports in Northern Canada to a satisfactory standard.²⁹⁶ It has also been reported that where RNAV is available, “most GPS approaches in the North are simply overlays of old [non-precision] approaches and bring none of the real improvements that the technology is capable of.”²⁹⁷ The TSB has also found that non-precision approaches based on traditional ground aids (e.g., NDBs) remain prevalent in some remote areas of the country, in stark contrast with Southern Canada where precision ILS and non-precision RNAV approaches are now commonly accessible to all operators.²⁹⁸

Money is once again the likely culprit behind these discriminatory consequences, as “[n]o one would deny that given unlimited finances, additional navigational aids would be conducive to safety and would save lives.”²⁹⁹ Consequently, northern aircrews continue to rely on antiquated technology, despite the availability of modern ANS safeguards which are now commonly used in Southern Canada and across ICAO’s membership. Regardless of the available technology at any given time, the MOT has been aware since the 1980s that a “major problem with relation to

²⁹⁶ *Ibid.* at para 6.32: “NAV CANADA increased the number of satellite-based instrument procedures available to pilots flying into remote northern airports. We found that, based on information NAV CANADA provided, 91 of the 117 remote northern airports we examined had satellite-based instrument procedures. However, at 49 of these 91 airports, visual aids (approach lighting and precision approach path indicators) were not available or were low-intensity, which could limit the full potential and benefits of existing satellite-based instrument procedures”.

²⁹⁷ Dawson & Greene, *supra* note 12 at 6.

²⁹⁸ Transportation Safety Board of Canada, *supra* note 165 at 50: “Approaches with a lack of vertical guidance for shorter runways and approaches without area navigation (RNAV) can be safety issues. NAV CANADA was criticized by some operators for the perceived slow pace of adding RNAV approaches at northern aerodromes”.

²⁹⁹ Privy Council Office, *supra* note 7 at 797.

navigational aids in the northern areas is the absence thereof,” as noted by Justice Dubin in his report.³⁰⁰

Fast-forward three decades after the Dubin Inquiry, this persisting safety deficiency played a deadly role in the tragic 2012 crash of a Fairchild SA227-AC Metro III twin-engine aircraft (operated as a commuter operation by Perimeter Aviation LP) in Sanikiluaq, Nunavut—a small fly-in Inuit community³⁰¹ of 850 residents located on an island in the Hudson Bay.³⁰² Faced with adverse weather in the region and insufficient fuel to divert to another suitable airport, the aircrew in this occurrence was left with few options and decided to land their aircraft in Sanikiluaq under challenging IFR conditions. However, this airport only had one IFR approach available—a non-precision NDB approach. Because the NDB approach was only designed and available in one direction of the 3,800-foot gravel runway, the aircrew was somewhat forced to land with a tailwind, contrary to the standard practice of landing against the wind to slow down the aircraft on final approach.

The aircrew attempted several approaches, but were unsuccessful due to low visibility. Facing frustration, fatigue and an increased workload, the aircrew decided on their last approach to depart from the rules and descended below the MDA without acquiring the necessary visual reference—once again replicating the fatal recipe of many northern tragedies. In its report, the TSB noted the following findings, which contributed to the subsequent crash:

³⁰⁰ *Ibid.*

³⁰¹ CBC News, “Nunavut gov’t mulls whether to extend pilot project flight connecting Iqaluit to Sanikiluaq”, (2022), online: *CBC News* <www.cbc.ca/news/canada/north/sanikiluaq-flight-iqaluit-pilot-project-1.6653573>; Transportation Safety Board of Canada, “Air transportation safety investigation A12Q0216 - Low-energy rejected landing and collision with terrain, Perimeter Aviation LP, Fairchild SA227-AC Metro III, C-GFWX, Sanikiluaq, Nunavut, 22 December 2012”, (29 June 2015), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/enquetes-investigations/aviation/2012/a12q0216/a12q0216.html>, s 1.10.1: “Sanikiluaq is a small isolated community in the Belcher Islands, Nunavut, located in Hudson Bay, approximately 780 nm east-northeast of Winnipeg. The community is served by a certified airport which is owned and operated by the Government of Nunavut, Department of Economic Development and Transportation, Nunavut Airports Division”.

³⁰² Municipality of Sanikiluaq, “Welcome to the Municipality of Sanikiluaq”, (2024), online: *Municipality of Sanikiluaq* <www.sanikiluaq.ca/i18n/english/index.html>.

Chapter 5 — The Inadequacy of Aeronautical Infrastructure, Equipment and Services in Northern Canada

- “Due to the lack of an instrument approach³⁰³ for the into-wind runway and the unsuccessful attempts at circling, the crew chose the option of landing with a tailwind, resulting in a steep, unstable approach”,³⁰⁴ [...]
- “During the final approach, the aircraft was unstable in several parameters. This instability contributed to the aircraft [landing] half-way down the runway with excessive speed and altitude”;³⁰⁵ [...]
- “The aircraft was not in a position to land and stop within the confines of the runway, and a go-around was initiated from a low-energy landing regime.”³⁰⁶



Figure 4— The Wreckage of Perimeter flight PAG993 in Sanikiluaq (Nunavut)

The aircrew rejected the landing but were unable to successfully regain sufficient speed and altitude. Shortly thereafter, the aircraft impacted the ground, approximately 500 feet beyond the end of the runway. The aircraft was destroyed (see Figure 4);³⁰⁷ eight individuals onboard

³⁰³ Transportation Safety Board of Canada, *supra* note 301, s 1.10.1: “At the time of the occurrence, CYSK was serviced by only 1 instrument approach, the NDB Runway 27 approach”.

³⁰⁴ *Ibid.* at s 3.0.

³⁰⁵ *Ibid.*

³⁰⁶ *Ibid.*

³⁰⁷ *Ibid.*

sustained injuries and one 6-month-old indigenous infant³⁰⁸ was fatally injured during the crash sequence.³⁰⁹

One must wonder if this accident could have been prevented if the aircrew had benefited from a precision approach with both lateral and vertical guidance functions. At a minimum, the life of an indigenous infant could have been saved had there been an NDB approach available to land in both directions of the runway in order to slow down the aircraft and stabilize the landing approach. Once again, discriminatory *State Factors*, which are otherwise absent in the South,³¹⁰ were at the origin of this preventable tragedy.

Despite recent policy changes, governance reforms, and technological improvements, little has changed in the past four decades when one observes the technical disparities between Northern and Southern Canada. Accordingly, “navigational aids in place in many of the remote areas of Canada [remain] inadequate, and not sufficient to guarantee an adequate level of safety for flying operations being undertaken in those remote areas.”³¹¹ As a result of poor navigational aids—a *State Factor*, there is an increased probability of accidents when conducting IFR flights to/from northern airports. These inequalities reveal once again a silent pattern of discrimination, as the MOT continues to offer higher safety benefits to the South, while neglecting its northern ANS infrastructure.

³⁰⁸ CBC News, “Baby dies in Nunavut plane crash”, (22 December 2012), online: *CBC News* <www.cbc.ca/news/canada/north/baby-dies-in-nunavut-plane-crash-1.1148424>; The Canadian Press, “Nunavut plane crash that killed baby the result of hard landing: report”, (28 December 2012), online: *The Globe and Mail* <<https://www.theglobeandmail.com/news/national/nunavut-plane-crash-that-killed-baby-the-result-of-hard-landing-report/article6771725/>>; CBC News, “Deadly Nunavut crash prompts calls for mandatory child seats on planes”, (29 June 2015), online: *CBC News* <www.cbc.ca/news/canada/manitoba/deadly-nunavut-crash-prompts-calls-for-mandatory-child-seats-on-planes-1.3132057#content>.

³⁰⁹ Transportation Safety Board of Canada, *supra* note 301, s 1.15.2.2 & 3.1: “The infant passenger was not restrained in a child restraint system, nor was one required by regulations. The infant was ejected from the mother’s arms during the impact sequence, and contact with the interior surfaces of the aircraft contributed to the fatal injuries.” The infant “was later found next to the captain’s rudder pedals. The cause of death listed by the coroner was closed head injury with multiple injuries”.

³¹⁰ This type of accident is less likely to occur in the South where commercially-operated airports offer multiple navigational aid and runway options to aircrews.

³¹¹ Privy Council Office, *supra* note 7 at 810.

5. Airport Infrastructure and Facilities in Northern Canada

5.1 Specific Funding Issues

When it comes to *State Factors*, the lack of proper airport infrastructure, services and equipment is arguably the most palpable deficiency in northern aviation.³¹² A succession of disconnected and discriminatory government policies have indeed failed to consider the infrastructure needs of many northern indigenous communities. Consequently, the latter have been forced to tolerate an enduring crisis with regards to the risks and hazards posed by the inadequacy or lack of airport infrastructure. In breach of its responsibilities under the *Aeronautics Act*, the MOT has repeatedly failed to provide northern communities with basic airport infrastructure and other essential services, leaving them well-below national and international norms. While the causes and rationale may have been unintentional, the result is nonetheless discriminatory towards the main benefactors of these northern airports: indigenous people.

In 2017, the OAG's report highlighted major disparities between southern and northern airports, with the latter category often limited to shorter unpaved gravel runways with substandard onsite facilities to support local air operations,³¹³ akin to the hazardous aerodromes servicing underprivileged communities in developing countries with struggling economies. Yet, the northern aerodromes we are talking about here are located in Canada, a G7 country with one of the world's most advanced economies and democracies.³¹⁴

³¹² For example, the Kuujuaq Airport in northern Québec experienced a crisis during the summer of 2023 when it almost ran out of aircraft fuel. A Boeing 737 was chartered and urgently flew in 16,000 litres of fuel in order to maintain air traffic to/from Kuujuaq. Félix Lebel, "Le Nunavik réapprovisionné d'urgence en carburant d'avion cet été", (20 July 2023), online: *Radio-Canada* <<https://ici.radio-canada.ca/nouvelle/1997521/kuujuaq-nunavik-avion-region-isolee>>.

³¹³ In its 2017 audit, the OAG found that: "of the 117 remote northern airports, 94 had gravel runways; 16 had runways with other non-paved surfaces, such as crushed rock; while the remaining 7 had paved runways. Stakeholders told us that newer aircraft do not come equipped with gravel kits, which can be costly for air carriers to install. Furthermore, gravel runways require aircraft to carry 15 percent less weight (cargo and passengers) than paved runways, and aircraft components need to be repaired or replaced more often due to damage from gravel. Office of the Auditor General of Canada, *supra* note 147 at para 6.34.

³¹⁴ It is highly unlikely that we would find such a vast number of substandard airports in other G7 countries such as France, the United States, the United Kingdom, Germany, Japan and Italy.

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Once again, the common denominator behind these issues is the lack of airport funding, which is a direct consequence of the divestment of Canada's airport system in the 1990s. Granted, remote northern airports have been eligible since 1995 for federal funding under TC's *Airport Capital Assistance Program* (ACAP).³¹⁵ The ACAP is accessible to all non-NAS airports for specific projects aiming to "rehabilitate airside facilities or buy equipment for aircraft rescue and firefighting," buy heavy machinery (e.g., snow plows) or improve the safety of aerodrome terminals.³¹⁶ However, the ACAP's yearly CAD 38-million-dollar envelope³¹⁷ has not increased in several years despite inflation and the increasing regulatory requirements associated with running an airport (e.g., SMS).³¹⁸ The ACAP budget is simply insufficient to meet the needs of all Canadian airports.

Yet, much larger investments have recently been made in Canada's southern transportation infrastructure. By way of comparison, the federal government announced in 2023 its intention to build a high-frequency train between Quebec City and Toronto,³¹⁹ at an estimated cost between CAD\$15 and CAD\$60 billion,³²⁰ even though there is already an existing train

³¹⁵ See Transport Canada, "Airports Capital Assistance Program", (28 April 2023), online: *Government of Canada* <<https://tc.canada.ca/en/programs/airports-capital-assistance-program>>.

³¹⁶ Transport Canada, "Apply for ACAP funding", (2024), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/operating-airports-aerodromes/apply-acap-funding>>.

³¹⁷ Office of the Auditor General of Canada, *supra* note 147 at para 6.15: "[N]orthern airports received some funding to address their safety-related infrastructure needs through Transport Canada's Airports Capital Assistance Program. This program provides \$38 million per year in safety-related infrastructure funding to smaller airports across the country. In 2016, 41 of the 117 remote northern airports we examined estimated that they needed \$101 million over the next three years to fund the safety projects they identified. Over the 2014–15 to 2016–17 fiscal years, the Airports Capital Assistance Program funded about \$15 million in projects at remote northern airports".

³¹⁸ In the CAC's opinion, this fund should be raised to CAD 95 million a year in order to meet current airport requirements. Canadian Airports Council, *supra* note 99 at 3.

³¹⁹ See Transport Canada, "High Frequency Rail", (2 March 2023), online: *Government of Canada* <<https://tc.canada.ca/en/rail-transportation/railway-lines/high-frequency-rail>>; Jérôme Labbé, "TGF : trois consortiums qualifiés, l'appel d'offres peut maintenant être lancé", (20 July 2023), online: *Radio-Canada* <<https://ici.radio-canada.ca/nouvelle/1997506/train-grande-frequence-tgf-toronto-quebec?isAutoPlay=1>>; The Canadian Press, "High-speed train between Toronto and Montreal one step closer to becoming reality", (17 February 2023), online: *CTV News* <<https://toronto.ctvnews.ca/high-speed-train-between-toronto-and-montreal-one-step-closer-to-becoming-reality-1.6278087>>.

³²⁰ Radio-Canada, "Montréal préconise un train à grande vitesse pour relier Québec à Toronto", (21 February 2023), online: *Radio-Canada* <<https://ici.radio-canada.ca/nouvelle/1957887/train-tgv-corridor-quebec-toronto-montreal>>; Julien McEvoy, "Des milliards pour 50 minutes en moins entre Montréal et Toronto", (17 February 2023), online: *Journal de Montréal* <www.journaldemontreal.com/2023/02/17/ottawa-ouvre-la-porte-au-tgv-entre-quebec-et-toronto>.

corridor between both cities. Meanwhile, northern fly-in communities must compose with decrepit and unsafe aerodromes as their only means for supplies and transportation.

The federal government also pledged almost a billion dollars—CAD\$950 million or 25 times the available ACAP budget to be precise—for the construction of a 12.5 km rail bypass in Lac-Mégantic—a town in Southern Canada,³²¹ arguably as a symbolic and political measure to appease its residents who were impacted by a deadly derailment in 2013.³²² In the meantime, one must wonder how many lives have been lost in Northern Canada due to inadequate civil aviation infrastructure, without any comparable political or financial response by the Canadian government.

These are only two examples among many illustrating the disproportionate funding allocation between Southern Canada and the North. The limited funding available under the ACAP is particularly concerning given the extent of northern airports in need of critical infrastructure. For instance, CAD\$312 million was previously budgeted to cover priority infrastructure projects in select northern airports, and CAD\$101 million was budgeted to address critical needs at 41 airports in Northern Canada.³²³ None of these budgetary needs were ever fulfilled, nor were their underlying safety issues ever addressed.

Moreover, while the ACAP can be utilized to “improve safety, preserve assets or reduce operating costs,”³²⁴ it must be stressed that this budgetary envelope is granted *temporarily* to airports who meet specific eligibility requirements;³²⁵ it is not a source of continual funding designed to allow smaller airports to cover their annual expenses on a regular basis.³²⁶ Moreover,

³²¹ Transport Canada, “Lac-Mégantic rail bypass”, (2024), online: *Government of Canada* <<https://tc.canada.ca/en/rail-transportation/lac-megantic-rail-bypass>>.

³²² Radio-Canada, “Le coût de la voie de contournement frôlerait le milliard \$, selon le maire de Nantes”, (31 October 2022), online: *Radio-Canada* <<https://ici.radio-canada.ca/nouvelle/1929336/voie-contournement-maire-nantes-cout>>.

³²³ Office of the Auditor General of Canada, *supra* note 147 at paras 6.44 & 6.55.

³²⁴ Minister of Public Works and Government Services Canada, *supra* note 88 at 168.

³²⁵ Transport Canada, *supra* note 316.

³²⁶ Minister of Public Works and Government Services Canada, *supra* note 88 at 168.

airports both in the South and the North are eligible for the ACAP, which waters down the available funding for northern aerodromes who must compete against their southern counterparts when submitting funding applications. In other words, the current ACAP funding package is simply insufficient to meet the critical infrastructure needs of most northern aerodromes.³²⁷

In this context, the OAG noted in its report that “without changing the way remote northern airport infrastructure is supported—through effective leadership and meaningful funding—this infrastructure will continue to age and degrade, and hence threaten the safety, accessibility and efficiency of northern airports.”³²⁸ The MOT has made repeated promises to invest into northern airports and collaborate with northern indigenous communities to ensure that they benefit from adequate airport and ANS infrastructure, however, it has continuously failed to follow through with its promises and develop a sustainable strategy to address these long-standing issues.³²⁹ Consequently, significant discriminatory effects related to runways, aerodrome lighting and supporting equipment, continue to endanger the safety of northern aviation, as we will see in the following subsections.

5.2 The Risks Associated With Substandard Runways

The importance of runways and airways for remote indigenous communities cannot be understated: in some cases, they now reflect the modern iteration of the lakes and rivers formerly canoed on by their ancestors to travel across their traditional lands. Now that their traditional lifestyle has been altered by repeated acts of assimilation and land appropriations, indigenous people have every right to expect the federal government to assume the ultimate responsibility of providing safe runways to travel to/from the northern settlements (e.g. reserves) that it created, in many cases by coercion and deceit.

³²⁷ Office of the Auditor General of Canada, *supra* note 147 at para 6.55.

³²⁸ *Ibid.* at para 6.41.

³²⁹ *Ibid.* at paras 6.44 to 6.50.

Accordingly, the federal government must take leadership in removing any discriminatory barrier by fulfilling the safety needs and concerns of indigenous people that depend on these aerodromes. It is a matter of providing substantive equality to ensure that indigenous people have equitable access to essential infrastructure, in this case being safe runways meeting 21st-century norms.

In *Johannesson v Municipality of West St. Paul*, the SCC emphasized the broader importance of aerodromes for Canadians in securing the safety of flight, and ensuring that aircraft are able to operate to/from a secure surface on the Earth.³³⁰ As the place of taking off and landing, Canadian aerodromes are indeed “an essential part of aeronautics and aerial navigation.”³³¹ In any country, airport runways are undeniably the most elementary piece of infrastructure required to *safely* support powered flight. From a safety standpoint, adequate airstrips enhance existing defences within the Swiss Cheese, while substandard ones, such as short, unpaved and/or uneven surfaces with ruts and potholes, can hinder an aircraft’s capabilities to a point where the safety of flight may be endangered.

In 2013, it was reported that in Canada, there were “only 10 paved runways across all three [Canadian] territories whereas Alaska, despite its smaller geographic size, [had] 61.”³³² The same study also reported a significant number of northern aerodromes with airstrips under 4,000 feet in length.³³³ Most of us have grown accustomed to well-graded airport tarmacs and 10,000-foot runways near large Canadian cities, however, many northern aerodromes have short and unpaved surfaces, which expose local air operators to several risks. For instance, gravel runways hinder takeoff acceleration due to increased surface friction and rolling resistance.³³⁴ On both

³³⁰ *Johannesson v West St. Paul*, [1952] 1 SRC. 292 at 319.

³³¹ *Ibid.*

³³² Dawson & Greene, *supra* note 12 at 5.

³³³ *Ibid.*

³³⁴ Transport Canada, “Advisory Circular (AC) No. 700-011 - Operations on Runways with Unpaved Surfaces”, (16 March 2012), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/reference-centre/advisory-circulars/advisory-circular-ac-no-700-011>>.

landing and takeoff, aircraft handling and performance are also adversely affected on these rougher surfaces composed of unbound granular materials,³³⁵ as they can induce a decrease in braking ability and even a loss of directional control.³³⁶

Also, due to the possibility of ingesting gravel into sensitive engine parts and seriously damaging them, many jet turbine aircraft cannot land on gravel surfaces—at least without a gravel kit,³³⁷ thus limiting the type and size of aircraft that can access northern remote settlements. It has also been reported that there are no new generation jet aircraft currently in service or being designed that are capable of operating on unpaved surfaces.³³⁸ Granted, many northern operators utilize turboprop aircraft but many carriers still rely on older, smaller and less sophisticated piston-engine aircraft, potentially at an increased risk.³³⁹

More concerning, shorter and confined runways with surrounding mountains, which are common in the North, also present operational challenges for pilots,³⁴⁰ as they must rely on more aggressive flying maneuvers to clear these obstacles and carry out short takeoff and landing

³³⁵ SKYbrary, “Operations from Unpaved Runways”, (2024), online: SKYbrary <<https://skybrary.aero/articles/operations-unpaved-runways>>.

³³⁶ *Aviation Investigation Final Report - Watervliet, Michigan, June 16, 2017, 19:20 Local, N9404E, Aeronca 11AC*, by National Transportation Safety Board, GAA17CA347 (Washington, DC: National Transportation Safety Board, 2017) at 2: “Runway conditions affect takeoff and landing performance. [...] Any surface that is not hard and smooth increases the ground roll during takeoff. This is due to the inability of the tires to roll smoothly along the runway. Tires can sink into soft, grassy, or muddy runways. Potholes or other ruts in the pavement can be the cause of poor tire movement along the runway. Obstructions such as mud, snow, or standing water reduce the airplane's acceleration down the runway. Although muddy and wet surface conditions can reduce friction between the runway and the tires, they can also act as obstructions and reduce the landing distance. [...] Braking effectiveness is another consideration when dealing with various runway types. The condition of the surface affects the braking ability of the aircraft”.

³³⁷ Some turbine aircraft can be retrofitted with a gravel kit that prevents debris from being ingested in the turbine, and also to prevent damage on the underside of the aircraft by debris projected upwards by the landing gear. Modifications often require the installation of gravel deflectors, such as landing gear gravel guards and hubcaps, protective “belly tape” and vortex dissipators. See Chris Loh & Aaron Bailey, “Gravel Kits: How Boeing 737s Could Land On Dirt Runways”, online: *Simple Flying* <<https://simpleflying.com/gravel-kits-737/>>.

³³⁸ Dawson & Greene, *supra* note 12 at 5.

³³⁹ *Ibid.*

³⁴⁰ Transportation Safety Board of Canada, *supra* note 152 at 20: “[R]unways that are softer, such as those made of gravel or those that are contaminated, result in performance degradation, requiring greater take-off distances than those with dry, hard surfaces. At locations where runways are relatively short, the calculated take-off distances can be greater than the distances available, necessitating a reduction in take-off weight to accommodate”.

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techniques,³⁴¹ often increasing the risk for stalls or runway excursions.³⁴² Together, the compounded effect of these safety issues may explain why reputable airlines, such as Air Canada, WestJet, and Porter Airlines, operate exclusively to/from airports with longer paved runways,³⁴³ whilst avoiding—from a risk-management standpoint—accident-prone aerodromes in the North that cannot accommodate larger, modern aircraft.³⁴⁴

In 2011 for example, a commercially operated Cessna 208B Grand Caravan (see Figure 5)³⁴⁵ crashed shortly after taking off from Pukatawagan Airport en route to The Pas (Manitoba) with a pilot and seven passengers onboard.³⁴⁶ The air-taxi flight was operating off a rudimentary 3000-foot gravel airstrip in northern Manitoba servicing the Mathias Colomb Cree Nation—a small remote indigenous community that has also experienced its share of socio-economic issues.³⁴⁷

During its takeoff roll, the aircraft encountered soft spots on the uneven runway surface, which affected the aircraft's takeoff performance. The Cessna Grand Caravan momentarily came off the ground but struggled to remain fully airborne. In response, the pilot rejected the takeoff and brought the aircraft back on the runway with 600 feet remaining.³⁴⁸ Despite applying full brakes and engaging reverse engine thrust, the pilot was unable to bring the aircraft to a stop on the

³⁴¹ See Civil Aviation Authority of New Zealand, "Short field take-off and landing", (2024), online: *New Zealand Government* <<https://www.aviation.govt.nz/licensing-and-certification/pilots/flight-training/flight-instructor-guide/short-field-take-off-and-landing/>>; Government of Northwest Territories, Government of Yukon & Government of Nunavut, *supra* note 94 at 14.

³⁴² This once again limits the type of aircraft that can operate into certain northern communities, often serviced by smaller and less performant aircraft.

³⁴³ Dawson & Greene, *supra* note 12 at 5.

³⁴⁴ One must even wonder if the SMS of these carriers is the reason why they do not fly into substandard aerodromes due to the perceived risks associated with unpaved runways, old navigational aids and poor de-icing/APU capabilities. Conversely, this may explain why remote northern airports are often serviced by air taxi or commuter operators who may operate on the fringe of regulatory compliance, whilst being exposed to higher risks, thus explaining why small operators are overly represented in accident statistics.

³⁴⁵ Source: Cambridge Bay Weather, "Photo of Cessna 208B Grand Caravan C-FMCB", (2024), online: *Aviation Safety Network* <<https://aviation-safety.net/photo/4780/Cessna-208B-Grand-Caravan-C-FMCB>>.

³⁴⁶ Transportation Safety Board of Canada, "Aviation Investigation Report A11C0102 - Runway Overrun, Beaver Air Services Limited Partnership (Missinippi Airways), Cessna 208B, C-FMCB, Pukatawagan, Manitoba, 04 July 2011", (21 June 2012), online: *Government of Canada* <<https://www.bst-tsb.gc.ca/eng/rapports-reports/aviation/2011/a11c0102/a11c0102.html>>.

³⁴⁷ See for instance Kathleen Martens, "'I'm forever getting sick': Two mothers in Mathias Colomb worry about their new homes", (20 April 2021), online: *National News* <www.aptnnews.ca/national-news/mould-reserve-housing/>.

³⁴⁸ Transportation Safety Board of Canada, *supra* note 346 at 11.

remaining gravel surface. The aircraft subsequently departed off the end of the runway, fell into a ravine and caught fire,³⁴⁹ injuring all occupants onboard and killing a 56-year-old indigenous passenger.³⁵⁰



Figure 5— The occurrence aircraft involved in the Pukatawagan runway excursion

Following its investigation, the TSB concluded that the combination of nearby topography and obstacles, as well as the gravel runway surface,³⁵¹ were causal and contributory factors in the accident. TSB expert analyses revealed that the rudimentary gravel surface at Pukatawagan had increased the takeoff run by 11%, which explains the difficulties encountered during departure, but also reduced its ensuing ground performance by 18% whilst attempting to bring the aircraft to a stop.³⁵²

³⁴⁹ *Ibid.* at 1–3.

³⁵⁰ Daniela Germano, “OCN man dies after plane crashes in northern Manitoba”, (4 July 2011), online: *The Brandon Sun* <www.brandonsun.com/local/2011/07/04/one-dead-in-pukatawagan-plane-accident?thx=y>; The Canadian Press, “Northern Manitoba airline grounded over safety concerns”, (16 July 2011), online: *CBC News* <www.cbc.ca/news/canada/manitoba/northern-manitoba-airline-grounded-over-safety-concerns-1.1051795>.

³⁵¹ Transportation Safety Board of Canada, *supra* note 346 at 11: “The runway conditions at the Pukatawagan Airport had been adversely affected by recent rains. The rain caused some soft spots to form on the gravel-surfaced runway, most notably in the area near the taxiway intersection”.

³⁵² *Ibid.* at 5.

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The TSB further stated that while the airport complied with regulations, “the topography of the terrain beyond the runway end contributed to aircraft damage and to the injuries to crew and passengers.”³⁵³ Had the runway been longer, paved and/or not positioned near a deadly ravine, the outcome likely would have been much more favourable and survivable, thus highlighting how inadequate airport infrastructure and design—a *State Factor*—can reduce critical safety margins, affect aircraft performance³⁵⁴ and unduly expose indigenous populations up North to higher accident risks. More broadly, the TSB noted that “[h]arsh runway-end conditions prevail at several airports across northern Manitoba,”³⁵⁵ which obviously hinders the flight capabilities of northern operators and increases their risk of experiencing an accident, such as the one in Pukatawagan.³⁵⁶

With this in mind, we must wonder if similar *State Factors* also played a role in the 2017 FDL tragedy. Had there been a longer and paved runway at FDL, a conventional runway surface may have attenuated the performance degradation caused by the airframe icing, thus allowing Flight WEW282 to gain sufficient momentum and get off the ground successfully.³⁵⁷ History is full of “what ifs”, but the fact remains that Flight WEW282 was operating on a substandard runway and did not benefit from a paved surface that would otherwise be found in most airports across Southern Canada.

³⁵³ *Ibid.* at 8 & 12.

³⁵⁴ See also Transportation Safety Board of Canada, “Aviation Investigation Report A06P0036 - Runway Overrun-Collision with Terrain, Orca Airways Ltd., Piper PA-31-350 Chieftain, C-GNAY, Powell River, British Columbia, 08 March 2006”, (4 January 2007), online: *Government of Canada* <<https://tsb.gc.ca/eng/rapports-reports/aviation/2006/a06p0036/a06p0036.html>>.

³⁵⁵ Transportation Safety Board of Canada, *supra* note 346 at 12.

³⁵⁶ As mentioned *supra*, these substandard runway surfaces also preclude more sophisticated and modern aircraft from operating into remote indigenous settlements, whose enhanced reliability and performance capabilities would undoubtedly increase the overall safety of northern air operations. By virtue of the characteristics associated with the occurrence aerodrome and aircraft at issue, the Pukatawagan accident is in itself another tragic example of the disproportionate role of *State Factors* in northern accidents, i.e., in the MOT’s failure to provide adequate civil aviation infrastructure to indigenous fly-in communities.

³⁵⁷ The TSB investigation report did note that softer and unpaved surface at FDL deteriorated the aircraft’s takeoff performance, however, its analysis did not go further to either criticize the inadequate runway surface at FDL or speculate as to whether Flight WEW282 would have been able to successfully takeoff with a longer/paved runway surface. Such speculation may have sent the wrong message to the industry by inferring that the unsafe effects of icing could be reduced and accepted when operating off a paved surface. Transportation Safety Board of Canada, *supra* note 152 at 27–29 & 164–165.

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FDL was and remains a relatively short unpaved runway operated regularly by medium-sized aircraft (e.g., turboprop ATRs) to provide essential services to an adjacent indigenous community. While the provincial government in Saskatchewan recently announced improvements to FDL's airport infrastructure,³⁵⁸ it remains a substandard aerodrome in comparison with the airports found in Southern Canada, which is certainly not worthy of a G7 country (see Figure 6).³⁵⁹



Figure 6—Fond-du-Lac Airport (CZFD)

Rather than addressing the issue systemically across the North, the provincial government's solution reflects a *reactive* response to a problem in one location, but only after a tragedy has occurred. History has shown that a purely political decision to eliminate a major deficiency in one area only, with a view of consoling a mourning community, usually fails to correct systemic and discriminatory issues unless broader measures are undertaken. As such, the inadequate runway

³⁵⁸ Alex MacPherson, "Province to expand Fond du Lac airport", (25 May 2018), online: *Saskatoon Star Phoenix* <<https://thestarphoenix.com/news/local-news/province-to-expand-fond-du-lac-airport>>; Nick Pearce, "Shovels to hit ground on Fond du Lac airport in 2021", (2020), online: *Saskatoon Star Phoenix* <<https://thestarphoenix.com/news/local-news/province-releases-fond-du-lac-airport-tender>>; Government of Saskatchewan, "Improvements to Fond du Lac Airport Underway", (2020), online: *Government of Saskatchewan* <www.saskatchewan.ca/government/news-and-media/2020/december/10/improvements-to-fond-du-lac-airport-underway>.

³⁵⁹ Source: Government of Saskatchewan, *supra* note 358.

surfaces (in length, surface and condition) found across Northern Canada will continue to weaken critical safety barriers in the Swiss Cheese Model, whose latent conditions could very well strike again and cause another crash similar to the accidents witnessed in Pukatawagan and FDL.

5.3 Inadequate Airport Lighting

The saying that “where there is light, there is hope” takes on a whole new meaning in Northern Canada, where visual cues can be the difference between a safe landing and death.³⁶⁰ Unlike in densely populated urban regions in the South where ambient lighting is omnipresent and provides aircrews with “a visible horizon or other visual cues necessary to maintain orientation,”³⁶¹ flying up North across remote or sparsely settled areas undoubtedly presents more challenging conditions, particularly at night “where no discernible horizon is present, and where visual reference to the surface is not possible.”³⁶²

Even if weather conditions are on paper within the legal VFR limits, visual references can be non-existent in unlit and remote northern environments, and thus present the same challenges as flying IFR.³⁶³ With many northern communities exposed to adverse weather and much shorter amounts of daylight during the winter months,³⁶⁴ adequate airport lighting in the North is therefore quintessential in order to navigate accurately and avoid disorientation,³⁶⁵ particularly in IFR conditions.³⁶⁶ Even in VFR conditions and regardless of training certifications, a pilot may need to

³⁶⁰ Transport Canada, *supra* note 189, s 2.12.7: “Light carries depth perception messages to the brain in the form of colour, glare, shadows, and so on. These elements have one thing in common, namely, they are all modified by the direction of the light and changes in light intensity. For example, when shadows occur on one side of objects, we subconsciously become aware that the light is coming from the other. Thus, nature provides many visual clues to assist us in discerning objects and judging distances”.

³⁶¹ Transportation Safety Board of Canada, “Air transportation safety investigation A13H0001, Controlled flight into terrain 7506406 Canada Inc., Sikorsky S-76A (helicopter), C-GIMY, Moosonee, Ontario, 31 May 2013”, (15 June 2016), online: *Transportation Safety Board of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2013/a13h0001/a13h0001.html>>, s 2.1.

³⁶² *Ibid*, s 2.10.1.

³⁶³ *Ibid*, s 1.18.4.1.

³⁶⁴ For example, given its proximity with the North Pole, Inuvik (NWT) will experience each December a complete month of darkness with no sunlight 24/7, and vice versa in June-July of each year. See Avianne Tan, “Midnight Sun: This Town in Canada Is Experiencing Sunlight 24/7 for 56 Days Straight”, (28 May 2015), online: *ABC News* <<https://abcnews.go.com/Travel/midnight-sun-town-canada-experiencing-sunlight-247-56/story?id=31376376>>.

³⁶⁵ See *Avoidable Accidents No. 7 - Visual flight at night accidents: What you can't see can still hurt you*, by Australian Transport Safety Bureau, AR-2012-122 (Canberra, Australia: Australian Government, 2012).

³⁶⁶ Office of the Auditor General of Canada, *supra* note 147 at para 6.29.

rely completely on his or her instruments if “it is impossible to establish aircraft orientation by external reference to the ground or the horizon,”³⁶⁷ in which case “reliance on other than visual cues will quickly cause the pilot to lose his spatial orientation.”³⁶⁸

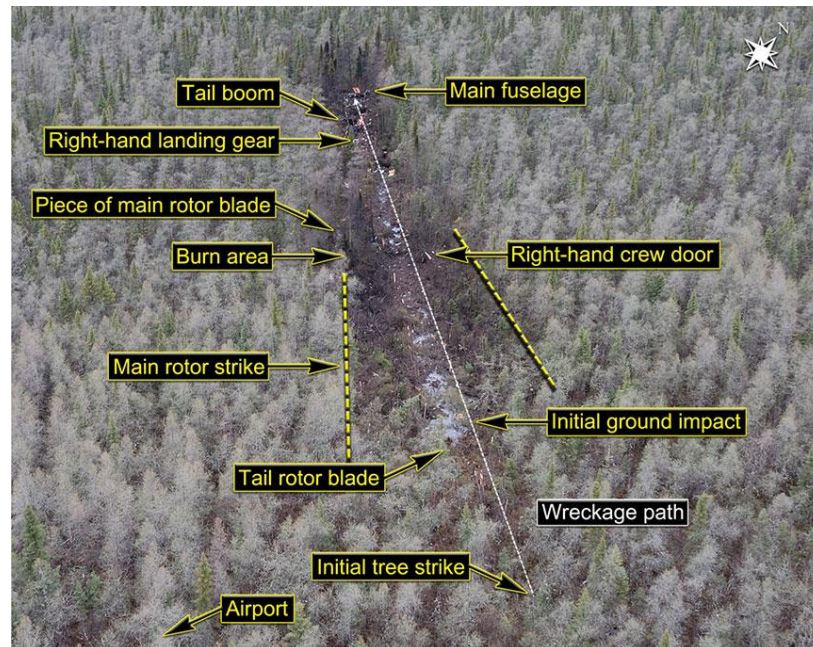


Figure 7—ORNGE Lifelight 8 Occurrence Site

Even more concerning, these unlit northern environments can expose aircrews to the infamous and lethal *black-hole effect*. In 2013, this illusion directly contributed to a deadly crash of a Sikorsky S-76A helicopter operated by ORNGE as Lifelight 8 whilst taking off from Moosonee (Ontario), a northern community on the coast of James Bay³⁶⁹ and the home of the nearby Moose Cree First Nation. The helicopter was en route to conduct an urgent medical evacuation flight

³⁶⁷ Transportation Safety Board of Canada, “Aviation Investigation Report A94Q0182 - VFR Flight into adverse flight conditions, Hélicoptère Inc., Eurocopter AS350B Écureuil (Helicopter) C-FPHI, Kuujuaq, Quebec 38 mi NE, 24 September 1994”, (7 February 1996), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/1994/a94q0182/a94q0182.html>>, s 1.7.5.

³⁶⁸ *Ibid.*

³⁶⁹ Transportation Safety Board of Canada, *supra* note 361, s 1.18.1.3: “The black-hole effect typically occurs over water or over dark, featureless terrain where the only visual stimuli are lights located on and/or near the airport or landing zone. The absence of visual references in a pilot’s near vision affects depth perception and can lead to a sensation of being too high on approach. In many cases, pilots will react to these false sensations by correcting altitude to below the correct flight path. Likewise, departing from a lit area into an area of darkness presents its own unique challenges, as a pilot must carefully transition from a visual manoeuvre to a predominantly instrument manoeuvre. If pilots allow their guard to drop during a black-hole approach or departure, they may quickly find themselves in a situation where safety margins are reduced to unacceptable levels”.

(medevac) to pick up a pediatric indigenous patient³⁷⁰ from Attawapiskat, an isolated First Nation Cree reserve that has made national headlines for declaring states of emergency due to housing and water crises.³⁷¹

The medevac flight never made it to its destination; on departure, the pilot-in-command encountered a lack of surrounding visual cues.³⁷² He subsequently lost control of the helicopter due to disorientation and crashed one nautical mile away from the runway 20 seconds after takeoff. All occupants onboard, two aircrew and two paramedics, were fatally injured in the crash,³⁷³ which completely destroyed the helicopter (see Figure 7).³⁷⁴ As a result of the crash, it can also be presumed that the intended medical evacuation was likely postponed, at the obvious expense of the patient's vulnerable health and wellbeing. In its final investigation report, the TSB highlighted the risks of operating to/from remote aerodromes:

[I]n remote areas or areas with little or no cultural lighting, night VFR flights are frequently conducted in conditions where no discernible horizon is present, and where visual reference to the surface is not possible. This issue is considered throughout the aviation industry as presenting a risk to night operations. [...] In weather that is technically suitable for VFR but provides little ambient lighting, it is not always possible to conduct these flights with visual reference to the surface. [...] If, during night VFR operations, pilots continue flight in conditions where no cultural or ambient lighting exists without an alternate means of maintaining visual reference to the surface, there is an increased risk of CFIT and loss-of-control accidents.³⁷⁵

³⁷⁰ *Ibid*, s 1.1: "The patient's medical condition was classified by the sending physician as an emergency. According to the Ontario Regulation 257/00 under the *Ambulance Act*, an emergency is defined as "a situation where a delay in responding to a call for services could endanger the life, limb or function of a person".

³⁷¹ The Canadian Press, "Feds aware of Attawapiskat crisis for years", (2011), online: *CBC News* <<https://www.cbc.ca/news/politics/feds-aware-of-attawapiskat-crisis-for-years-1.1015416>>; Adrian Sutherland, "Troubled water: The slow drip of change in Attawapiskat is not and has never been enough", (2020), online: *The Globe and Mail* <<https://www.theglobeandmail.com/opinion/article-troubled-water-the-slow-drip-of-change-in-attawapiskat-is-not-and-has/>>; Jorge Barrera, "Attawapiskat declares state of emergency over water quality", (2019), online: *CBC News* <<https://www.cbc.ca/news/indigenous/attawapiskat-water-quality-emergency-1.5204652>>.

³⁷² Transportation Safety Board of Canada, *supra* note 361, s 2.1: "Due to lack of cultural lighting in the area, very few visual cues are available off the departure end of Runway 06 at Moosonee Airport (CYMO) at night. Exacerbating this situation on the night of the occurrence was an overcast ceiling, which would have limited the ambient lighting available to provide a visible horizon or other visual cues necessary to maintain orientation. Hence, the crew conducted a flight under night VFR regulations without sufficient ambient or cultural lighting to maintain visual reference to the surface. As a result, the occurrence pilots would have required complete reference to flight instruments to maintain control after passing the end of the lit departure runway".

³⁷³ See *ibid*, s 1.13.

³⁷⁴ *Ibid*.

³⁷⁵ Transportation Safety Board of Canada, *supra* note 361, s 2.10.

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Another similar accident occurred back in 2001 when a medevac flight crashed at night during a visual landing approach to Shamattawa—an isolated First Nation Cree reserve in northern Manitoba, which has also experienced serious socio-economic issues.³⁷⁶ Shamattawa was equipped with a short 4,000-foot-long gravel landing surface with low-intensity runway lighting,³⁷⁷ but did not have a ground-based visual approach slope indicator³⁷⁸ (VASIS) system to assist the aircrew in maintaining the appropriate landing path.³⁷⁹ On approach, the aircraft—a Fairchild SA226TC (Metroliner) operated by Perimeter Airlines as Flight PAG962—came in too high and too fast. The aircrew subsequently rejected the landing and carried out a missed approach, however, control of the aircraft was lost and the Metroliner crashed in a forest approximately 2,600 feet off the departure end of the runway.³⁸⁰

The aircraft was completely destroyed on impact (see Figure 8),³⁸¹ causing serious injuries to a paramedic onboard and fatally injuring both aircrew members.³⁸² The ensuing TSB investigation determined that the aircrew's loss of situational awareness, which caused the CFIT, was due to a combination of factors, including the absence of a VASIS,³⁸³ the lack of visual

³⁷⁶ Skylar Peters, "Shamattawa First Nation declares state of emergency over suicide crisis", (2021), online: *Global News* <<https://globalnews.ca/news/7873595/shamattawa-first-nation-suicide-crisis/>>; Rachel Bergen, "'Crisis in our community,' Shamattawa First Nation chief says after 7-year-old attempts suicide", (2021), online: *CBC News* <www.cbc.ca/news/canada/manitoba/shamattawa-first-nation-suicide-crisis-1.6031504>; CBC News, "Red Cross flying water into Shamattawa after treatment plant failure", (2019), online: *CBC News* <www.cbc.ca/news/canada/manitoba/shamattawa-water-treatment-plant-failure-1.5122750>.

³⁷⁷ *Night VFR Approach Strikes Again*, by Transport Canada, Aviation Safety 3/2003 (Ottawa, ON: Government of Canada, 2003).

³⁷⁸ Transportation Safety Board of Canada, "Aviation Investigation Report A01C0236 - Controlled flight into terrain (CFIT), Perimeter Airlines (Inland) Ltd., Fairchild SA226TC, C-GYPA, Shamattawa, Manitoba, 11 October 2001", (15 January 2003), online: *Government of Canada* <<https://tsb.gc.ca/eng/rapports-reports/aviation/2001/a01c0236/a01c0236.html>>.

³⁷⁹ SKYbrary, "Visual Approach Slope Indicator Systems (VASIS)", (2024), online: *SKYbrary* <<https://skybrary.aero/articles/visual-approach-slope-indicator-systems-vasis>>: "A visual approach slope indicator system is a system consisting of four light units situated on the left side of the runway in the form of two wing bars referred to as the upwind and downwind wing bars. The aircraft is on slope if the upwind bar shows red and the downwind bar shows white, too high if both bars show white, and too low if both bars show red".

³⁸⁰ Transport Canada, *supra* note 377.

³⁸¹ Source: *ibid*.

³⁸² *Ibid*: "The aircraft broke apart along a wreckage trail of about 850 feet. Only the cabin aft of the cockpit retained some structural integrity".

³⁸³ *Ibid*: "The absence of ground-based VASIS made the determination of the approach angle more difficult for the crew. The presence of an VASIS would have enabled the crew to take earlier, more positive corrective action to avoid the missed approach".

references due to the absence of surrounding lighting, and resulting optical illusions.³⁸⁴ The TSB further concluded that “the absence of approach aids likely decreased the crew’s ability to fly an approach from which a landing could be executed safely,”³⁸⁵ thus illustrating how inadequate aerodrome lighting—a *State Factor*—can contribute to deadly accidents in the North.



Figure 8— The Wreckage of Flight PAG962

Despite the elementary need for proper aerodrome lighting to ensure safety, as illustrated in the Moosonee and Shamattawa accidents, the OAG later reported in 2017 that 44% of northern remote airports still “did not have an approach lighting system, which guides pilots on approach to the runway;”³⁸⁶ 26% “did not have any lighting or had low-intensity lighting for pilots to identify the runway;”³⁸⁷ and 21% “did not have precision approach path indicators, which provide pilots with visual information on whether they are too high or too low when landing.”³⁸⁸ In dark

³⁸⁴ *Ibid*: “Neither runway at the airport was served by a ground-based, visual approach slope indicator. There were no ground lights beyond the end of the runway in the direction that the missed approach was conducted. The absence of any celestial light due to overcast conditions meant the missed approach was being carried out in total darkness”.

³⁸⁵ Transportation Safety Board of Canada, *supra* note 378, s 3.

³⁸⁶ Office of the Auditor General of Canada, *supra* note 147 at para 6.29.

³⁸⁷ *Ibid*.

³⁸⁸ *Ibid*.

environments with fewer visual cues, the previous case studies clearly show that pilots are more prone to experiencing optical illusions and becoming disoriented,³⁸⁹ particularly when they encounter adverse weather in the North.³⁹⁰ This is particularly concerning since poor lighting may prevent aircrews from *correctly*³⁹¹ acquiring the necessary visual references during an IFR approach, which can increase the probability of rejecting a landing or inadvertently flying under the prescribed MDA.³⁹²

As a result, these flaws have a detrimental impact on the accessibility of northern airports, the safety of the operators attempting to land there³⁹³ and more broadly on the efficiency and reliability of air routes that supply and service northern indigenous communities.³⁹⁴ Based on the foregoing, it is apparent that inadequate airport lighting or lack thereof—a *State Factor*—can have a significant role in the sequence of air occurrences,³⁹⁵ thus illustrating the potential dangers and discriminatory effects of such deficiencies within Canada's northern aviation infrastructure.

³⁸⁹ Transportation Safety Board of Canada, "Air transportation safety investigation report A20C0037 - Runway excursion Buffalo Airways Ltd., Beechcraft King Air A100, C-FCBZ, Kugaaruk Airport, Nunavut, 28 April 2020", (25 May 2021), online: *Government of Canada* <www.bst-tsb.gc.ca/eng/rapports-reports/aviation/2020/a20c0037/a20c0037.html>, s 1.18.5.

³⁹⁰ See Transportation Safety Board of Canada, "Air transportation safety investigation report - A21C0038, Collision with terrain, Great Slave Helicopters 2018 Ltd., Airbus Helicopters AS350 B2 (helicopter), C-FYDA, Griffith Island, Nunavut, 25 April 2021", (15 February 2024), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2021/a21c0038/a21c0038.html>>.

³⁹¹ Transportation Safety Board of Canada, "Aviation Investigation Report A14W0127 - Risk of collision, Canadian North Inc., Boeing 737-36Q, C-GICN and Jazz Aviation LP (dba Air Canada Express), de Havilland DHC-8-402, C-GGDU, Fort McMurray, Alberta, 04 August 2014", (4 November 2015), online: *Government of Canada* <<https://www.tsb.gc.ca/ENG/rapports-reports/aviation/2014/a14w0127/a14w0127.html#4.0>>: "During highly routine tasks, perceptual confusion can occur when an observer sees something that closely resembles what they expected to see. Believing they have correctly identified an object, they may initiate a sequence of actions associated with it".

³⁹² Transportation Safety Board of Canada, *supra* note 389: "When pilots cannot establish or maintain the required visual reference, they must conduct a missed approach. The decision to begin a missed approach procedure is one of the last defences to mitigate the risk of an approach- or landing-related accident. Between December 2006 Footnote26 and May 2020, the TSB identified 32 events that occurred following approaches conducted below the MDA with inadequate visual references. Of these 32 incidents, 18 occurred during a landing in weather conditions where visibility was below what is published on the approach chart."

³⁹³ For instance, a medevac flight crashed near Moosonee (Northern Ontario) shortly after takeoff when the aircrew became disoriented due to the lack of nearby lighting. See Transportation Safety Board of Canada, *supra* note 361.

³⁹⁴ Office of the Auditor General of Canada, *supra* note 147 at para 6.33: "The latter issue is particularly concerning from a socio-economic perspective, since the limited availability of navigation systems and visual approach lighting in the North often prevent flights from making it into a remote settlement, that would otherwise be safely accessible by the same aircraft and aircrew in a southern airport with modern navigational aids".

³⁹⁵ See Transportation Safety Board of Canada, "Aviation Investigation Report A96A0207 - Collision with level terrain, Chrysler Aviation Inc., Learjet Corporation, L36A N14TX, Stephenville, Newfoundland, 06 December 1996", (17 September 1997), online: *Government of Canada* <<https://www.tsb-bst.gc.ca/eng/rapports-reports/aviation/1996/a96a0207/a96a0207.html>>; Transportation Safety Board of Canada, "Aviation Investigation Report A16A0032:

5.4 The Adverse Effect of Improper Airport Equipment on the Effectivity of the CARs

Inadequate airport equipment constitutes a lethal *State Factor*. It places aircrews in challenging situations, where safe pilot decision-making can be quickly overturned by organizational pressures and operational shortcuts. For instance, had an APU had been acquired by Air Ontario and made available at Dryden Airport, the aircrew of Flight 1343 would have been able to shut down the aircraft, appropriately de-ice its contaminated wings and eventually takeoff safely with no surface contamination on the wings of the Fokker F-28. Proper equipment would have placed the aircrew in an entirely different situation where they likely would have complied with regulations and thus operated safely, whilst also meeting operational demands. More importantly, the purchase of an APU would likely have avoided a tragic outcome for 24 people in 1989, thus illustrating how (in)adequate airport equipment can act as a *State Factor* in civil aviation accidents.



Figure 9—De-icing Equipment at FDL Airport at the time of the Crash of Flight WEW282

Collision with terrain, Mitsubishi MU-2B-60, N246W, Îles-de-la-Madeleine Airport, Quebec, 1.4 nm WSW, 29 March 2016", (2018), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2016/a16a0032/a16a0032.pdf>>; Transportation Safety Board of Canada, *supra* note 361; Transportation Safety Board of Canada, *supra* note 378.



Figure 10—De-icing Equipment at FDL Airport at the time of the Crash of Flight WEW282

The same unfortunate logic applies to the fate of West Wind Aviation Flight WEW282. If proper de-icing equipment had been purchased and made available at FDL in December 2017, the aircrew would have been in a position to remove all surface contamination and safely takeoff without incident. But the aircrew did not have the benefit of critical infrastructure onsite to ensure compliance with the CARS and more importantly, to guarantee the safety of its passengers. The absence of adequate de-icing equipment to de-ice all critical surfaces, including higher ones on the wings and along the tail of the large ATR-42 aircraft, put the aircrew of Flight WEW282 at a significant disadvantage, particularly in comparison with pilots in Southern Canada where qualified de-icing staff and modern de-icing equipment, including sufficient fluids, specialized hoses, tall ladders and lifts, are readily available in most airports operated by top-tier airlines. As shown in Figures 9,³⁹⁶ 10³⁹⁷ and 11,³⁹⁸ the disparity between de-icing equipment in FDL versus

³⁹⁶ Transportation Safety Board of Canada, *supra* note 152 at 139.

³⁹⁷ *Ibid.*

³⁹⁸ See Tim Sargeant, "Montreal company launches the first all-electric de-icing truck", (2020), online: <<https://globalnews.ca/news/7528689/montreal-company-first-all-electric-de-icing-truck/>>.

the equipment found at a Southern airport is indeed quite striking,³⁹⁹ and creates a significant gap in the Swiss Cheese Model.



Figure 11—Modern De-Icing Equipment

In the FDL investigation report, the TSB noted that the “unavailability of adequate equipment is a significant underlying factor that prevents pilots from being able to conduct a proper pre-flight inspection for contaminants and from de-icing a contaminated aircraft.”⁴⁰⁰ It is thus not surprising to note that only 37% of northern pilots have reported that they can access de-icing capabilities in Northern Canada, with only 15% of them reporting that they can have their aircraft *effectively* de-iced in the North.⁴⁰¹ Even if a pilot is *willing* to de-ice his aircraft, this major disparity obviously influences a pilot’s *ability* to comply with the CARS and ultimately impairs an aircrew’s decision-making to a point where pilots knowingly taking off with contaminated surfaces on a recurring

³⁹⁹ It must be conceded however that Southern Canada is not immune from the adverse safety effects of inadequate airport infrastructure. In 2004 for instance, a TSB investigation regarding a crash into Lake Erie near Pelee Island (Ontario), found that it was caused by aircraft icing found but that there was a lack of equipment at the departure airport to adequately de-ice the aircraft, hence why it was operated with contaminated surfaces. See Transportation Safety Board of Canada, “Aviation Investigation Report A04H0001 - Loss of Control, Georgian Express Ltd., Cessna 208B Caravan, C-FAGA, Pelee Island, Ontario, 17 January 2004”, (17 January 2006), online: *Government of Canada* <www.tsb.gc.ca/eng/rapports-reports/aviation/2004/a04h0001/a04h0001.html#5.0>.

⁴⁰⁰ Transportation Safety Board of Canada, *supra* note 152 at 145.

⁴⁰¹ *Ibid.*

basis.⁴⁰² This dilemma also illustrates how inadequate aviation infrastructure can impede on the *effectivity* of elementary safety regulations.⁴⁰³

Such circumstances and predicaments rarely occur in Southern Canada, where major airports commonly have designated de-icing bays manned by trained professionals operating specialized de-icing trucks. This infrastructure is admittedly expensive⁴⁰⁴ but crucial for ensuring civil aviation safety in the icy Canadian climate. Southern airports are usually equipped with large trucks carrying heated tanks containing de-icing fluids, tall adjustable booms equipped with lights and cameras to reach every aircraft surface, and powerful hoses utilizing forced air to efficiently spray standardized de-icing fluids across all surfaces.⁴⁰⁵ Modern de-icing equipment at major airports also utilize cutting-edge technology, such as de-icing management software, automated guiding systems, computerized fluid mixers and heaters, etc.⁴⁰⁶

With a few exceptions,⁴⁰⁷ most northern airports do not have any comparable de-icing services available onsite and must instead rely on rudimentary equipment (e.g., construction ladders, garden hoses and portable buckets—see Figure 9 & 10). This reveals a compelling paradox, since the colder climates experienced up North obviously yield heightened needs for de-icing capabilities for most of the year—in contrast with Southern Canada, which enjoys a relatively warmer climate and a shorter winter season,⁴⁰⁸ but nonetheless benefits from superior de-icing

⁴⁰² *Ibid.*

⁴⁰³ See Chapter 3, *supra*.

⁴⁰⁴ See National Business Aviation Association, “Deicing: Dollars and Sense”, (2011), online: *National Business Aviation Association* <www.nbaa.org/aircraft-operations/safety/in-flight-safety/aircraft-icing/deicing-dollars-and-sense/>.

⁴⁰⁵ There are four types of de/anti-icing fluids, whose purpose and use will depend *inter alia* on the desired holdover time and outside temperature. See Transport Canada, “Holdover time (HOT) guidelines for de-icing and anti-icing aircraft”, (2023), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/general-operating-flight-rules/hold-over-time-hot-guidelines-icing-anti-icing-aircraft>>; Transport Canada, “Guidelines for Aircraft Ground - Icing Operations - TP 14052”, (2004), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/publications/guidelines-aircraft-ground-icing-operations-tp-14052>>.

⁴⁰⁶ See Aeromag, “About us - Innovations”, (2023), online: *Aeromag* <<https://aeromag.ca/en/about-us/>>.

⁴⁰⁷ E.g., Iqaluit, Whitehorse and Yellowknife.

⁴⁰⁸ Transportation Safety Board of Canada, *supra* note 152: “The duration of cold weather and icing conditions varies widely across Canada. Many remote northern airports have an icing season of 10 months or more. Icing conditions can be both severe and persistent”.

capabilities. Yet, northern operators, who frequently face icing conditions for up to 10 months during the year,⁴⁰⁹ still do not have a reliable access to adequate de-icing equipment.

This disparity reflects an adverse manifestation of the *State Factor* in Northern Canada, which has contributed to many icing-related accidents in the past,⁴¹⁰ and will continue to do so until this safety deficiency is addressed by the MOT. For these reasons, the TSB issued an urgent recommendation in 2018 calling on the MOT “to identify locations where there is inadequate de-icing and anti-icing equipment and take urgent action to ensure that the proper equipment is available to reduce the likelihood of aircraft taking off with contaminated critical surfaces.”⁴¹¹ This recommendation is particularly compelling as it recognizes the MOT’s responsibility in ensuring that its national aviation infrastructure, including de-icing equipment, is adequate and sufficient in order to enable regulatory compliance by air carriers and aircrews.

This recommendation also implies that, in its capacity as a sovereign State, Canada has a positive obligation to ensure that adequate civil aviation infrastructure is made available to operators across its jurisdiction as a prerequisite for ensuring air safety, but also to prevent accidents from occurring. Unfortunately, the MOT had not yet satisfied this recommendation at the time of this writing. Canada has thus failed to uphold its civil aviation safety responsibilities and its repeated inaction continues to contribute to major safety deficiencies in the North in the form of discriminatory *State Factors*.

⁴⁰⁹ Transportation Safety Board of Canada, “TSB calls for adequate aircraft de-icing equipment, greater compliance with de-icing regulations at remote northern airports”, (2018), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/medias-media/communiqués/aviation/2018/a17c0146-20181214.html>>.

⁴¹⁰ *Ibid.* For instance, in the last 25 years in Canada, “there have been 11 reported occurrences involving commercial airplanes where takeoff with contaminated critical surfaces likely affected the operation of the airplane. Four of them were fatal, resulting in 19 fatalities”.

⁴¹¹ Transportation Safety Board of Canada, “TSB Recommendation A18-02: De-icing and anti-icing equipment”, (December 2018), online: *Government of Canada* <www.bst-tsb.gc.ca/eng/recommandations-recommandations/aviation/2018/rec-a1803.html>.

6. Chapter 5—Summary & Key Takeaways

Reconciliation can be achieved in part by increasing the connectivity of indigenous people with the rest of Canada and bridging current gaps in transportation services. It can also be achieved by taking positive actions to prevent accidents in a market that predominantly serves northern communities inhabited by indigenous people.

Yet, the discriminatory underfunding of aeronautical infrastructure, equipment and services by the MOT is a systemic *State Factor* that has remained well “under the radar” in Canada, in part because it has mainly affected indigenous groups already caught in widespread patterns of neglect and profound socio-economic crises. To counter this, Chapter 5 has uncovered the MOT’s detached and inequitable involvement in the governance of northern aerodromes and ANS services. Its liberalized approach in this area has long proven to be inadequate in securing the safety of local air operators and the wellbeing of indigenous communities who depend on these vital hubs and amenities as a means to remain connected with the rest of the world, obtain basic commodities and access essential services.

Instead of investing into the safety of northern aeronautical infrastructure and resolving this crisis, the MOT has subjected local indigenous communities to further abandonment and gross underfunding, as well as discriminatory policies of deprivation, which have exposed them to severe and unacceptable safety risks in the civil aviation sector. By doing so, the MOT has failed to ensure that northern indigenous communities are provided with aeronautical infrastructure, equipment and services substantively equal to the standards in place across Southern Canada.

The operational deficiencies experienced up North also highlight an absurdity wherein air operations in Southern Canada are able to benefit from universally recognized safety norms. In the meantime, the MOT has failed to provide their northern counterparts with basic aeronautical infrastructure, which is essential in supporting air operations to/from remote areas of the North.

In doing so, the MOT has systematically favoured southern airport networks through its discriminatory funding models and policies, which aggravate the extremes risks already faced by air carriers in the North

Canada has left the fate and safety of northern indigenous communities at the hands of unfavourable market forces, with Adam Smith's invisible hand effectively strangling the life out of many northern aerodromes. Consequently, the Canadian North remains a naturally hazardous area of the world where in addition, civil aviation infrastructure, and its associated staff, equipment and facilities, are lacking both quantitatively and qualitatively. This gross form of neglect and discriminatory underfunding has resulted in chronic safety issues, increased accident risks and contributed to devastating crashes that have disproportionately impacted indigenous people.

Faced with the marked erosion of Northern Canada's safety infrastructure, the MOT has evaded responsibility by raising obscure policy justifications or budgetary constraints, and making countless unfulfilled promises, all the while knowing that indigenous people continue to be exposed to higher risks under this discriminatory regime. Chapter 5 has demonstrated that Canada's propensity to invest resources solely in proportion with an area's population density and/or level of economic activity has had the *unintentional*, yet pernicious effect of preventing northern residents, specifically indigenous populations, from substantively equal safety benefits under the *Aeronautics Act*.

By commercializing its civil aviation infrastructure, Canada sought to shift the corresponding operational and financial burden from the taxpayers onto the users. This was justified and arguably successful in some parts of Southern Canada, but not in the North where the air traffic is simply insufficient to sustain Canada's northern civil aviation infrastructure.⁴¹² By leaving this

⁴¹² As stated by George Petsikas: "The reality over the last two decades has been a mixed bag of semi-privatisations of critical national transportation infrastructure assets [...] This [is] particularly problematic since government funding vanished and was replaced by user cost recovery principles with no formal public accountability, fee-setting, consultation and transparency standards. In the meantime, the federal government, having washed their hands of all financial responsibility and risk, [continues] to siphon cash from the system in the form of rents payable to the federal

critical infrastructure at the mercy of market forces, Canada has effectively deregulated northern aviation safety, and prevented Northern Canada from ever maintaining its airport and ANS infrastructure to a level meeting the elementary safety norms promoted by ICAO.

The resulting discriminatory effects are far from negligible: many northern indigenous people have unreliable access to air transportation services due to antiquated aerodromes, which remain unattractive for many operators, while others have even been seriously injured and killed in accidents as a direct and immediate consequence of the MOT's inaction. Consequently, the sustained harm inflicted upon indigenous people has exacerbated existing intergenerational trauma, with adverse socio-economic impacts on their connectivity with the rest of Canada.

In accordance with international law, namely UNDRIP, and Canadian constitutional law, the MOT must now take special measures to eradicate this form of discrimination within the provision of aeronautical resources across Canada. Rather than relying on market forces and business models as it currently does under its federal policies, Canada should—when assessing where to invest into airport infrastructure in the North—look beyond traffic volumes and also consider each community's unique topography, microclimate and local hazards.⁴¹³ In the North in particular, civil aviation infrastructure should not be bartered or sold for a dollar. Rather, it should be treated as an essential public commodity and funded accordingly, to ensure the safety and sustainability of Northern Canada's indispensable air network.

As noted by the CHRT in the context of indigenous matters, “[a]ny new programs, policies, practices or funding implemented by Canada should be informed by previous shortfalls and should not simply be an expansion of previous practices that did not work and resulted in

crown that were nothing more than a bureaucratic ‘check the box’ process for the use and lease of State-owned property. The sounds of crowing delight from the finance ministry were unmistakable in the cool evening air of the federal capital, Ottawa”. See Petsikas, *supra* note 5 at 4.

⁴¹³ Privy Council Office, *supra* note 7 at 843.

discrimination.⁴¹⁴ Accordingly, it must be stressed that reinstating aeronautical airports, equipment and services under the MOT's purview, as it was the case prior to the 1990s, would not bring a sustainable and viable solution to these long-standing issues, particularly since the infrastructure disparities predate Canada's devolution of its civil aviation assets. As such, solutions must be pragmatic, contemporary (i.e., adapted to current technological advancements), and designed to bridge the current infrastructure gaps between the North and the South:

- **Proposal #1:** In accordance with a long-standing recommendation by the Standing Committee on Transport, Infrastructure and Communities,⁴¹⁵ the ownership title for the property of northern airports that serve nearby indigenous communities should be conveyed to the latter to eliminate the burdensome rent payments currently in place. This would enable indigenous communities to secure funding from banking institutions for critical infrastructure investments that would increase the safety of local air operations.⁴¹⁶ In addition and in the spirit of reconciliation, these property transfers would empower northern indigenous groups by granting them authority over the long-term planning, development and administration of key public transportation infrastructure across traditional indigenous territories.
- **Proposal #2:** The MOT should ensure that all aerodromes in Northern Canada are provided with adequate and sufficient airport infrastructure and equipment to inspect aircraft for airframe contaminants, effectively de-ice critical surfaces and apply anti-icing fluids, to a satisfactory level allowing aircrews to meet regulatory requirements under the CARs. Where air traffic is insufficient to cover the necessary capital investments and operational costs,⁴¹⁷ continuous federal funding should be provided to promote regulatory compliance by northern operators.
- **Proposal #3:** Where nearby space is available, existing runways in Northern Canada should be either extended, or displaced and built, to a suitable length (approximately 6,000 feet long and 100 feet wide),⁴¹⁸ and width capable of accommodating new generation turbine aircraft,⁴¹⁹ whose increased operational capabilities (e.g., onboard technology and instrumentation, fuel efficiency, passenger seats, cargo space, flight speed and

⁴¹⁴ *First Nations Child & Family Caring Society of Canada et al. v Attorney General of Canada (representing the Minister of Indigenous and Northern Affairs Canada)*, 2017 CHRT 14 at para 73.

⁴¹⁵ See Recommendation 1(c) in Standing Committee on Transport, "Government Response to the Fourth (Interim) Report of the Standing Committee on Transport: Air Liberalization and the Canadian Airports System in Canada", (19 May 2005), online: *Parliament of Canada* <<https://www.ourcommons.ca/DocumentViewer/en/38-1/TRAN/report-4/response-8512-381-140>>: "No rent should be paid by airports with less than 2 million passengers".

⁴¹⁶ Institute for Governance of Private and Public Organizations, *supra* note 73 at 53.

⁴¹⁷ Carriers would nonetheless remain responsible for covering the subsidized costs of the de-icing services provided to them, as it is the case in at any airport.

⁴¹⁸ Simple Flying, "Which Passenger Planes Have The Shortest Takeoff Distance?", (2023), online: *Simple Flying* <<https://simpleflying.com/shortest-takeoff-distance-passenger-planes/>>.

⁴¹⁹ *Ibid.* For instance, a Boeing 737-100 can operate from 6,000-foot runways, an Airbus 318 from a 5,840 foot runway, the Embraer 170 from a 5,394 runway and the Airbus 220-100 from a 4,800 runway.

endurance, etc.) will better serve the socio-economic and interconnectivity needs of northern indigenous communities. More importantly, this would mitigate safety risks associated with landing and taking off from short gravel runways, and the operation of older, smaller and/or less sophisticated aircraft that are currently common in the North.

- **Proposal #4:** The MOT should pave all runways at aerodromes that provide an essential form of air connectivity to indigenous communities, as well as provide the necessary staff, equipment and vehicles (e.g., snow plows) to ensure that operations are carried out safely and that routine maintenance is conducted, in order to sustain regular, reliable and efficient flight routes to/from northern communities.
- **Proposal #5:** NAV CANADA should be mandated to equip all northern aerodromes servicing indigenous communities with *precision* IFR approach capabilities, namely by utilizing satellite-based technology approved for use in other countries for precision GNSS approaches.⁴²⁰ This would require an initial investment of time, human resources and funding to design and publish GNSS precision approaches. However, because such systems rely on satellite technology rather than on local navigational aids and ANS facilities, this proposal would progressively alleviate the financial burden associated with the maintenance and calibration of physical navigational aids and associated antennas currently used for non-precision approaches.
- **Proposal #6:** NAV CANADA should expand its current flight following and traffic separation coverage in the North, namely by requiring all aircraft to be equipped with ADS-B technology, in order to address the current radar gaps discussed in this chapter.
- **Proposal #7:** The federal government, namely Environment Canada, should invest in additional staff, infrastructure, technology and resources to increase its weather service coverage across the North, with a view of filling the gaps previously identified in this chapter and improving NAV CANADA's overall weather reporting capabilities. While establishing ATC or FSS units in every northern airport may not be feasible (particularly since that is not even the standard in Southern Canada), TC should implement a long-standing recommendation that was issued by Justice Dubin four decades ago, which remains relevant and applicable to this day: "Transport Canada, in association with other appropriate governmental agencies, should immediately embark on a program to train native [indigenous] people in the remote areas of Canada in order to provide them with the skills required for radio operations, airport maintenance and weather data interpretation, and thus enable them to provide advisory service to aircraft."⁴²¹ This particular recommendation would bring a two-fold benefit, first by employing local indigenous residents and generating income wages, and secondly by allowing operators to rely on local onsite specialists to obtain critical aerodrome and weather information.
- **Proposal #8:** From a broader perspective, the MOT should establish a mechanism to ensure that northern aerodromes meet elementary safety norms, namely by inspecting them on a routine basis to identify potential deficiencies and funding needs. Such a mechanism should include the provision for additional financial resources taking into account the current deficiencies and future needs of northern aerodromes.

⁴²⁰ See Gonzaga-Lopez et al, "Implementing Precision Approaches Supported by Satellite-Based Augmentation Systems in the Austrian Alps" (2020) 28:3 Journal of Air Transportation 70–82.

⁴²¹ Privy Council Office, *supra* note 7 at 1061.

Chapter 5 — The Inadequacy of Aeronautical Infrastructure, Equipment and Services in Northern Canada

More broadly and to achieve the above-mentioned recommendations, it is recommended that Canada establish a designated body responsible for administering the civil aviation infrastructure, equipment and services across Northern Canada, to ensure *inter alia* that aerodromes that service nearby indigenous populations are provided with adequate resources, planning and supervision to meet and maintain elementary safety norms. Such a policy, coined as the *Northern Indigenous Aeronautical Policy* (NIAP), would be implemented and governed by a newly created government authority falling under the MOT's portfolio—the *Northern Indigenous Aeronautical Board of Canada* (NIABC), which would be entrusted with the development, management and operation of *northern indigenous aerodromes*.⁴²²

The main purpose of the NIAP would be to implement a targeted strategy to improve the safety and sustainability of northern aerodromes. It would be managed concomitantly with the current NAS in collaboration with all government levels, yet governed directly by the NIABC. This body would be administered by a board composed of one representative from the MOT, one from NAV CANADA and another from the Minister of Crown–Indigenous Relations.

In order to empower indigenous populations and meaningfully include them in the governance of their northern aviation network, the majority of the remaining board seats would be occupied by indigenous representatives holding the necessary expertise and experience in northern civil aviation, namely by appointing former employees and executives from air carriers currently owned and operated by indigenous groups. Indigenous people have a proven-track record in running successful northern airlines,⁴²³ therefore, they have the necessary knowledge and expertise to successfully administer the northern aerodromes that service their communities.

⁴²² These could be defined as aerodromes located within a prescribed distance of a community predominantly populated by indigenous people; situated in the vicinity of an indigenous reserve established in accordance with the *Indian Act*; and/or that provides the only year-long method of transportation to a northern community.

⁴²³ See Susan Bell, "First woman appointed to lead Air Creebec", (2023), online: CBC News <<https://www.cbc.ca/news/canada/north/cree-aviation-air-creebec-president-change-1.6898258#:~:text=A%20Cree-owned%20airline%20in%20northern%20Quebec%20with%20a,career%20before%20that%20with%20the%20Cree%20Nation%20Government>>: "Several Air Creebec officials say when former Cree Grand Chief, the late Billy Diamond,

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Of course, appropriate federal funding would be required to implement the NIAP, as well as to establish and operate the NIABC on a continuing basis. Under its core mandate, the NIAP would be responsible for taking positive and sustained actions to ensure that remote northern airports, which service nearby indigenous populations, meet regulatory requirements specifically by maintaining a uniform standard of infrastructure, equipment and service equivalent to the standards in place in Southern Canada, regardless of an airport's air traffic volume and associated revenues.⁴²⁴

Under this policy, the federal government would retain its authority over air safety, public health, immigration and customs, however, the administration of northern aerodromes, onsite services and facilities, would be transferred to the NIABC along with corresponding funding. With respect to the ANS system up North, NAV CANADA would, of course, maintain its responsibility over ANS services in order to ensure a uniform regime across Canada. That being said, NAV CANADA should have a positive obligation, ideally prescribed by a legislative amendment, to provide equivalent levels (rather than proportional) of ANS services, coverage and infrastructure up North.

Granted, these proposals as a whole may require onerous investments, or for some, this may even present radical changes in the governance of northern aviation. But we must remember that northern flying operations are vulnerable to unique hazards related to the North's distinctive climate, topography and remoteness. An area that is naturally more dangerous than the South should not have to compose with substandard civil aviation infrastructure, which exacerbates the innate hazards of Northern Canada. Rather, we should strive to provide northern communities

told Lévesque of the Cree plans to found an airline, the former premier reportedly laughed and said, 'Indians don't run airlines, Billy.' Diamond reportedly retorted that this 'Indian' was going to own an airline. From its first flight on July 5, 1982, Air Creebec has grown to have 16 Dash-8 planes, two cargo planes and 340 employees".

⁴²⁴ As recommended by the Standing Committee on Transport, Infrastructure and Communities in a 2005 report, such funding could be attained by pooling the airport rental revenues generated across the country in order to increase the funding of the ACAP, and thus ensure an equitable distribution of resources to maintain airports across the country. See Standing Committee on Transport, *supra* note 415.

with modern aeronautical infrastructure in order to provide them with substantively equal opportunities and benefits.⁴²⁵

More importantly, these proposals would align with the federal government's reconciliation mandate and the indigenous people's inherent rights of self-determination and self-governance, namely by establishing a Nation-to-Nation relationship over the governance of northern aeronautical infrastructure and services.⁴²⁶ By empowering indigenous people and granting them decision-making powers over the development of northern air transportation, the above-mentioned remedies would tackle the discriminatory policies exerted by the federal government and entrenched in many of its programs, systems and regimes, including civil aviation. With the NIABC responsible for promoting and developing northern airports, the NIAP would also enable indigenous populations to better integrate themselves in the economic development of the North, as well as connecting this part of the country with key business hubs in the South.⁴²⁷

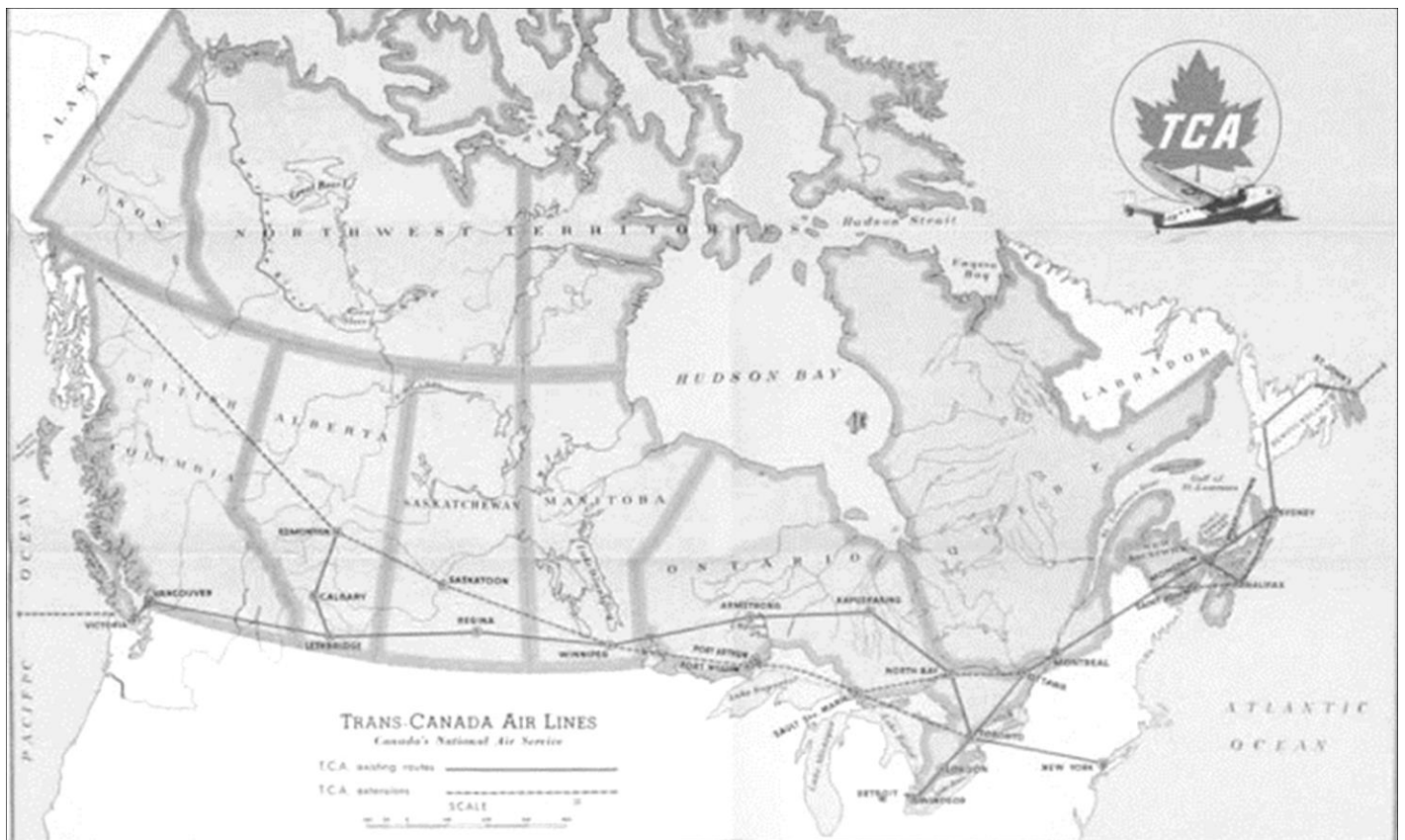
With the increasing divide between airports in the South and the North, a distinct governance model is thus warranted to ensure the safety of northern air operations, but also to address systemic disparities in the infrastructure that supports northern air networks. Accordingly, the foregoing proposals should be achieved through the enactment of binding legislation in order to create positive and enduring legal obligations for the federal government, with a view of attaining an equitable level of civil aviation infrastructure and safety *across all of Canada*.

⁴²⁵ As noted by the Executive Director of the National Air Transportation Association (Bernard Gervais): "A lot of money needs to be injected in the north as the infrastructure is in dire need of modernization or revitalization. The user-pay system will not suffice for that, nor would any program not specifically aimed towards those needs. Aviation is not a luxury. It's a necessity for thousands of Canadian citizens across vast swaths of provinces and territories, an essential mode of transportation that should be considered as such, especially in the regions we serve. When dozens of communities can only be reached by air, those vital services are their lifeline to the world, and it's everyone's duty to keep it and sustain it" (emphasis added). House of Commons of Canada - Standing Committee on Transport, Infrastructure and Communities, *Evidence No. 118* (30 May 2024) at 7.

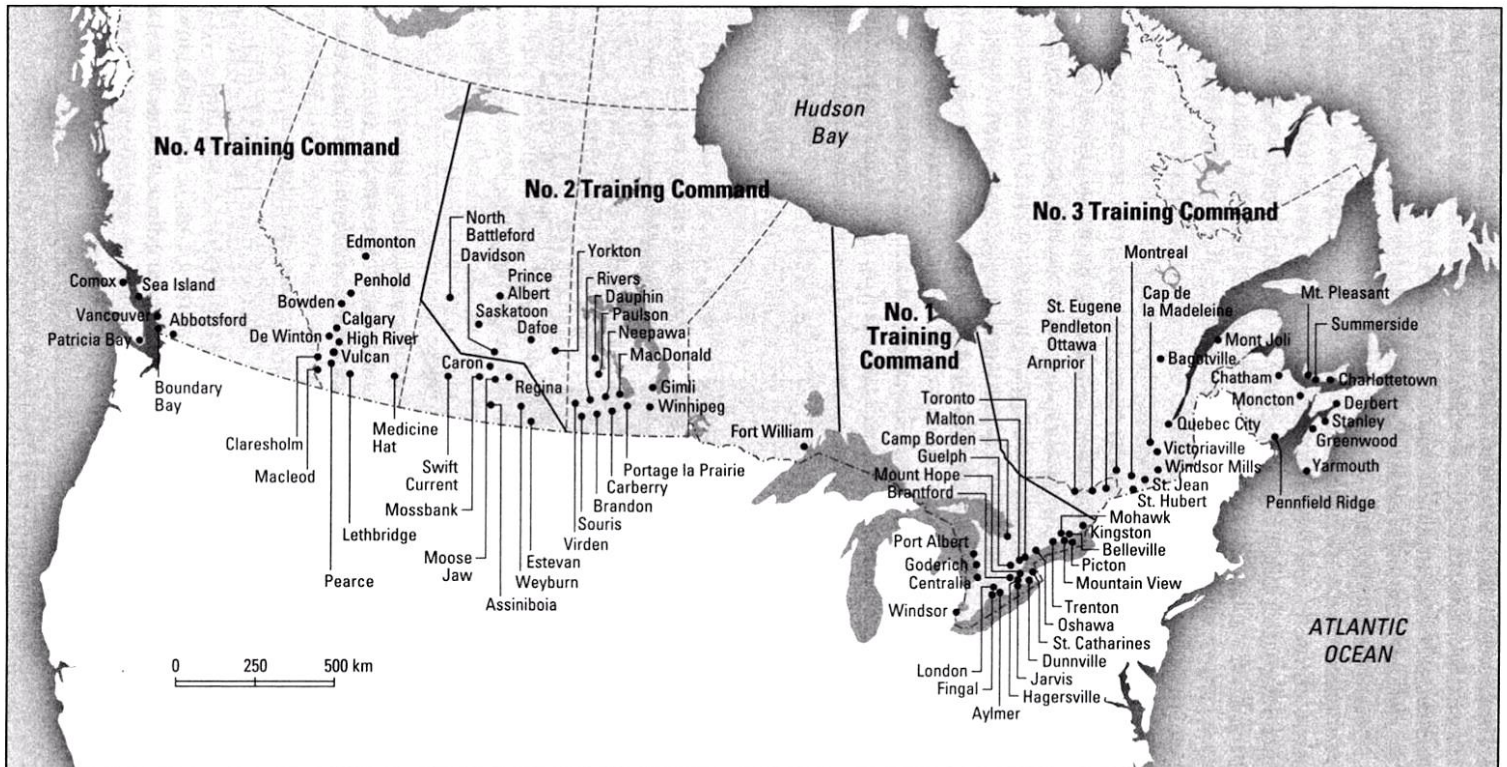
⁴²⁶ See *United Nations Declaration on the Rights of Indigenous Peoples Act*, SC 2021, c 14, arts 3, 4, 5, 15, 18, 19 & 23.

⁴²⁷ Institute for Governance of Private and Public Organizations, *supra* note 73 at 53.

Appendix I—Map of Trans-Canada Air Lines' Flight Routes in 1944



Appendix II—British Commonwealth Air Training Plan/Aerodrome Map



British Commonwealth Air Training Plan Stations

With facilities throughout Canada, the British Commonwealth Air Training Plan contributed to local economies and helped transform Canada into a global leader in the field of aviation. The BCATP was an organizational marvel and a major Canadian contribution to the Allied war effort.

Adapted from J. L. Granatstein and Desmond Morton, *A Nation Forged in Fire* (Toronto: Lester and Orpen Dennys, 1989), 103.

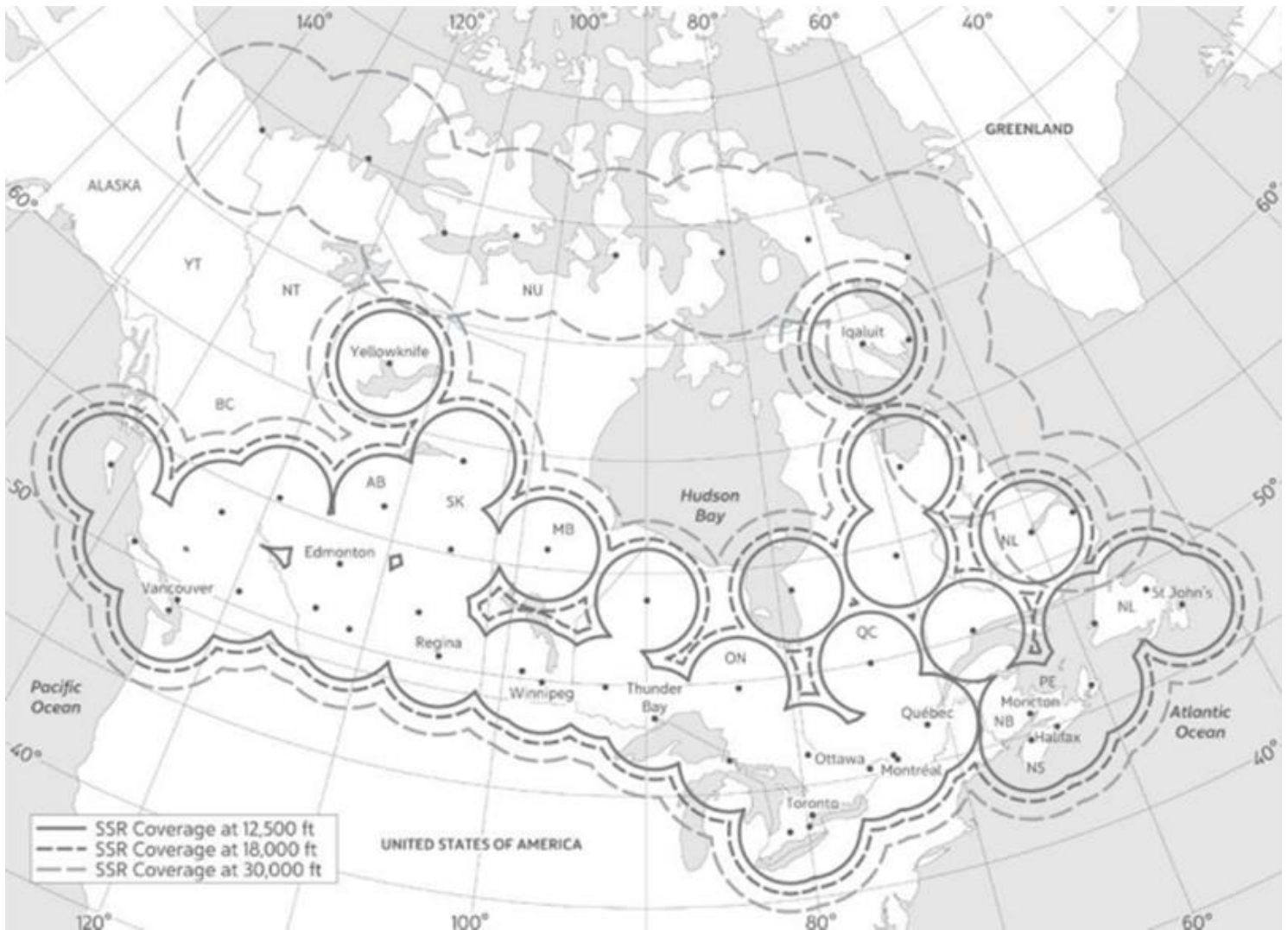
Appendix III—Canada's National Airport System



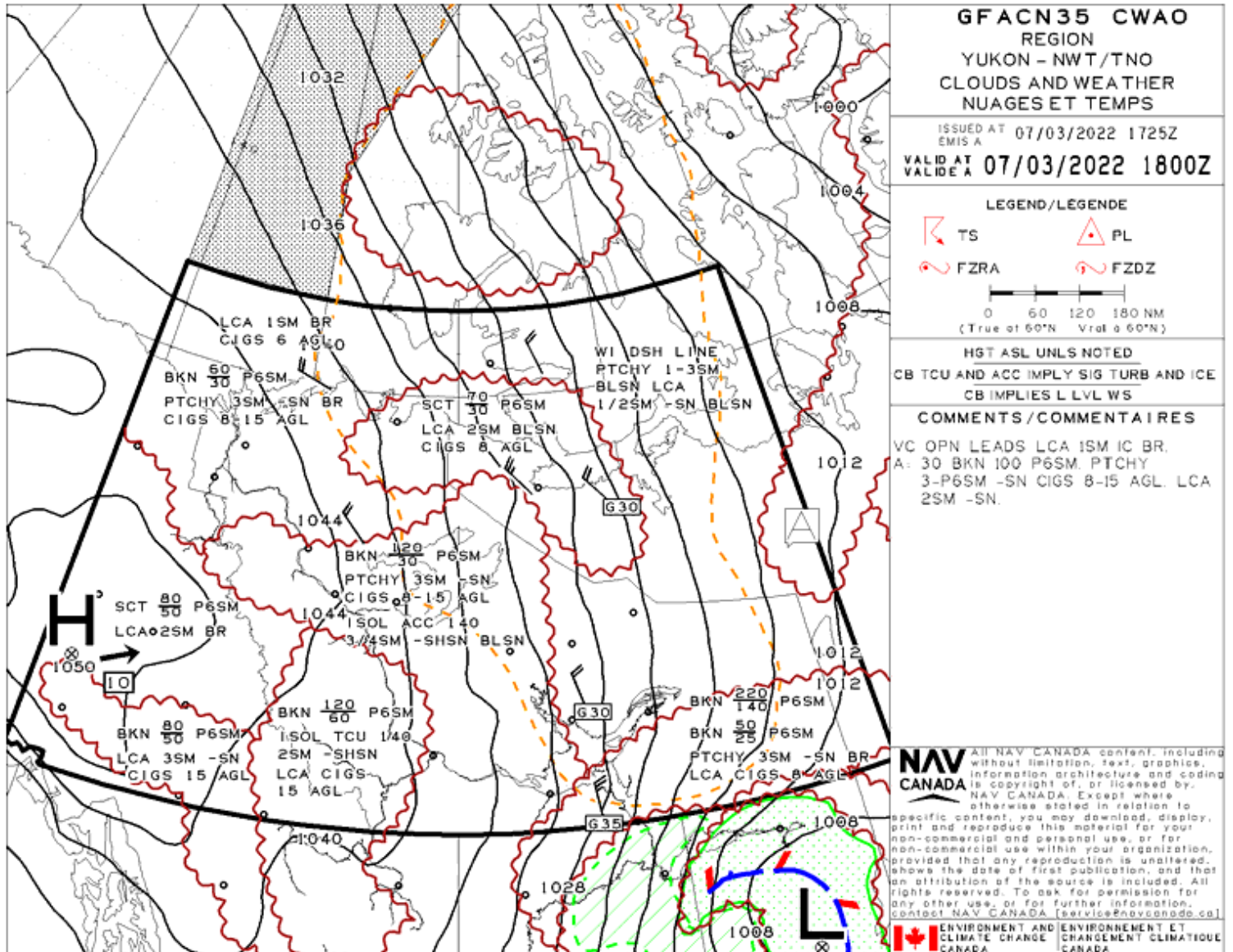
Appendix IV—ANS Facilities in Canada



Appendix V—Canada's Radar Coverage (2022)



Appendix VI—Example of a Graphical Area Forecast (GFA)



CHAPTER 6 - MAKING THE CASE FOR SYSTEMIC DISCRIMINATION: A LITIGATION ROADMAP

1. Key Research Findings

The previous chapters have unearthed a pattern of pervasive safety issues across Northern Canada—a remote part of the country where local communities depend on civil aviation to obtain basic commodities, access essential services and maintain a vital connectivity with the rest of the world.¹ These deficiencies are deeply rooted at the very core of major governmental institutions and reflect what has been defined in Chapter 3 as *State Factors*. Safety risks resulting from these adverse *State Factors* not only increase the probabilities of being injured or killed in an accident, but they can also jeopardize over time the reliability of northern air operations² and disrupt local supply chains. The disproportionate impact of these structural inequalities on northern residents is thus far-reaching, as their safety, health and socio-economic wellbeing remain at the mercy of *State Factors*.

This phenomenon's underlying evidence is overwhelming, tangible and well documented, but to the author's surprise, it has never been considered, nor articulated as a litigable issue. Accordingly, Chapter 6 will argue that the findings made in previous chapters, along with their supporting evidence, are sufficient to characterize the cumulative impact of these *State Factors* as a form of systemic discrimination. Based on the evidence presented so far in this thesis, it is the author's opinion that a discrimination claim against the MOT filed by aggrieved indigenous people in the North could succeed, as the previously discussed *State Factors* have resulted in an adverse impact against them. More specifically, this final chapter will propose a preliminary litigation roadmap and examine how a *prima facie* case of discrimination could be successfully

¹ See Transport Canada, "Government of Canada announces new funding to strengthen air safety in Northern Ontario", (2023), online: *Government of Canada* <<https://www.canada.ca/en/transport-canada/news/2023/11/government-of-canada-announces-new-funding-to-strengthen-air-safety-in-northern-ontario.html>>.

² See Danielle Paradis, "Trip south for medical treatment takes young Inuk mother away from her Grise Fiord community for a month", (2023), online: *APTN National News* <<https://www.aptnnews.ca/national-news/medical-travel-nunavut-canadian-north/>>.

argued under Canadian law, namely under the *Charter* and the *Canadian Human Rights Act* (CHRA).³

2. The Right to Equality — The Applicable Legal Framework

2.1 Section 15 of the Charter

The starting point for this chapter's analysis is found under subsection 15(1) of the *Canadian Charter of Rights and Freedoms* (*Charter*),⁴ which sets out “enforceable, legal rights to equality” in Canada:⁵

“[e]very individual is equal before and under the law and has the right to the equal protection and equal benefit of the law without discrimination and, in particular, without discrimination based on race, national or ethnic origin, colour, religion, sex, age or mental or physical disability.”⁶

The purpose of section 15 is to “reinforce the important insight that substantive equality requires positive action to ameliorate the conditions of socially disadvantaged groups.”⁷ Applied to the context of this thesis, substantive equality⁸ can be interpreted as requiring Canada's civil aviation regime to not only treat everyone equally, but also to ensure that its effects are *relatively* equal for different groups of individuals⁹ and do not negatively impact individuals that are already disadvantaged.¹⁰ Section 15 of the *Charter* thus reflects “a profound commitment to promote

³ *Canadian Human Rights Act*, RSC 1985, c H-6 [CHRA].

⁴ The *Charter* applies to all matters within the authority of federal, provincial and territorial governments. See Part I of the *Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (UK), 1982, c 11, s 32 [Charter].

⁵ Fay Faraday, “The Elephant in the Room and Straw Men on Fire” (2021) 30:2 *Constitutional Forum* 15–28 at 24.

⁶ *Charter*, *supra* note 4 s 15.

⁷ Mark Drumbl & John Craig, “Affirmative Action in Question: A Coherent Theory for Section 15(2)” (1997) 4:1 *Review of Constitutional Studies* 8–123 at 81; see also Jena McGill, “Ameliorative Programs and the Charter: Reflections on the Section 15(2) Landscape Since *R v Kapp*” (2017) 95 *The Canadian Bar Review* 213–250.

⁸ Lynn Smith & William Black, “The Equality Rights” (2013) 62 *Supreme Court Law Review* 301–378 at para 5: “To begin with what substantive equality is not, it is not formal equality. The formal principle of equality, derived from Aristotle, states that things that are alike should be treated alike, while things that are unlike should be treated unlike in proportion to their unalikehood.”

⁹ See HillNotes, “Executive Summary – Section 15 of the Canadian Charter of Rights and Freedoms: The Development of the Supreme Court of Canada's Approach to Equality Rights Under the Charter”, (2022), online: *Library of Parliament* <<https://hillnotes.ca/2022/03/28/executive-summary-section-15-of-the-canadian-charter-of-rights-and-freedoms-the-development-of-the-supreme-court-of-canadas-approach-to-equality-rights-under-the-charter/>>.

¹⁰ Margot Finley, “Limiting Section 15(1) in the Health Care Context: The Impact of *Auton v. British Columbia*” (2005) 63 *University of Toronto Faculty of Law Review* 213–243 at para 21.

equality and prevent discrimination against disadvantaged groups.”¹¹ *A contrario*, a violation of this right may give rise to a claim of *discrimination* if certain criteria are met.

2.2 Alternative Route Under the CHRA

While this chapter’s analysis will be centred on section 15 of the *Charter*, the author’s proposed claim can also be filed in another forum, i.e., before the Canadian Human Rights Commission (CHRC) in accordance with the CHRA. The SCC has indeed noted that the principles underpinning human rights legislation are equally applicable to questions of discrimination under subsection 15(1) of the *Charter*, and *vice versa*.¹² As such, the *Charter* arguments made in this chapter could also be made under the CHRA, albeit with some adjustments to align with the requirements of that particular legislative framework. There are some subtle nuances between these two regimes, hence why Section 7 of this chapter will address the specific requirements for making a claim under the CHRA.

2.3 Making a Claim of Discrimination—Key Principles under the Charter

From a high-level perspective, the key elements that must be established in order to demonstrate a *prima facie* violation of subsection 15(1) of the *Charter* are as follows: “a claimant must demonstrate that the impugned law or state action [1] on its face or in its impact, creates a distinction based on enumerated or analogous grounds; and [2] imposes burdens or denies a benefit in a manner that has the effect of reinforcing, perpetuating, or exacerbating disadvantage.”¹³ A claimant must therefore demonstrate that a law or State action contributes to an unequal treatment or a differential impact, and that the alleged impact is discriminatory.¹⁴

¹¹ *Fraser v Canada (Attorney General)*, [2020] 3 SCR 113 at para 27 [*Fraser*]; see also *Quebec (Attorney General) v A*, 2013 SCC 5 at para. 332 [*Quebec*]; *Kahkewistahaw First Nation v Taypotat*, 2015 SCC 30 at paras 19-20 [*Taypotat*].

¹² *Andrews v Law Society of British Columbia*, [1989] 1 SCR 143 [*Andrews*].

¹³ *Fraser*, *supra* note 11 at para 27. See also *Quebec (Attorney General) v Alliance du personnel professionnel et technique de la santé et des services sociaux*, 2018 SCC 17 at paras 24-25; *Centrale des syndicats du Québec v Quebec (Attorney General)*, 2018 SCC 18 at para 22.

¹⁴ See *Andrews*, *supra* note 12 at para 44. See also *R v Kapp*, [2008] SCJ No 42 at para 28 [*Kapp*]; *Withler v Canada (Attorney General)*, [2011] 1 SCR 396 at para 31 [*Withler*].

If both criteria are met, the burden then shifts to the State who needs to demonstrate that the violation of section 15 is justified¹⁵ under section 1 of the *Charter* (see Section 8 of this chapter).¹⁶ Unless the impugned conduct can be justified by the State, this will result in a finding of *discrimination*, which has been described by the SCC:

“...as a distinction, whether intentional or not but based on grounds relating to personal characteristics of the individual or group, which has the effect of imposing burdens, obligations, or disadvantages on such individual or group not imposed upon others, or which withholds or limits access to opportunities, benefits, and advantages available to other members of society.”¹⁷

The SCC has acknowledged that discrimination can take various forms, such as direct discrimination (i.e., intentional), as well as *adverse effect* or *indirect* discrimination¹⁸ “where otherwise neutral policies may have an adverse effect on certain groups.”¹⁹ With regards to the subject matter of this thesis, the latter is the most likely applicable form of discrimination, as discussed below. It is important to note that adverse effect or indirect discrimination does not require evidence demonstrating that the State “intended to create a disparate impact.”²⁰ This is a particularly important consideration in this case, as it is doubtful that the safety disparities experienced in northern civil aviation were *intentionally* created to discriminate against indigenous people, as discussed later in this chapter.

Rather than a form of direct discrimination, the author will argue *infra* that the cumulative effects of these *State Factors* meets the criteria for adverse impact discrimination, i.e., a situation where “[i]nstead of explicitly singling out those who are in the protected groups for differential treatment, the law indirectly places them at a disadvantage.”²¹ Previous chapters have indeed

¹⁵ Finley, *supra* note 10 at para 13.

¹⁶ *Charter*, *supra* note 4. Section 1 provides that the rights and freedoms guaranteed in the Charter are “subject only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society.”

¹⁷ *Andrews*, *supra* note 12 at 174.

¹⁸ See *McKinney v University of Guelph*, [1990] 3 SCR 229 at 279; *Tétreault Gadoury v Canada (Employment and Immigration Commission)*, [1991] 2 SCR 22 at 41; see also *Law v Canada (Minister of Employment and Immigration)*, [1999] 1 SCR 497 at para 36 [Law]; *Withler*, *supra* note 14 at para 64; *Taypotat*, *supra* note 11 at para 23.

¹⁹ *Stewart v Elk Valley Coal Corp.*, 2017 SCC 30 at para 24; *Human Rights Commission v Simpsons-Sears Ltd.*, [1985] 2 SCR 536 at 32.

²⁰ *Fraser*, *supra* note 11 at para 69.

²¹ *Ibid* at para 30, citing Sophia Moreau, “What Is Discrimination?” (2010), 38 *Philosophy & Public Affairs* 143, at 155.

presented compelling evidence revealing a widespread pattern of adverse effects that appear to mostly target indigenous people in the North. As noted by the SCC, this form of adverse treatment is an affront to the right to equality under section 15 of the *Charter*:

[47] There is no doubt, therefore, that adverse impact discrimination “violate[s] the norm of substantive equality” which underpins this Court’s equality jurisprudence (*Withler*, at para. 2). At the heart of substantive equality is the recognition that identical or facially neutral treatment may “frequently produce serious inequality” (*Andrews*, at p. 164). This is precisely what happens when “neutral” laws ignore the “true characteristics of [a] group which act as headwinds to the enjoyment of society’s benefits” ...²²

Applied to the findings made in this thesis, it will be argued throughout Chapter 6 that a generalized differential treatment does exist and effectively disadvantages a great number of indigenous people, thus meeting the threshold of *systemic discrimination*.²³

From the outset, the author is cognizant that allegations of systemic discrimination within Canada’s civil aviation network may come to a surprise for some stakeholders.²⁴ However, there are many examples of long-standing and unintended disparities that were previously overlooked by Canadian society, until they were unearthed and characterized by the SCC as a form of systemic discrimination.²⁵ The SCC has even acknowledged that “systemic discrimination is more widespread than intentional discrimination.”²⁶ Accordingly, we must keep an open mind, as discrimination is likely omnipresent in many (unknown) facets of Canadian society, including air transportation.

²² *Fraser*, *supra* note 11 at para 47.

²³ *Moore v British Columbia (Education)*, 2012 SCC 61 [Moore] at para 58: “... A practice is discriminatory whether it has an unjustifiably adverse impact on a single individual or systemically on several: *Griggs v. Duke Power Co.*, 401 U.S. 424 (1971). The only difference is quantitative, that is, the number of people disadvantaged by the practice”.

²⁴ Faraday—Elephant at 24: “Decisionmakers, as individuals and as actors within institutions of power, remain challenged to reach beyond their personal experiences of privilege to see the reality of systemic discrimination”.

²⁵ Examples include the overrepresentation of indigenous people in the Canadian prison system (see *R v Gladue*, [1999] 1 SCR 688) and the overrepresentation of Indigenous children in child and family services systems (see *Reference re An Act respecting First Nations, Inuit and Métis children, youth and families*, 2024 SCC 5).

²⁶ *Saskatchewan (Human Rights Commission) v Whatcott*, 2013 SCC 11 at para 54.

The SCC has recognized that discrimination is “frequently a product of continuing to do things ‘the way they have always been done’, and that governments must be particularly vigilant about the effects of their own policies on members of disadvantaged groups.”²⁷ As such, there has been a “shift away from a fault based conception of discrimination towards an effects based model which critically examines systems, structures, and their impact on disadvantaged groups.”²⁸

Based on these considerations, Chapter 6 will focus on whether the seemingly neutral laws, regulations, policies and decisions of the MOT have resulted in a disproportionate impact on northern indigenous people.²⁹ The generalized socio-economic difficulties and safety deficiencies that persist in many aspects of northern life have caused significant hardship across the North. While non-indigenous residents are not immune to the adverse effects of *State Factors* in northern aviation, the distinguishing factor here is that this region is populated by a majority of indigenous people, meaning that a greater proportion of indigenous people are exposed to higher safety risks in comparison with the general public. Put differently, this chapter will argue that rather than *explicitly* singling out northern indigenous people for differential treatment, Canada’s civil aviation regime does so *indirectly*, meaning that while facially neutral, the impugned regime causes disproportionate consequences for indigenous people in the North.³⁰

3. Identifying a Claimant Group

Before further considering the test under section 15 of the *Charter*, it is important to carefully frame the scope of a potential claim.³¹ As a preliminary step under this framework, a

²⁷ *Fraser*, *supra* note 11 at para 31, citing Fay Faraday, “One Step Forward, Two Steps Back? Substantive Equality, Systemic Discrimination and Pay Equity at the Supreme Court of Canada” (2020), 94 S.C.L.R. (2d) 301, at 310 & Sophia Moreau, “The Moral Seriousness of Indirect Discrimination”, in Hugh Collins and Tarunabh Khaitan, eds., *Foundations of Indirect Discrimination Law* (2018) at 145.

²⁸ *Fraser*, *supra* note 11 at para 31.

²⁹ Karen Bellehumeur, “Systemic Discrimination Against Female Sexual Violence Victims” (2023) 11:11 Canadian Journal of Human Rights 131–165 at 137.

³⁰ *R v Sharma*, 2022 SCC 39 at para 29 [*Sharma*].

³¹ See Gwen Brodsky, Shelagh Day & Frances Kelly, “The Authority of Human Rights Tribunals to Grant Systemic Remedies” (2017) 6:1 Canadian Journal of Human Rights 1–47 at 40.

claimant group needs to demonstrate that its members have a personal characteristic that falls within the enumerated or analogous grounds of subsection 15(1) of the *Charter*. In the context of this thesis, there is cogent evidence that northern indigenous people are disproportionately and overwhelmingly³² the victims of the MOT's asymmetrical treatment of northern aviation. With respect to the claim's classification,³³ the basis for making a claim would therefore be discrimination based on the indigenous identity (and in some cases, the residency status for individuals living on a reserve) of those who suffer from the adverse impact of *State Factors* in the North.

However, the right to equality is a personal right, meaning that section 15 “does not provide for equality between individuals or groups within society in a general or abstract sense” but rather considers a particular claimant in comparison with other individuals.³⁴ This is a particularly important consideration, as some northern communities may experience the full brunt of the MOT's asymmetrical treatment of the North, whilst others may experience only minor effects, if any.³⁵ For instance, this research examined widespread safety disparities which are predominantly found within the geographic boundaries of Northern Canada, but there are a number of First Nation groups whose territory spans across both Northern and Southern Canada. The severity of the differential treatment may also vary from one northern community to another. Therefore, the location, experiences and circumstances of each indigenous person will necessarily be different.

³² See Bellehumeur, *supra* note 29 at 149.

³³ See Christopher Brecht & Adam Dodek, “Breaking the Law’s Grip on Equality: A New Paradigm for Section 15” (2003) 20 Supreme Court Law Review 33–63 at paras 35 & 48.

³⁴ See *Andrews*, *supra* note 12 at para 25; *R v Swain*, [1991] 1 SCR 933 at 992; *R v Church of Scientology of Toronto*, [1997] OJ No 1548 (CA) at paras 119–120.

³⁵ For example, there may be northern communities that are accessible by road or by water, equipped with 21st-century aeronautical infrastructure, serviced by reputable regional airliners (etc.), in which case there may not be a disproportionate impact. Accordingly, the application of the test under section 15 of the *Charter* and its outcome may vary depending on the circumstances of each indigenous community.

Accordingly, how a claimant group is selected and defined may have a bearing on a claim's chances of success at trial. Finding the ideal "battle horse", i.e., the case with the perfect set of facts, is thus crucial when advancing novel arguments. As documented by the case studies presented in this thesis, there are many potential "candidates" to form a claimant group and a long list of examples of their overwhelming exposure to harmful *State Factors*.³⁶

It is also important to cast into relief the findings made in the previous chapters and illustrate concretely how the aggregate impact of the *State Factors* examined in this thesis amount to a form of systemic discrimination. This is why we need to consider a real-life example in order to convincingly confirm the hypothesis of this research. Accordingly, the FDL Denesuline First Nation—a group that has suffered from notable disadvantages as a result of the MOT's asymmetrical treatment of northern aviation—will be considered in this chapter as a *hypothetical* claimant group³⁷ to demonstrate how a claim could succeed under section 15 of the *Charter*. The experience and characteristics of the FDL community, as described in chapters 4 and 5, provide a compelling set of facts for successfully making a case under section 15.

FDL is a remote fly-in indigenous reserve in northern Saskatchewan inhabited by 905 individuals, most of which are indigenous³⁸ (880 "registered Indians").³⁹ More importantly, its residents depend on air services and witnessed a tragic accident in December 2017. At the time of the crash, regulatory effectivity, surveillance and aeronautical infrastructure, services and equipment, were all significantly lacking in this area of the country.⁴⁰ *State Factors* were

³⁶ See Bellehumeur, *supra* note 29 at 134.

³⁷ Given the grounds for arguing this hypothetical case, the registered indigenous people would be eligible to participate although courts may give some flexibility to other individuals with a mixed heritage.

³⁸ Statistics Canada, "Population Characteristics: Fond-du-Lac, Saskatchewan", (2021), online: *Government of Canada* <https://fnp-ppn.aadnc-aandc.gc.ca/fnp/Main/Search/FNPopulation.aspx?BAND_NUMBER=351&lang=eng>.

³⁹ Statistics Canada, "Census Profile, 2016 Census, Fond du Lac 227, Indian reserve, Saskatchewan", (2016), online: *Government of Canada* <<https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/page.cfm?Lang=E&Geo1=CSD&Code1=4718824&Geo2=PR&Code2=47>>: "Registered or Treaty Indian status refers to whether or not a person is a Registered or Treaty Indian. Registered Indians are persons who are registered under the *Indian Act* of Canada. Treaty Indians are persons who belong to a First Nation or Indian band that signed a treaty with the Crown. Registered or Treaty Indians are sometimes also called Status Indians".

⁴⁰ See Transportation Safety Board of Canada, "Air transportation safety investigation report A17C0146 - Loss of control and collision with terrain, West Wind Aviation L.P., Avions de Transport Régional ATR 42-320, C-GWEA, Fond-du-Lac,

contributing elements in the long chain of events that led to the crash of Flight WEW282, which killed an indigenous teenager and injured several other indigenous people. The circumstances surrounding the FDL crash therefore provide a solid evidentiary foundation to make a clear case of discrimination, hence why it will be relied upon as a case study throughout this chapter's analysis.

4. Evidentiary Considerations

The saying that “extraordinary claims require extraordinary evidence”⁴¹ takes on an important meaning in this chapter. Making the claim that patterns of systemic discrimination persist within Canada's civil aviation regime in the North is a bold and serious allegation, which may be resisted by industry participants unless convincing evidence is presented. The previous chapters already established that various *State Factors* (i.e., legislative, funding, public resource, infrastructure and policy deficiencies) have contributed to widespread safety issues in the North. The proposed claim of systemic discrimination therefore does not target one statute specifically: it challenges Canada's civil aviation regime as a whole.⁴² The scope of this claim is thus extensive and may require a substantial volume of supporting evidence. As noted by the SCC:

Systemic discrimination claims target the impact of practices and systems that have been established and normalized over time within this unequal power relationship. They “necessarily involve an examination of the interrelationships between actions (or inaction), attitudes and established organizational structures.” Claims “alleging [...] systemic discrimination cannot be understood or assessed through a compartmentalized view”; instead they must be “understood, considered, analyzed and decided in a complete, sophisticated and comprehensive way.”⁴³

Saskatchewan, 13 December 2017”, (October 2021), online: *Transportation Safety Board of Canada* <www.tsb.gc.ca/eng/rapports-reports/aviation/2017/a17c0146/a17c0146.html#fn271>.

⁴¹ Patrizio Tressoldi, “Extraordinary Claims Require Extraordinary Evidence: The Case of Non-Local Perception, a Classical and Bayesian Review of Evidences” (2011) 2 *Frontiers in Psychology* 1–5 at 1, citing Carl Sagan (American astronomer).

⁴² A section 15 *Charter* claim targeting government conduct uses the same approach as a claim involving a specific legislative provision. See *Little Sisters Book and Art Emporium v Canada (Minister of Justice)*, [2000] SCJ No. 66 at paras 110 and 125.

⁴³ Faraday

When considering constitutional issues, such as a claim under section 15 of the *Charter*, a comprehensive, objective and convincing evidentiary record is necessary⁴⁴ in order to demonstrate how a particular State regime is discriminatory towards a claimant.⁴⁵ That being said, the applicable standard of proof when making a section 15 *Charter* claim is the *balance of probabilities*,⁴⁶ meaning that when reaching a factual conclusion, a judge must decide whether it is *more likely than not* that an event occurred, or put otherwise, that there is a 51% probability that it did happen.⁴⁷ Based on the evidence presented so far, this threshold is certainly attainable for the FDL Denesuline First Nation.

In the context of discrimination claims, the SCC has noted that when considering evidence, “courts should be mindful of the fact that issues which predominantly affect certain populations may be under-documented.”⁴⁸ The SCC has also cautioned courts against applying rigid evidentiary requirements⁴⁹ as the focus of this exercise is to establish on a case-by-case basis⁵⁰ whether a differential treatment exists and is “not simply the result of chance.”⁵¹ As such, there is some flexibility in the *quantitative* and *qualitative* nature of evidence required to meet section 15’s criteria.

As for key elements to introduce on the record, the SCC has noted that “claims of adverse effects discrimination should be supported by evidence about the circumstances of the claimant group and about the results produced by the challenged law.”⁵² There is no strict recipe *per se* for

⁴⁴ See *Eaton v Brant County Board of Education*, [1997] 1 SCR 241; *MacKay v Manitoba*, [1989] 2 SCR 357 at paras 8–9.

⁴⁵ See *Andrews*, *supra* note 12 at para 25.

⁴⁶ *Quebec (Commission des droits de la personne et des droits de la jeunesse) v Bombardier Inc. (Bombardier Aerospace Training Center)*, 2015 SCC 39 at para 59.

⁴⁷ See *F.H. v McDougall*, 2008 SCC 53.

⁴⁸ *Fraser*, *supra* note 11 at para 57.

⁴⁹ *Ibid.* at para 67: “Both evidence of statistical disparity and of broader group disadvantage may demonstrate disproportionate impact; but neither is mandatory and their significance will vary depending on the case”. See also Jennifer Koshan & Jonette Hamilton Watson, “The Continual Reinvention of Section 15 of the Charter” (2013) 64 *University of New Brunswick Law Journal* 19–53 at para 76.

⁵⁰ Alicja Puchta, “*Quebec v A and Taypotat*: Unpacking the Supreme Court’s Latest Decisions on Section 15 of the Charter” (2018) 55 *Osgoode Hall Law Journal* 665–712 at para 11.

⁵¹ *Fraser*, *supra* note 11 at para 59.

⁵² *Ibid.* at para 60.

adducing evidence under section 15 of the *Charter*, evidentiary sources can include a description of physical, social, cultural or other barriers experienced by the claimants and “evidence about the outcomes that the impugned law or policy (or a substantially similar one) has produced in practice.”⁵³

Conversely, the FDL claimant group does *not* require proof that the MOT intended to discriminate; that their members' protected characteristic(s) caused the impact; that the civil aviation regime “was responsible for creating the background social or physical barriers which made a particular rule, requirement or criterion disadvantageous for the claimant group”;⁵⁴ or that all members of a protected group (i.e. all indigenous people in Canada) were affected in the same way by the impugned law or regime.

The latter aspect is particularly important because the differential effects of Canada’s civil aviation regime are largely felt in remote fly-in indigenous communities in the North, whereas other indigenous people may live near a larger and/or more developed community in the North or even live in Southern Canada.⁵⁵ As such, the fact that an indigenous group has not been affected by *State Factors* in civil aviation does not preclude another group, such as the FDL Denesuline First Nation, from successfully making a claim under section 15.

If we apply the above-mentioned considerations to this thesis, a claimant group could be expected to file evidence on how Canada’s aviation system resulted in disproportionate impacts for northern indigenous people (e.g., air safety investigation reports, government studies and inquiries, accident statistics in the North, etc.), but also “evidence about the circumstances of the claimant group and about the results produced by the challenged law,”⁵⁶ for instance, how this

⁵³ *Ibid.* at para 58.

⁵⁴ *Ibid.* at para 71.

⁵⁵ In the context of this thesis, it is apparent that distinct adverse State Factors are present in the North where a majority of residents are indigenous, yet those same factors are either less prevalent or absent in the South—a region where indigenous people do live but nonetheless constitute a minority. As such, not all indigenous people in Canada are affected by the adverse State Factors presented in this thesis, but that does not mean that a claim of discrimination cannot succeed. As noted by the SCC, “[t]he fact that discrimination is only partial does not convert it into non-discrimination.” See *Brooks v Canada Safeway Ltd.*, [1989] 1 SCR 1219 at 1248.

⁵⁶ *Fraser*, *supra* note 11 at para 60.

resulted in direct and tangible consequences for the individual members of the Denesuline First Nation. Evidence pertaining to the personal circumstances of the members of this community and the collective barriers they experienced would be particularly relevant, such as information regarding their exposure to higher risks, direct casualties and collateral effects of the 2017 crash (e.g., number of injuries, their severity and their long-term physical and psychological consequences), air connectivity issues, past occurrences involving flights to/from FDL, as well as pre-existing systemic disadvantages that may have been exacerbated by these *State Factors*. As such, a variety of evidentiary sources can be relied upon to successfully argue this case.

5. Statistical Gaps

While the FDL crash presents a good test case for arguing a section 15 *Charter* claim, the author must acknowledge an evidentiary gap pertaining to the adverse impact that the impugned civil aviation regime has produced, i.e., statistical evidence illustrating the results of the MOT's differential treatment of northern aviation. The case studies presented in previous chapters, namely West Wind Aviation Flight WEW282, Wapiti Aviation Flight 402, PAL Flight 960, the 2012 Perimeter Aviation LP accident, the Pukatawagan runway excursion, the ORNGE tragedy and Perimeter Airlines Flight PAG962, provided ample *qualitative* evidence describing the disproportionate impact, specifically how unique and pervasive *State Factors* have repeatedly contributed to preventable tragedies in the North.

To increase a case's chances of success, a disparate pattern of exclusion or harm from the law should also be supported by clear and consistent statistics demonstrating a disparate result stemming from the civil aviation regime.⁵⁷ As noted by the SCC, "statistical evidence is itself a compelling sign that the law has not been structured in a way that takes into account the protected group's circumstances."⁵⁸ However, the author of this thesis was unable to compile and present this type of *quantitative* data, i.e. statistical probabilities or comparative figures

⁵⁷ *Ibid.* at para 58.

⁵⁸ *Ibid.* at para 63.

demonstrating that northern indigenous residents are more likely, by a given multiplier, to be involved in an aviation accident in comparison with individuals residing in Southern Canada. This gap can be explained for the following reasons.

Firstly, the TSB does not collect information pertaining to the ethnicity or race of passengers involved in an occurrence, nor can their identities be published or disclosed by the TSB, as this is personal information protected under applicable access to information and privacy laws in Canada.⁵⁹ The only way the author was able to confirm the indigenous identity for some of the victims involved in the previously mentioned case studies was by correlating investigation reports with news articles where certain names, places of residence and personal stories were shared by the next of kin. However, not every crash in the North is the subject of a detailed news report and in some instances, the next of kin are—understandably—not willing to disclose such information to the media.

Alternatively, the author considered whether a high-level statistical analysis could be carried out to establish a disparity between the North and South with respect to each region's number of accidents, injuries and deaths over a given period of time. The TSB does publish on its website a large amount of data from its Aviation Safety Information System (ASIS), which is presented in the form of five datasets covering all reported occurrences since 1995.⁶⁰ The author identified two datasets (the "Occurrence Table"⁶¹ and the "Injuries Tables"⁶²), which contain relevant information pertaining to the location of each occurrence and the number of resulting casualties. However, the author was unable to extract information specifically related to northern occurrences, as the size of these two datasets is quite substantial (33,608 pages in total at the

⁵⁹ See *Access to Information Act*, RSC, 1985, c A-1; *Privacy Act*, RSC, 1985, c P-21.

⁶⁰ Transportation Safety Board of Canada, "Air transportation occurrence data (ASIS)", (2023), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/stats/aviation/data-5.html>>.

⁶¹ *Ibid.* Occurrence Table: "This table contains data on the occurrence summary, including the date, time and location of the occurrence, the occurrence type and category, the occurrence classification, the aircraft involved, the number of injuries/or fatalities, the weather conditions, and data relating to the landing and takeoff aerodrome or operating surface".

⁶² *Ibid.* Injuries Table: "This table contains data on the number and severity of injuries resulting from the occurrence".

time of this writing), their format is difficult to decipher (see Figure 1) and there is no option to automatically filter northern occurrences from these files. Given the amount and complexity of data requiring an in-depth analysis, this statistical analysis was therefore excluded from the scope of this research.

Figure 1—Example of a TSB ASIS Dataset

In any case, the SCC has concluded that “[b]oth evidence of statistical disparity and of broader group disadvantage may demonstrate disproportionate impact; but neither is mandatory and their significance will vary depending on the case.”⁶³ Consistent with the SCC’s acceptance of qualitative evidence and its recognition that discrimination can be proven without statistical

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evidence,⁶⁴ the qualitative evidence presented throughout this chapter is thus sufficient to successfully argue a *Charter* claim. In any case, it stands to reason that if we did carry out an in-depth statistical analysis of the TSB ASIS datasets, a disproportionate impact would likely be revealed.

6. Analysis—Applying the Test Under Section 15 of the *Charter*

This section will analyze in more detail how a claim for systemic discrimination, in light of the *State Factors* identified in this thesis, could be successfully argued in accordance with the *Charter's* legal framework.

6.1 *The Impact of the MOT's Conduct Creates a Distinction Based on Enumerated or Analogous Grounds*

The *State Factors* identified in previous chapters have created a distinction based on an enumerated or analogous ground at the detriment of northern indigenous people. Under this first part of the section 15 test, a complainant must first demonstrate that the State's (in)action created a distinction based on a protected ground, namely that the complainant was denied a benefit provided to others,⁶⁵ thus creating an arbitrary and systemic disadvantage with no rational basis or apparent reason.⁶⁶ In this chapter's hypothetical case, the focus will thus be on the MOT's conduct and its disproportionate impact on the safety and general wellbeing of the FDL Denesuline First Nation. Moreover, it will be demonstrated that a sufficient nexus exists between the alleged distinction and the impugned State (in)action at the origin of that distinction.

⁶⁴ *Ibid.* at para 66.

⁶⁵ Puchta, *supra* note 50 at para 8; see also Moore, *supra* note 23 at 33: "... to demonstrate *prima facie* discrimination, complainants are required to show that they have a characteristic protected from discrimination under the Code; that they experienced an adverse impact with respect to the service; and that the protected characteristic was a factor in the adverse impact [...]"

⁶⁶ See *Université de Sherbrooke c Commission des droits de la personne et des droits de la jeunesse*, 2015 QCCA 1397 at para 55.

Under this part, both the distinction and the disadvantage must stem from the State,⁶⁷ therefore, courts will usually assess the extent to which the discriminatory effects are tied to the State's action(s). Once a disadvantage is demonstrated, it must also be proven that it was created by the impugned State conduct, i.e., there must be a clear relationship between the discriminatory *distinction* and the government's *conduct* (e.g., *State Factors*).

When specifically considering the alleged *distinction*,⁶⁸ a complainant must demonstrate that the impugned law or State action (in this case being the MOT's governance over northern civil aviation activities) has resulted in a differential treatment.⁶⁹ As the claimant group must establish that they have been treated differently on the basis of a protected ground,⁷⁰ the criteria of distinction necessarily requires a degree of comparison between the claimant group and the remainder of the general population.⁷¹ In this case, it is argued that the adverse effects of the MOT's conduct on the Denesuline First Nation (1) are essentially tied to the persons they are, specifically in relation to their "race, national or ethnic origin" and residency status on a reserve,⁷² and (2) are excessive in comparison with what is experienced by the remainder of the Canadian population.

As stated by the SCC, equality "is a comparative concept, the condition of which may only be attained or discerned by comparison with the condition of others in the social and political

⁶⁷ See *Symes v Canada*, [1993] 4 SCR 695 at para. 134: "We must take care to distinguish between effects which are wholly caused, or are contributed to, by an impugned provision, and those social circumstances which exist independently or such a provision".

⁶⁸ *Quebec (Attorney General) v Alliance du personnel professionnel et technique de la santé et des services sociaux*, [2018] 1 SCR 464 at para 26.

⁶⁹ *Fraser*, *supra* note 11 at para 81.

⁷⁰ *Whitler*, *supra* note 14 at para 62: "Inherent in the word "distinction" is the idea that the claimant asserts that he or she is denied the benefit that others are granted or carries a burden that others do not by reason of personal characteristic that falls within the enumerated or analogous grounds of s. 15(1)".

⁷¹ *Sharma*, *supra* note 30 at paras 31 & 41; *Andrews*, *supra* note 12 at 164; *Whitler*, *supra* note 12 at paras 61–62; Graeme Mew, Debra Rolph & Daniel Zacks, *The Law of Limitations*, 4th ed (Montréal, QC: LexisNexis Canada, 2023), s 18.03: "...the relevant question is not whether those alleging a violation of their equality rights have differences that exist independently of the impugned law, but rather whether the impugned law treats those persons differently".

⁷² See *First Nations Child & Family Caring Society of Canada et al. v Attorney General of Canada (representing the Minister of Indigenous and Northern Affairs Canada)*, 2020 CHRT 20 at para 248 [FNC 2020].

setting in which the question arise.”⁷³ In recent years, the SCC has moved away from the “similarly situated” test under which a mirror comparator group was required⁷⁴ to focus on how distinctions create prejudice or a disadvantage for a claimant group.⁷⁵ However, comparisons still play a role in both steps of the section 15 test,⁷⁶ hence why satisfying this comparative component of the test can pose certain challenges,⁷⁷ as noted by the SCC:

In other cases, establishing the distinction will be more difficult, because what is alleged is indirect discrimination: that although the law purports to treat everyone the same, it has a disproportionately negative impact on a group or individual that can be identified by factors relating to enumerated or analogous grounds [...] In that kind of case, the claimant will have more work to do at the first step. Historical or sociological disadvantage may assist in demonstrating that the law imposes a burden or denies a benefit to the claimant that is not imposed on or denied to others. The focus will be on the effect of the law and the situation of the claimant group.⁷⁸

In the FDL case, there is fortunately sufficient qualitative evidence showing that the Denesuline First Nation, in comparison with the general population, experienced a differential treatment as a result of the MOT’s (in)action in preventing and addressing serious safety gaps within Canada’s northern aviation regime (i.e., *State Factors*). The MOT’s conduct over the past decades has indeed contributed to an asymmetrical treatment of northern air services, which has produced serious inequalities with respect to the safety of indigenous people in the North and eventually culminated in the tragic FDL crash.⁷⁹

⁷³ *Andrews*, *supra* note 12 at 164.

⁷⁴ *Ibid*: “... mere equality of application to similarly situated groups or individuals does not afford a realistic test for violation of equality rights... [A] bad law will not be saved merely because it operates equally upon those to whom it has application. Nor will a law necessarily be bad because it makes distinctions”.

⁷⁵ Mew, Rolph & Zacks, *supra* note 71, s 18.03: “In *Andrews*, the Supreme Court of Canada rejected the ‘similarly situated’ test developed in *Ertel* in favour of a more purposive and less mechanistic approach. (...) Noting that the purpose of section 15(1) is ‘much more specific’ than ‘the mere elimination of distinctions’, McIntyre J. held that discrimination for the purposes of section 15 must be discrimination based on some personal characteristic of the individual or group that claims to have been treated unequally. Further, the analysis of discrimination ought to take place within the context of the grounds enumerated in section 15(1) and those analogous to them, such that only distinctions involving ‘prejudice or disadvantage’ will violate the right to equality”.

⁷⁶ *Sharma*, *supra* note 30 at para 41.

⁷⁷ See Mew, Rolph & Zacks, *supra* note 71, s 18.03.

⁷⁸ *Withler*, *supra* note 14 at paras 61–64.

⁷⁹ *Fraser*, *supra* note 11 at para 47.

Granted, the MOT's design and application of the *Aeronautics Act*—a seemingly neutral law—and its subordinate regulations, policies and guidelines, reflect objective rules, restrictions and criteria that are neutral on the surface. These legal instruments are not drafted in a way that expressly discriminates indigenous people. However, they do create “built-in-headwinds”⁸⁰ for northern indigenous groups who depend on air services, in that they favour the economic and safety interests of higher-volume markets in the South but do not take into account the distinctive needs of the FDL community, nor the unique operational environments and risk pathogens found across the North. As a result, this otherwise neutral legal regime has the unintentional effect of placing northern indigenous people at a notable disadvantage, given their higher exposure to adverse *State Factors*.⁸¹ It is a perfect example where “[a]ccording to substantive equality, we ought to sometimes accommodate difference instead of treating everyone the same,”⁸² yet we do not.

Consequently, the unintentional effects of the *Aeronautics Act*'s underlying legal regime creates a discriminatory *distinction*, i.e., a disproportionate impact on the safety of the Denesuline First Nation, which are members of a protected group by virtue of their indigenous identity and residence on a reserve.⁸³ While Canada's civil aviation regime does not explicitly intend to treat them differently, the evidence presented in previous chapters reveals clear signposts suggesting

⁸⁰ *Ibid.* at paras 52–53.

⁸¹ Puchta, *supra* note 50 at para 15: “A law that treats all individuals in an identical manner, irrelevant of the differences in their characteristics and context, may very well still be a discriminatory law, creating outcomes incongruent with a more substantive concept of equality. Justice McIntyre pointed to a number of examples to illustrate his point, including the much-maligned pre-Charter decision of the SCC in *Bliss v Attorney General of Canada*, where the Court ruled that it was not discriminatory to deny a pregnant woman unemployment benefits to which she would have been entitled had she not been pregnant. Its reasoning? The law treated all pregnant women equally”.

⁸² Anthony Sangiuliano, “Can There Be a Unified Doctrine of Anti-discrimination in Canada?” (2022) 18 *Journal of Law and Equality* 1–37 at para 48.

⁸³ *Fraser*, *supra* note 11 at para 50; *Kapp*, *supra* note 14 at para. 19; *Withler*, *supra* note 14 at para 38: “While the promotion or the perpetuation of prejudice, on the one hand, and false stereotyping, on the other, are useful guides [to whether a disadvantage is discriminatory] what constitutes discrimination requires a contextual analysis, taking into account matters such as pre-existing disadvantage of the claimant group, the degree of correspondence between the differential treatment and the claimant group's reality, the ameliorative impact or purpose of the law, and the nature of the interests affected”.

that the MOT does so unintentionally by tolerating the adverse impact of pervasive *State Factors* in the North.⁸⁴

Permanent physical, socio-economic and psychological harm resulting from these *State Factors* has been inflicted on the victims of the FDL accident, as well as their families and their community. The Denesuline First Nation must compose—like a hanging sword of Damocles—with the constant fear that they or their loved ones could once again be involved in an accident every time a flight departs or arrives in FDL. Like many northern settlements, they have also become accustomed to routine flight irregularities, which hinders their access to basic goods and essential services and exacerbates existing socio-economic issues.⁸⁵

As such, if one compares the treatment of northern indigenous people with the remainder of Canada within the MOT's civil aviation regime, the latter benefit from significantly superior safeguards and safety levels, and are relatively immune from the deadly risk pathogens that routinely endanger the wellbeing of northern residents. The MOT's asymmetrical regulation, oversight and funding of northern aviation, through the effects of various *State Factors*, reflect a form of adverse *State conduct* that has resulted in disproportionate effects on the safety of the FDL indigenous community, when compared to the treatment afforded to the traveling public in Southern Canada.

As for the *nexus* between Canada's civil aviation regime and the discriminatory impact on the claimant group,⁸⁶ there is clear evidence of a causal relationship between these *State Factors*

⁸⁴ *Fraser*, *supra* note 11 at para 53.

⁸⁵ More broadly, this thesis has also argued that the disparities that afflict northern aviation go beyond accidents. Indeed, not all aircraft go down when things go wrong; many of the issues discussed previously can manifest themselves as flight delays or cancellations. Although additional research would be required to adduce further evidence on this particular point, *State Factors* have most likely contributed to a substandard and less reliable aviation network, where flight irregularities are more frequent, resulting in supply chain disruptions and generally, inferior social and economic connectivity with the rest of Canada.

⁸⁶ Michael Morris & Joseph Cheng, "Lovelace and Law Revisited: The Substantive Equality Promise of Kapp" (2009) 47 Supreme Court Law Review 281–319 at para 112.

and the alleged *Charter* infringement.⁸⁷ Considering that the travelling public is entitled to the protection of the law and that the MOT is responsible for adopting and enforcing safety regulations, policies and processes,⁸⁸ as per its exclusive powers over aeronautics under the *Constitution* (see Chapter 4), one could argue that there is a public relationship between the MOT and the Denesuline First Nation.⁸⁹ In *Swanson*, this exact relationship was even characterized by the FCA as triggering a duty of care between the MOT and the users of Canadian air services,⁹⁰ meaning that if a State can be held liable for its role in air accidents, it can certainly be held accountable for resulting patterns of discrimination in aviation.

Furthermore, as noted in Chapter 1, safety is one of the most elementary human needs, hence why historically, it has been regulated by a State-centric approach. In Canadian aviation, the MOT has taken the exclusive reigns over this core mandate. While the MOT is not expected to guarantee *absolute* safety, it must ensure that *core*⁹¹ safety measures, benefits and protections flowing from its mandate under the *Aeronautics Act* are applied equally across the country. When it fails to do so, a breach of section 15 may be established,⁹² namely when safety benefits and

⁸⁷ *Weatherley v Canada (Attorney General)*, 2021 FCA 158 at para 42, citing *RWDSU v Dolphin Delivery Ltd.*, [1986] 2 SCR 573; see also *Canada (Attorney General) v Bedford*, 2013 SCC 72 at paras 73–78.

⁸⁸ Bellehumeur, *supra* note 29 at 150.

⁸⁹ *Ibid* at 151: “Support can be found in comparable cases resulting in rulings that governments provided a ‘service customarily available to the public.’ For example: in *R v Moore*, 84 the provision of education was deemed to be a service; in *XY v Ontario (Government and Consumer Services)*, 85 the provision of birth certificates was a government service; and in *Canada (Attorney General) v. First Nations Child and Family Caring Society of Canada*, 86 government funding of welfare services for children was identified as a service”.

⁹⁰ See Chapter 4, *supra* & *Swanson Estate v Canada*, 1991 CanLII 8226 (FCA).

⁹¹ *Auton (Guardian ad litem of) v British Columbia (Attorney General)*, [2004] SCJ No 71 at 38: “The petitioners rely on *Eldridge* in arguing for equal provision of medical benefits. In *Eldridge*, this Court held that the Province was obliged to provide translators to the deaf so that they could have equal access to core benefits accorded to everyone under the British Columbia medicare scheme. The decision proceeded on the basis that the law provided the benefits at issue—physician-delivered consultation and maternity care. However, by failing to provide translation services for the deaf, the Province effectively denied to one group of disabled people the benefit it had granted by law. *Eldridge* was concerned with unequal access to a benefit that the law conferred and with applying a benefit-granting law in a non-discriminatory fashion. By contrast, this case is concerned with access to a benefit that the law has not conferred. For this reason, *Eldridge* does not assist the petitioners”.

⁹² Dwight Newman, Guy Régimbald & John Wilson, *Halsbury's Laws of Canada – Constitutional Law – Charter of Rights / Constitutional Law – Division of Powers* (Montréal, QC: LexisNexis Canada, 2023) at 102: “Section 15 does not obligate the state to undertake measures to advance equality. Nor does it forbid incremental state action to redress historic disadvantages. However, when the state voluntarily undertakes particular initiatives, exclusion of a group from these measures on the basis of an enumerated or analogous ground may constitute discrimination if all of the other requisite elements of the infringement test are met”.

required services⁹³ stemming from a statute (e.g., aircrew licensing or operator certification carried out by the TCCA in accordance with the *Aeronautics Act*, and ANS services delegated to NAV CANADA in accordance with its enabling legislation)⁹⁴ are not provided equally.⁹⁵

In cases where essential safety benefits stemming from core State services are conferred *unequally*, the MOT must be held responsible for any differential treatment that results in the systemic failures that have persisted for decades in the North.⁹⁶ However, when demonstrating this nexus, we must remain cognizant that a claimant cannot rely on “a web of instinct.”⁹⁷

...Section 15(1) claimants must demonstrate that the impugned law or state action *created or contributed to* the disproportionate impact on the claimant group at step one (*Symes*, at p. 765). Both terms—“created” and “contributed to”—describe cause. “Contributed to” merely recognizes that the impugned law need not be the only or the dominant cause of the disproportionate impact. (emphasis added).⁹⁸

When assessing this nexus, a claimant group (e.g., the FDL Denesuline First Nation) does not have to demonstrate the reason “why” it has experienced disparate safety failures, but evidence of their circumstances and the outcome they suffered as a result of the MOT’s regime is particularly relevant and important. What is required here is evidence that the MOT failed to provide core safety benefits that are otherwise provided to the general public. In this context, the SCC has acknowledged that a party’s evidentiary burden “cannot be unduly difficult to meet”⁹⁹ and that there is no strict form of evidence required.¹⁰⁰ With respect to causation, a claimant only needs to prove that the law or State conduct was the cause of the disproportionate impact on a protected group.¹⁰¹

The causal connection may be satisfied by a reasonable inference. Depending on the impugned law or state action at issue, causation may be obvious and require no evidence.

⁹³ Finley, *supra* note 10 at paras 9–10.

⁹⁴ *Civil Air Navigation Services Commercialization Act*, SC 1996, c 20.

⁹⁵ Finley, *supra* note 10 at para 8.

⁹⁶ *Ibid.* at para 26.

⁹⁷ *Taypotat*, *supra* note 11 at para 34.

⁹⁸ *Sharma*, *supra* note 30 at para 45.

⁹⁹ *Ibid.* at para 49.

¹⁰⁰ *Ibid.*

¹⁰¹ *Ibid.*

Where evidence is required, courts should remain mindful that statistics may not be available. Expert testimony, case studies, or other qualitative evidence may be sufficient. In all circumstances, courts should examine evidence that purports to demonstrate a causal connection to ensure that it conforms with standards associated to its discipline.¹⁰²

In our hypothetical case, previous chapters have presented compelling evidence that various *State Factors* at play within Canada's civil aviation regime have resulted in serious adverse impacts in Northern Canada and contributed to deadly crashes. The MOT knew or ought to have known that its failure to provide substantively equal safeguards and services to northern operators would cause harm to northern indigenous people. The harm the FDL victims have experienced is a direct and immediate consequence of the MOT's institutionalized neglect and disregard towards the regulation, oversight and provision of resources in the North. As such, there is sufficient causal evidence to conclude that the MOT's conduct created and contributed to a disproportionate impact—the adverse manifestation of systemic *State Factors* in the North—on the Denesuline First Nation.

In support of this finding, chapters 4 and 5 presented a number of case studies demonstrating how *State Factors*, i.e., actions by the MOT (or lack thereof), were key elements in the causal chain of events that led to tragic accidents in the North. TSB investigation reports, namely the TSB's investigation into the FDL tragedy,¹⁰³ were particularly compelling as they expressly identified how *State Factors* (inadequate oversight, deficient safety regulations and insufficient aeronautical resources) created systemic safety issues across the North and contributed to the *impact*, i.e., the disproportionate number of safety risks and accidents involving

¹⁰² *Ibid.*

¹⁰³ In FDL, key elements included the lack of adequate aeronautical infrastructure, equipment and services (i.e., short and unpaved runway, inadequate de-icing equipment and no airport staff to assist the aircrew at the FDL airport), poor company safety culture which appears to be prevalent in the North, the absence of air navigation services onsite or nearby to monitor and support operation, the lack of effective oversight by the MOT, numerous regulatory failures in the application of SMS, despite its purported effectiveness in resolving long-standing in the North (as promised following the Davis Inlet tragedy), and even rudimentary search-and-rescue responses following the FDL crash. As mentioned previously, these are all deficiencies that are either absent or significantly mitigated in Southern Canada.

operators servicing indigenous communities. The causal link between the root causes at the State-level and the deadly outcome is therefore undisputable.

Based on the foregoing, northern indigenous populations, namely the FDL Denesuline First Nation, have suffered from “a disproportionate impact on a protected group, as compared to non-group members.”¹⁰⁴ The MOT—through various regulatory gaps, oversight failures, policy carve-outs and institutional practices—has clearly failed to account for the particular safety needs of indigenous people in the North. Over time, these *State Factors* have resulted in a segregated civil aviation regime that is harmful for northern indigenous people, particularly for the nearly 200 fly-in communities across Canada who depend on air services.¹⁰⁵ It is undeniable that the MOT is responsible for these adverse elements. Accordingly, the first prong of the test under section 15 is met.

6.2 The Distinction is Discriminatory

The distinction identified in the previous section imposes burdens and denies benefits in a way that has the effect of reinforcing, perpetuating or exacerbating existing disadvantages¹⁰⁶ for northern indigenous people, in particular the FDL Denesuline First Nation. To support this claim, it is important to understand the applicable principles and requirements under the second part of the section 15 test, which has been summarized by the SCC as follows:

[76] ...This inquiry will usually proceed similarly in cases of disparate impact and explicit discrimination. There is no “rigid template” of factors relevant to this inquiry [...]. The goal is to examine the impact of the harm caused to the affected group. The harm may include “[e]conomic exclusion or disadvantage, [s]ocial exclusion... [p]sychological harms... [p]hysical harms... [or] [p]olitical exclusion”, and must be viewed in light of any systemic or historical disadvantages faced by the claimant group [...]¹⁰⁷

¹⁰⁴ *Sharma, supra* note 30 at para 40.

¹⁰⁵ See Josh Kozelj, “Indigenous entrepreneurs take to the sky with new aviation initiatives”, (2023), online: *The Globe and Mail* <<https://www.theglobeandmail.com/business/article-indigenous-entrepreneurs-take-to-the-sky-with-new-aviation-initiatives/>>.

¹⁰⁶ *Sharma, supra* note 30 at para 51: “Hence the importance of the second step of the s. 15(1) test, requiring the claimant to establish that the impugned law imposes burdens or denies benefits in a manner that has the effect of reinforcing, perpetuating, or exacerbating the group’s disadvantage.”

¹⁰⁷ *Fraser, supra* note 11 at para 76.

As section 15 of the *Charter* imposes an obligation onto the State to make sure that any action it takes does not result in a discriminatory impact,¹⁰⁸ the second part of the test largely focuses on whether there is evidence that the claimants effectively suffered from an excessive disadvantage stemming from the impugned State conduct,¹⁰⁹ i.e., that the distinction actually contributed to an arbitrary disadvantage.¹¹⁰ This is an important consideration, because not every distinction is necessarily discriminatory.¹¹¹

For instance, unpaved and poorly lit gravel runways with no onsite air navigation services may be a distinctive characteristic for many northern airports, but it is not discriminatory *per se*, unless, of course, there is evidence correlating its adverse effects on indigenous people. As such, the focus of this part of the test “is not on whether the legislature intended to discriminate¹¹² but rather on the *discriminatory impact* of the distinction.”¹¹³ As noted by the SCC:

[52] Courts must examine the historical or systemic disadvantage of the claimant group. Leaving the situation of a claimant group unaffected is insufficient to meet the step two requirements. Two decisions of this Court demonstrate this point. In *Fraser*, Abella J. observed: “The goal is to examine the impact of the harm caused to the affected group, which may include economic exclusion or disadvantage, social exclusion, psychological harms, physical harms or political exclusion. [...] In *Withler*, this Court explained that a negative impact or worsened situation was required: Whether the s. 15 analysis focusses on perpetuating disadvantage or stereotyping, the analysis involves looking at the circumstances of members of the group and the negative impact of the law on them. The analysis is contextual, not formalistic, grounded in the actual situation of the group and the potential of the impugned law to worsen their situation.”¹¹⁴ [...] (emphasis added)

The SCC has also stated that courts may infer that a legislation or State conduct “has the effect of reinforcing, perpetuating, or exacerbating a disadvantage, where such an inference is

¹⁰⁸ See *Vriend v Alberta*, [1998] 1 SCR 493; *Eldridge v British Columbia (Attorney General)*, [1997] 3 SCR 624 at paras 72–80 [*Eldridge*].

¹⁰⁹ See *Newfoundland (Treasury Board) v N.A.P.E.*, 2004 SCC 66 at para 37.

¹¹⁰ *Law*, *supra* note 18 at paras 63–75; *Kapp*, *supra* note 13 at paras 19 & 23.

¹¹¹ See *Sharma*, *supra* note 30 at para 31.

¹¹² *Ibid.* at para 55; *Fraser*, *supra* note 11 at para 69; *Andrews*, *supra* note 12 at 173; *Eldridge*, *supra* note 108 at para 62.

¹¹³ *Quebec (Attorney General) v Alliance du personnel professionnel et technique de la santé et des services sociaux*, 2018 SCC 17 at para 28.

¹¹⁴ *Sharma*, *supra* note 30 at para 52.

supported by the available evidence,”¹¹⁵ but that one “must bear in mind, however, that inference is not mere assertion; nor is it *a priori* reasoning.”¹¹⁶ Under the second part of the test, the assessment thus requires a *contextual* approach¹¹⁷ in order to systematically consider “the disadvantages¹¹⁸ that the individual or group have faced in the past and continue to face, and whether the impugned law serves only to further that disadvantage.”¹¹⁹

In the hypothetical case of the Denesuline First Nation, we must therefore consider whether the adverse impact of *State Factors* related to the MOT’s (in)action in the North unduly burdens indigenous people and further contributes to existing systemic disadvantages. In the author’s opinion, there are sufficient grounds for the Denesuline First Nation to demonstrate—on the balance of probabilities—that the added trauma it has sustained over the years is attributable to the MOT’s discriminatory conduct. It must be reiterated that the systemic safety issues (*State Factors*) that persist in northern Canada are likely the historical, yet unintentional by-product of various State actions grounded on various political, social, geographic and economic considerations, in some cases unrelated to the North and/or aviation. While there has been a generalized disregard towards northern aviation since the dawn of Canadian aviation, it has certainly not been directed towards northern indigenous people, at least not overtly.

However, there is cogent evidence indicative of a discriminatory conduct, as previous chapters have demonstrated that the MOT’s conduct not only fails not accommodate the specific “needs, capacity and circumstances” of northern indigenous communities,¹²⁰ but also effectively

¹¹⁵ *Ibid.* at para 55.

¹¹⁶ *Ibid.*

¹¹⁷ Puchta, *supra* note 50 at para 87: “But a contextual approach means that judges must survey whichever factors may be relevant to a determination of discrimination on the facts of the case before them. And in the end, that sort of contextual inquiry seems better suited to achieving substantive equality, even if courts are not expressly articulating substantive equality as being the ultimate focus of section 15”.

¹¹⁸ In the context of this thesis, centuries of systemic discrimination, colonial policies and acts of oppression against indigenous people are thus particularly relevant and determinative considerations. See *ibid* at para 99.

¹¹⁹ *Ibid.* at para 18. When making such inferences, courts will rely on “our awareness that certain groups have been historically discriminated against, and that the perpetuation of such discrimination should be curtailed”, see *Quebec*, *supra* note 11 at para 332.

¹²⁰ *Law*, *supra* note 18 at paras. 59, 69–70 & 75; *Withler*, *supra* note 14 at paras 45 & 54; *Quebec*, *supra* note 11 at paras 346 and 356.

jeopardizes their elementary safety needs. Through various examples, case studies and critical analyses discussed *supra*, it is apparent that various *State Factors* have emerged and contributed to numerous safety deficiencies that predominantly affect northern indigenous communities.

Previous chapters have also provided convincing evidence demonstrating that Canada's civil aviation regime has been historically designed to further the economic interests of busier markets in the South, namely by fostering the development of mainline air transport networks between large Canadian cities populated by a majority of non-indigenous residents. State allocation of funding and aeronautical resources have also been largely funneled in the South due to higher traffic volumes, despite the need for additional safeguards to account for the unique risks and operational constraints experienced in the North. Consequently, northern aviation activities have been neglected by the MOT for several decades, contributing to a substandard level of aeronautical infrastructure, services and equipment, both quantitatively and qualitatively (see Chapter 5, *supra*).

Moreover, State legislation, regulations and policies have been largely implemented to meet international norms, but the MOT's regulatory efforts in this regard have often been focused on meeting Canada's international commitments under the *Chicago Convention*, which has a limited reach for purely domestic air operations (see Chapter 2). As a result, there exist numerous regulatory and policy carve-outs exempting northern domestic carriers from elementary safety norms that are otherwise enforced in the South and internationally in accordance with ICAO SARPs. The compounded effect of these elements has contributed to the creation of an inferior "caste" within Canada's aviation regime, as the North is now governed by a substandard legal framework where northern operators are regulated differently and subject to fewer safety requirements (e.g., SMS exemptions for small carriers who have a strong presence in the

North).¹²¹ Furthermore, they are subjected to superficial surveillance activities due to the TCCA's reliance on remote paper audits and inadequate presence in remote northern regions (see Chapter 4).

So how are the above-mentioned elements *discriminatory*? Firstly, indigenous people are the ones who ultimately take the brunt of the resulting casualties stemming from *State Factors*, as shown by the FDL crash. They also take on most of the negative socio-economic effects resulting from this asymmetrical regime, namely because they often have no choice but to rely on northern air services, in part due to Canada's colonial past.¹²² This is where a contextual approach is crucial in ensuring that we remain sensitive to existing systemic disadvantages when considering a claim under section 15 of the *Charter*.¹²³

As discussed previously,¹²⁴ Canada's history of colonialism and past acts of oppression against indigenous people are particularly relevant, as they contributed *inter alia* to the forced resettlement of northern indigenous people into confined reserves across the country. Historically, the nomadic lifestyle of many First Nation groups allowed them to rely on their traditional lands as a reliable source of sustenance, but this changed dramatically when traditional indigenous

¹²¹ The TSB has stated that "SMS is an internationally recognized framework that allows companies to identify hazards, manage risks, and make operations safer—ideally before an accident occurs. Although the issue of safety management has been on the Watchlist since 2010 and industry awareness about SMS has slowly increased since that time, TSB investigation reports continue to note deficiencies and concerns in the air transportation sector. For example, multiple TSB investigations [A21Q0024, A19W0105, A19P0112, A19C0145, A17Q0050, A16W0092, A15A0054, A15Q0120, A15P0217, A15P0081, A14P0132, A13H0001, A12P0034, A12Q0216, A09C0017, A08P0353, A08W0068, A07A0134, A07C0001, and A04Q0188] have identified operators, not required by regulation to have a TC-approved SMS, relying on ineffective systems to manage safety. There has been little progress to extend the application of SMS beyond CARs Subpart 705 operators. SMS requirements still do not apply to CARs subparts 702, 703, and 704 operators; flight training units (which operate under CARs Subpart 406); or non-certified aerodrome operators. Combined, CARs subparts 702, 703, and 704 operators make up over 90% of all Canadian commercial air operators. Without the benefit of an SMS, these operators, many of which are smaller, continue to miss opportunities to improve safety. Therefore, the likelihood of more fatalities and serious injuries remains high". See Transportation Safety Board of Canada, "Air transportation safety investigation report - A21C0038, Collision with terrain, Great Slave Helicopters 2018 Ltd., Airbus Helicopters AS350 B2 (helicopter), C-FYDA, Griffith Island, Nunavut, 25 April 2021", (15 February 2024), online: *Government of Canada* <<https://www.tsb.gc.ca/eng/rapports-reports/aviation/2021/a21c0038/a21c0038.html>>, s 1.18.1.

¹²² *Sharma, supra* note 30 at para 55: "When considering whether this conduct has actually reinforced, perpetuated or exacerbated a disadvantage, the SCC has stated that "a court may take judicial notice of notorious and undisputed facts, or of facts which are capable of immediate and accurate demonstration, by resorting to readily accessible sources of indisputable accuracy".

¹²³ Puchta, *supra* note 50 at para 115.

¹²⁴ See Introduction, *supra*.

lands were usurped, long-standing trade routes became impracticable, hunting grounds were altered and entire communities were relocated, *inter alia* as a result of industrial activities in various parts of the country (e.g., hydroelectric dam projects¹²⁵ and mining projects).¹²⁶

It was at that point that the relationship between northern indigenous people and their land was permanently altered, as many of them became reliant on external sources of food, supplies and services flown into their communities. Over time, the culmination of these factors resulted in the erosion of their traditional way of life, which contributed to their increased sedentarization and limited their immediate access to primary resources. As a direct result of Canada's colonial history,¹²⁷ many northern indigenous communities have therefore become dependent on air services,¹²⁸ thus increasing their socio-economic vulnerability.

Granted, it is undeniable that air transportation brought many positive changes to isolated indigenous communities, namely by increasing their access to health services, enhancing their connectivity with the rest of the world, stimulating the northern economy, etc. However, aviation also reflects a “ball and chain” as it placed many northern indigenous reserves in a situation of heavy dependence towards the aerodromes built around them. Nowadays, these aerodromes are often the only year-round lifeline for these communities (see Chapter 5)¹²⁹ and in many cases, indigenous people cannot travel to/from their reserves, purchase food and access elementary services without air services.

In the 21st century, the combination of these factors, namely the heavy reliance of northern indigenous people towards aviation, acts as a powerful multiplier for the adverse effects of

¹²⁵ See Paul Wertman, “Planning and Development After the James Bay Agreement” (1983) 3:2 *Canadian Journal of Native Studies* 277–288.

¹²⁶ See for example: World Wildlife Fund Canada, “The true costs of mining in Nunavut: What if I can’t teach my children our ways anymore?”, (2024), online: *World Wildlife Fund Canada* <<https://wwf.ca/stories/mining-nunavut-baffinland-pond-inlet/>>.

¹²⁷ Pia Dimayuga, *Northern Ontario Air Transportation and Remote Community Resilience and Wellbeing* University of Toronto, 2020) [unpublished] at 1; Pia Dimayuga et al, “Air transportation as a central component of remote community resilience in northern Ontario, Canada” (2021) 7:5 *Sustainable and Resilient Infrastructure* 624–637 at 4.

¹²⁸ Kozelj, *supra* note 105.

¹²⁹ *Ibid.*

northern safety risks, thus intensifying their magnitude. The cumulative impact of this historical construct has taken deadly proportions as many northern indigenous people are forcibly exposed to these higher risks. Because of this State-imposed dependence on air services, any disparity in the quality and sufficiency of regulations, oversight and aeronautical resources in the North necessarily has an exponential impact on the safety and wellbeing of indigenous people.

As a result, indigenous people represent the most vulnerable elements of Canada's civil aviation regime: not only are they exposed to a precarious air network with higher safety risks, but they often have no choice but to rely on it. This is a perfect recipe for disaster, as Canada's aviation regime effectively reinforces, perpetuates, and exacerbates their existing disadvantages. Consequently, "persistent systemic disadvantages have operated to limit the opportunities available"¹³⁰ to indigenous people.

Indeed, there is evidence that the MOT's (in)action in tackling ongoing safety issues "further stigmatizes people already harmed by stereotyping or prejudice."¹³¹ Many indigenous communities must routinely compose with the pain and trauma inflicted onto them as a result of preventable tragedies, as well as a substandard supply chain and inferior interconnectivity with the rest of the country. Coupled with their unique dependency to air services, existing socio-economic disadvantages are further exacerbated by the various *State Factors* eating away at the safety margins of northern operations. This hinders the long-term development of northern aviation and discourages mainline airlines from investing into and maintaining reliable air routes to/from the North. As a result, northern communities are further marginalized and their socio-economic standing is at risk of regressing even further, thus aggravating the intergenerational trauma already experienced by these communities over the past centuries.¹³²

¹³⁰ *Taypotat*, *supra* note 11 at para 17; see also *Withler*, *supra* note 14 at para 43; *Quebec*, *supra* note 11 at paras 327–332.

¹³¹ Newman, Régimbald & Wilson, *supra* note 92 at 102.

¹³² *Mercredi v Martin*, 1996 CanLII 6946 (SK KB): "Both parties led evidence on the relative safety of Fond du Lac in comparison to Saskatoon. Martin cites incidents of shootings and accidents in Fond du Lac. Snowmobiles run through the town without a speed limit. Although alcohol is not permitted in Fond du Lac, people manage to purchase it anyway".

With respect to the FDL Denesuline First Nation, the discriminatory impact of this differential treatment is quite considerable: previous chapters have shown that these deep-rooted issues have resulted in higher accident probabilities in the North, including a tragic crash in 2017. As such, safety risks and resulting socio-economic consequences stemming from the substandard air transportation network in the North increase for this particular claimant group, relative to individuals living in other parts of the country. As the FDL community has been somewhat forced to rely on air services, the MOT's asymmetrical treatment of northern air services has "had the effect of reinforcing, perpetuating or exacerbating the historic or systemic disadvantage against that group."¹³³ The second prong of the test is therefore met, and a *prima facie* case of discrimination can be established under section 15 of the *Charter*.

6.3 Considerations under Section 1 of the Charter

At this point, the burden in this case would typically shift to the MOT who would then need to demonstrate—under section 1 of the *Charter*¹³⁴—that its civil aviation regime is not arbitrary and that its conduct was reasonably necessary in order to accomplish broader goals or a legitimate purpose, and that it is impossible to accommodate the claimant(s) without imposing undue hardship.¹³⁵ It is, however, difficult for the author of this thesis to fully address this final part of the analysis under the section 15 framework, without the benefit of the MOT's submissions on this aspect. In a conventional litigation setting, the MOT would have, as a matter of procedural fairness, an opportunity to file detailed submissions on this aspect of the test. In the absence of

¹³³ *Sharma*, *supra* note 30 at para 54.

¹³⁴ Section 1: "The *Canadian Charter of Rights and Freedoms* guarantees the rights and freedoms set out in it subject only to such reasonable limits prescribed by law as can be demonstrably justified in a free and democratic society".

¹³⁵ Sangiuliano, *supra* note 82 at para 7: "Instead, it must show why any limits on pre-established legal rights caused by the general laws it enacts are justified by a pressing and substantial public interest". The SCC has outlined various considerations at this stage of the analysis, see *Moore*, *supra* note 23 at para 49: "... it must be shown that alternative approaches were investigated (*British Columbia (Public Service Employee Relations Commission) v BCGSEU*, 1999 CanLII 652 (SCC), [1999] 3 S.C.R. 3 ("Meiorin"), at para. 65). The *prima facie* discriminatory conduct must also be "reasonably necessary" in order to accomplish a broader goal [...] In other words, an employer or service provider must show "that it could not have done anything else reasonable or practical to avoid the negative impact on the individual"; see also *British Columbia (Superintendent of Motor Vehicles) v British Columbia (Council of Human Rights)*, [1999] 3 SCR 868 at para 20.

the MOT's position on this claim, the analysis cannot go beyond the available record without the risk of making uninformed or conjectural findings.

Based on the available evidence, it would likely be an uphill battle for the MOT to argue that the discriminatory nature of its civil regime is justified under section 1 of the *Charter*, namely because several *State Factors*, which are the root cause of this discriminatory pattern, originate from various regulatory, policy and budgetary decisions expressly made by the MOT. As noted by an author, “the cost of averting a *Charter* violation should be weighed against the ‘scale of the financial challenge confronting a government’ when deciding whether or not the government’s violation of a *Charter* right could be justified under section 1.”¹³⁶ However, despite facing budgetary challenges over the past decades, it is apparent that the MOT's management and apportionment of public resources (i.e., employees, funding, infrastructure, surveillance activities, ANS coverage, etc.) disregarded the elementary safety needs of the North and played an influential role in the emergence of adverse *State Factors* across Northern Canada.

There is no doubt that since the 1980s, the MOT has made questionable decisions, which led to fiscal limitations and radical cuts within the TCCA, a lax approach to regulatory oversight with smaller carriers, the defunding and transfer of northern aeronautical assets, and the commercialization of ANS services,¹³⁷ all of which contributed to adverse *State Factors* in the North. Coupled with toxic patterns of deregulation and regulatory failures, the MOT failed to acknowledge the prevailing safety crisis in the North and understand how it could reasonably accommodate the unique operational environment and safety risks faced by northern carriers.¹³⁸

¹³⁶ Finley, *supra* note 10 at para 39.

¹³⁷ See George Petsikas, “The Dysfunctional Relationship Between NAV CANADA and Government 25 Years After the So-Called ‘Commercialisation’ of Air Navigation Services in Canada” (2021) 46 *Annals of Air and Space Law* 1–36.

¹³⁸ In fact, it took several ill-suited decisions that exacerbated these issues, namely by exempting small carriers from SMS, focusing on paper audits in lieu of in-person surveillance activities in the North and left aeronautical infrastructure, equipment and services at the mercy of market forces, which has—in some cases—annihilated the operational capabilities of northern operators and their ability to effectively comply with basic safety regulations (e.g., de-icing contaminated aircraft surfaces).

Moreover, the MOT failed to consider financial alternatives to ensure that its regulation, funding and oversight of northern aeronautical activities achieved symmetrical safety levels across the country. As noted by the SCC in the context of a section 1 *Charter* analysis: “[i]n order to decide that [the State] had no other choice, it had at least to consider what those other choices were.”¹³⁹ In reality, the fiscal austerity within the MOT that led to this crisis was created by none other than the Government of Canada, which chose to reallocate public funds towards other government portfolios starting in the 1980s.

More importantly: the MOT had (and still has) alternative options on the table, including significant financial resources, to tackle the safety issues discussed throughout this thesis, yet it chose to prioritize other interests and cabinet priorities. Recently for example, the MOT chose to allocate millions of dollars towards the Toronto-Quebec high-frequency rail project (CAD 396.8 million)¹⁴⁰ and the overhaul of its air passenger protection regime (CAD 75.9 million), not to mention its continued funding of VIA Rail (CAD 381 million yearly) which mostly operates in the South.¹⁴¹ These are significant amounts that could likely solve or mitigate existing safety deficiencies in the North, yet the wellbeing and protection of northern indigenous people appear to be once again ignored and outshined by non-life-threatening issues in the South.

The MOT has thus consistently failed to understand how its budgetary cutbacks and resource allocation have contributed to the emergence of deadly *State Factors* in the North. Consequently, northern aviation generally remains underfunded, ill-equipped and partly deregulated from a safety perspective. If we consider the Maslow Pyramid that was discussed *supra* in Chapter 1, the MOT has effectively prioritized *secondary* needs in the South over *primary*

¹³⁹ Moore, *supra* note 23 at 52.

¹⁴⁰ Transport Canada, “High Frequency Rail”, (2 March 2023), online: *Government of Canada* <<https://tc.canada.ca/en/rail-transportation/railway-lines/high-frequency-rail>>.

¹⁴¹ “Minister of Transport announces additional funding for the Canadian Transportation Agency to help clear the backlog of air passenger complaints”, (2023), online: *Government of Canada* <<https://www.canada.ca/en/transport-canada/news/2023/03/minister-of-transport-announces-additional-funding-for-the-canadian-transportation-agency-to-help-clear-the-backlog-of-air-passenger-complaints.html>>; House of Commons of Canada - Standing Committee on Transport, Infrastructure and Communities, *Evidence No.118* (30 May 2024) at 15.

safety needs in the North. In doing so, primary safety needs that could otherwise be fulfilled with adequate resources are not funded adequately.¹⁴² As such, the MOT's conduct likely cannot be justified under section 1 of the *Charter*, meaning that there are valid grounds for the Denesuline First Nation to successfully argue a claim of discrimination under section 15 of the *Charter*.¹⁴³

7. Making a Claim Under the CHRA

As noted previously, most of the analysis and arguments presented so far in this chapter can be reproduced under the CHRA's framework.¹⁴⁴ Indeed "the approach taken by courts in section 15 *Charter* challenges is not different than that in the human rights context,"¹⁴⁵ however it is important to understand certain nuances between both regimes. Accordingly, this section will outline some of the CHRA's particularities, should someone decide to take an alternative route and argue this chapter's proposed claim before the CHRC.

7.1 Key Requirements under the CHRA

Similar to section 15 of the *Charter*, subsection 3(1) of the CHRA prohibits federally regulated employers and *service providers* from discriminating against people by reason of their "race, national or ethnic origin, colour, religion, age, sex, sexual orientation, gender identity or expression, marital status, family status, genetic characteristics, disability and conviction for an offence."¹⁴⁶ Section 5 of this statute further provides that:

"It is a discriminatory practice in the provision of goods, services, facilities or accommodation customarily available to the general public (a) to deny, or to deny access to, any such good, service, facility or accommodation to any individual, or (b) to differentiate adversely in relation to any individual, on a prohibited ground of discrimination."

¹⁴² See Finley, *supra* note 10.

¹⁴³ As the MOT's conduct directly and indirectly jeopardizes the life of northern indigenous people and in some instances caused the death of indigenous individuals, one could even argue that the MOT is in breach of section 7 of the *Charter*.

¹⁴⁴ Under the CHRA, the approach is somewhat analogous to the section 15 (*Charter*) framework and requires a party to establish a *prima facie* case where the respondent—the MOT—is responsible for a discriminatory practice, as defined by section 5 of the CHRA. See Bellehumeur, *supra* note 29 at 149.

¹⁴⁵ *Ibid* at 156. See also Fraser, *supra* note 11 at para 49.

¹⁴⁶ CHRA, *supra* note 3 at s 3.

When making a claim of discrimination under the CHRA, an applicant must demonstrate that: “1) they have a characteristic protected from discrimination; 2) they have been denied services, or adversely impacted by the provision of services by the government; and 3) the protected characteristic is a factor in the adverse impact or denial.”¹⁴⁷ The first and third steps emulate the analysis and principles presented *supra* under section 15 of the *Charter*, so a party making a claim before the CHRC could rely on most of the arguments already outlined in the previous sections of this chapter.

However, a claimant group may face an initial hurdle in demonstrating that they have been denied, or denied access to, a *good, service, facility or accommodation* within the meaning of section 5 of the CHRA. Fortunately, there is a sufficient rationale and ample evidence to demonstrate that the discriminatory effects identified previously in this thesis are rooted in Canada’s unequal provision of regulatory *services* (e.g., certification, licensing, surveillance, enforcement, policy implementation, etc.), as well as aeronautical *services and facilities* (e.g., airport and ANS infrastructure, equipment and services). Accordingly, these structural inequalities could be successfully challenged under the CHRA.

7.2 Defining “Services and Facilities”

7.2.1 Civil Aviation Services Provided or Delegated by the MOT

A *service* is defined by case law as something of benefit that is available and offered or held out to members of the public.¹⁴⁸ In order to be deemed a service, there must be a public relationship between the service provider and the service received, i.e. “the public must be granted access to or admitted to or extended the service by the service provider.”¹⁴⁹ To determine if the MOT’s conduct meets the definitions of a State “service [...] customarily available to the

¹⁴⁷ Bellehumeur, *supra* note 29 at 149.

¹⁴⁸ *Canada (Canadian Human Rights Commission) v Canada (Attorney General)*, 2016 FCA 200 at paras 51-52.

¹⁴⁹ *Gould v Yukon Order of Pioneers*, [1996] 1 SCR 571 at para 55.

public,” an applicant must therefore establish that the MOT is holding out a “benefit” and/or “assistance”, and that there exists a public relationship between the MOT and northern indigenous people.¹⁵⁰

In the author’s view, all of these requirements under the CHRA can be met in the context of this chapter’s proposed claim. As noted by an author, “all Canadians are entitled to the protection of the law”¹⁵¹ and in aviation, it is the MOT that is responsible for designing and implementing the laws, policies and funding that provide essential safeguards to the users of Canada’s air network. Accordingly, it can be argued that the MOT’s involvement in the governance and oversight of Canada’s aviation industry, as well as its funding of related aeronautical assets and services, provide both a *benefit* and *assistance* to industry participants and consumers.¹⁵²

In carrying out its mandate and exercising its jurisdiction over regulatory matters; aeronautical infrastructure, equipment and services; and ANS services, the MOT effectively provides a *safety benefit* to northern operators, but more importantly to those who rely on their services, namely indigenous people. Furthermore, the MOT’s legislation, regulation, policies, funding and available resources (or lack thereof) govern how industry participants behave, stimulate their degree of compliance and ultimately influence how the users of the aviation network are protected, thus also amounting to a form of *assistance* to the industry and the travelling public.

While safety is not a “service” *per se*, northern air operators also routinely rely on government services aimed at protecting the public interest. These services encompass a variety of TCCA regulatory, licensing and surveillance activities. For example, air operators, aircrew, maintenance organizations (etc.) routinely seek guidance from the regulator on a variety of safety

¹⁵⁰ Bellehumeur, *supra* note 29 at 150.

¹⁵¹ *Ibid.*

¹⁵² *Ibid.* at 150–151.

and operational issues; undergo flight tests, audits and inspections; and file applications with the MOT to obtain and maintain their licenses, operating certificates, regulatory approvals, etc. Other forms of assistance and benefits available to the public include a passenger's right to report safety issues to the regulator, as well as their ability—when flying onboard commercial aircraft—to benefit from aerodrome and ANS services and equipment, all of which remain under the MOT's exclusive purview, despite some of these functions having been delegated to other entities (e.g., NAV CANADA and airport corporations). In the author's view, all of the above-noted functions reflect a form of service within the meaning of the CHRA, as they enable the industry's ability to sustain operations in a safe and orderly manner, which in turn benefits the traveling public:

Support can be found in comparable cases resulting in rulings that governments provided a "service customarily available to the public." For example: in *R v. Moore*, the provision of education was deemed to be a service; in *XY v. Ontario (Government and Consumer Services)*, the provision of birth certificates was a government service; and in *Canada (Attorney General) v. First Nations Child and Family Caring Society of Canada*, government funding of welfare services for children was identified as a "service."¹⁵³

As noted throughout this thesis when looking at the role of *State Factors* in civil aviation accidents, there is also a clear relationship between the MOT and the users (and victims) of air transportation services. Accordingly, there exists a public relationship meeting the CHRA's requirements,¹⁵⁴ as the benefit or assistance is held out as a service by the MOT and provided *inter alia* to northern indigenous people. Under the CHRA regime, the MOT's regulatory activities, policy implementation and financial involvement in the aviation sector can therefore "be considered a 'service customarily available to the public' for the purpose of a systemic discrimination claim."¹⁵⁵

¹⁵³ *Ibid.* at 151

¹⁵⁴ *First Nations Child and Family Caring Society of Canada et al. v Attorney General of Canada (for the Minister of Indian and Northern Affairs Canada)*, 2016 CHRT 2 at para 35 [FNC 2016].

¹⁵⁵ *Ibid.* at paras 35 & 59. See also Bellehumeur, *supra* note 29 at 152: "Indeed, courts have suggested that when analyzing a CHRA claim, a broad, purposive approach should be applied, that takes into account 'the full social, political and legal context of the claim' [...] As such, the tribunal's comments in *Eldridge v British Columbia (Attorney General)*, a case ruling that the denial of medical services to a deaf person is discriminatory, are very apt to the discrimination in question: 'discrimination can accrue from a failure to take positive steps to ensure that disadvantaged groups benefit equally from services offered to the general public'".

7.2.2 Aeronautical Facilities Under the MOT's Purview

The term “facilities” (“installations” in the French version of the CHRA) can be interpreted as including “real property or immovable consisting of one or more of the following: a building, a structure, a utility system, pavement and underlying land.”¹⁵⁶ A *facility* can thus include a variety of physical infrastructures, buildings and premises found across the aviation sector (e.g., land on which aerodromes are constructed, runways and taxiways, airport terminals, de-icing installations, ANS facilities, navigational and visual aids, etc.). In order to fall under the ambit of the CHRA, there must also be a relationship between the facility provider and the facility user, i.e., the facility must be offered by a federally-regulated entity to the general public and/or for its benefit.¹⁵⁷

In aviation, the travelling public clearly benefits from these aeronautical facilities when utilizing air services. With respect to *facilities*, one could therefore argue, based on the findings made previously in Chapter 5, that the MOT has denied northern residents equal access to safe and reliable aeronautical infrastructure (e.g., airports and ANS facilities) customarily available to the general public in other parts of the country. While the MOT divested most of its aerodromes and ANS facilities in the 1990s, it must be held accountable for the adverse effects of its divestment strategy on the quality and safety of northern aeronautical infrastructure.

The MOT ultimately retains responsibility over its domestic aeronautical infrastructure under the *Chicago Convention* and the *Aeronautics Act*. Moreover, the MOT still owns and operates 23 Canadian airports.¹⁵⁸ In other words, the MOT is still in “the business” of providing aeronautical *facilities* in Canada. Accordingly, there are sufficient grounds for someone to challenge—under the CHRA—the MOT’s provision of substandard, unreliable and inadequate aeronautical *facilities* in the North.

¹⁵⁶ Termium Plus, “Definition - Facility”, (2023), online: *Government of Canada* <www.btb.termiumplus.gc.ca>.

¹⁵⁷ See *University of British Columbia v Berg*, [1993] 2 SCR 353.

¹⁵⁸ Transport Canada, “List of airports owned by Transport Canada”, (2020), online: *Government of Canada* <<https://tc.canada.ca/en/aviation/operating-airports-aerodromes/list-airports-owned-transport-canada>>.

7.3 Northern Indigenous People Have Been Denied Equal Access to Aeronautical Services and Facilities

For the same reasons outlined in this chapter's previous section, there is sufficient evidence to demonstrate a breach of section 5 under the CHRA, in that there has been a long-standing denial of essential aeronautical *services* and *facilities* to indigenous people in the North. The MOT's design, management and oversight of Canada's civil aviation regime, along with its corresponding legal framework, policies, resource allocation and funding formulas, have indeed created adverse impacts on northern indigenous people.¹⁵⁹ To determine whether a service or facility has been denied to someone within the meaning of section 5 of the CHRA, an applicant must establish that there has been:

1. A *gap* in the provision of services or facilities, i.e., an unmet need that is not addressed by existing services/infrastructure;¹⁶⁰
2. A *failure* to provide essential services or facilities, i.e., a situation in which a person's "ability to thrive, health or personal safety would be compromised by failure to provide the support, product or service concerned");¹⁶¹ and/or
3. When there has been an *unreasonable delay* in providing a service or facility, i.e., situations where normative standards of a certain facility or service are not met and cause harm to a person.¹⁶²

This thesis has presented compelling evidence establishing the existence of overlapping deficiencies in all three of these categories. The MOT's resource allocation is also a key factor to consider here. Inadequate funding can indeed contribute to a denial of services and facilities, as

¹⁵⁹ *FNC 2016*, *supra* note 154 at para 458.

¹⁶⁰ *FNC 2020*, *supra* note 72 at paras 96 & 120.

¹⁶¹ *Ibid.* at para 123: "This approach encompasses the requirement that there be a prospect of real harm flowing from a failure to respond appropriately to a request for such support, service or product".

¹⁶² *Ibid.* at para 172.

it enables the benefits and assistance offered to those who rely on air transportation, in this case being their access to safe and reliable air services. By arranging and making available the necessary resources that enable various services and facilities in aviation,¹⁶³ the MOT effectively offers the benefit and assistance of funding to the industry and the travelling public.¹⁶⁴ But over the years, the MOT's resource allocation strategy has resulted in several *gaps, delays* and *failures* in providing core aeronautical services and facilities in the North. In doing so, the MOT has acted with little to no regard for the consequences on the safety and wellbeing of northern indigenous people. Accordingly, the MOT's inadequate funding of northern aviation is also in breach of section 5 of the CHRA.

Based on the foregoing, there are sufficient grounds to conclude that northern indigenous people have been denied equal safety services and facilities under paragraph 5(a) of the CHRA and were adversely differentiated under paragraph 5(b). This is sufficient to establish a case of systemic discrimination under the CHRA. As the remaining analysis under the CHRA largely emulates the test under section 15 of the *Charter*,¹⁶⁵ this chapter will not delve further into the CHRA discrimination test.

8. Moving Forward—Recommendations

The SCC has noted that “discrimination can accrue from a failure to take positive steps to ensure that disadvantaged groups benefit equally from services offered to the general public.”¹⁶⁶ By virtue of its exclusive mandate over aviation and its duty to protect the users of the national transportation network, the MOT has an obligation to provide an equal treatment to all users of the civil aviation network and must be held accountable for any failures in doing so. As such, the

¹⁶³ See *FNC 2016*, *supra* note 154 at para 35.

¹⁶⁴ *Ibid.* at para 40: “... there is nothing in the *CHRA* that excludes funding from the purview of section 5. That is, funding can constitute a service if the facts and evidence of the case indicate that the funding is a benefit or assistance offered to the public pursuant to the criteria outlined above”.

¹⁶⁵ As for the remaining steps for making a discrimination claim under the CHRA, a claimant group would need to demonstrate an adverse impact and a connection between the impact and the protected characteristic.

¹⁶⁶ *Eldridge*, *supra* note 108 at para 78.

MOT is ultimately responsible for taking affirmative action and providing remedies if the unequal application of the *Aeronautics Act* (including related statutes, regulations and policies) results in an unsafe and harmful environment for a particular group of individuals.¹⁶⁷

Yet, this thesis has provided sufficient evidence to establish—on a balance of probabilities—that systemic discrimination within Canada's civil aviation regime does exist and has excessively harmed northern indigenous people. Accordingly, the purpose of Chapter 6 was to tackle this systemic phenomenon head-on by proposing a preliminary litigation roadmap that identifies the institutional roots of *State Factors* and how their adverse effects on northern indigenous people constitute a violation of section 15 of the *Charter* and section 5 of the CHRA.

Over the last one hundred years, the MOT's conduct has resulted in unintentional, yet serious consequences for the safety of northern civil aviation. Repeated State (in)action has contributed to the emergence of widespread risk pathogens across Northern Canada's air network. Consequently, the MOT has been a long-standing source of disadvantages for the safety, wellbeing and socio-economic standing of northern communities. But because Northern Canada's population is composed by a majority of indigenous residents, they are ultimately the ones who bear the brunt of this substandard industry sector.

The MOT must acknowledge that existing systemic disadvantages stemming from the State's wrongful conduct in the past have placed northern indigenous communities at a significant disadvantage and in a situation of dependence towards air services, making them increasingly vulnerable to safety risks. However, the MOT has consistently denied northern communities access to elementary safety benefits and protections¹⁶⁸ and has left many indigenous people with the burden of dealing with resulting systemic disadvantages, including physical harm, psychological trauma, economic difficulties and social exclusion.

¹⁶⁷ See Bellehumeur, *supra* note 29 at 147.

¹⁶⁸ See *Quebec*, *supra* note 11.

This reflects a pattern of systemic neglect premised on the State's long-standing disregard towards indigenous people across all facets of Canadian society. The asymmetrical treatment of northern civil aviation is particularly inequitable, as the resulting *State Factors* mainly affect its indigenous benefactors who ultimately reap the deadly consequences of various risk pathogens. As this generalized pattern disproportionately singles out northern indigenous people, it therefore meets the threshold of systemic discrimination under both the *Charter* and the CHRA.¹⁶⁹

Reversing patterns of systemic discrimination often requires *systemic solutions*, yet “most *Charter* litigation has challenged isolated provisions in a single statute which may deny access to a specific benefit”¹⁷⁰ and few cases have gone further to challenge the “structural roots of systemic discrimination.”¹⁷¹ Chapters 4 and 5 each proposed comprehensive solutions to the deficiencies pertaining to the regulation and oversight of northern operations, as well as the funding of aeronautical assets in the North, but those recommendations have little weight unless binding orders are issued by a court or tribunal. So moving forward, how can we concretely address this particular form of discrimination?

Under a conventional *Charter* claim, it is unlikely that a particular provision or statute would be struck down in this specific context (i.e., a declaration of constitutional invalidity),¹⁷² given that the MOT's civil regime as a whole would be challenged. Moreover, equality rights are strictly speaking individual rights.¹⁷³ As such, a claimant group in this particular context could seek a declaratory relief and/or damages to financially compensate its individual members for any loss resulting from the State's conduct, in accordance with subsection 24(1) of the *Charter*.¹⁷⁴

¹⁶⁹ See *CN v Canada (Canadian Human Rights Commission)*, [1987] 1 SCR 1114.

¹⁷⁰ Fay Faraday, “One Step Forward, Two Steps Back? Substantive Equality, Systemic Discrimination and Pay Equity at the Supreme Court of Canada” (2020) 94:2 Supreme Court Law Review 1–34 at 18.

¹⁷¹ *Ibid.*

¹⁷² See section 52 of the *Charter* & *Tranchemontagne v Ontario (Director, Disability Support Program)*, 2006 SCC 14.

¹⁷³ Brodsky, Day & Kelly, *supra* note 31 at 27.

¹⁷⁴ Subsection 24(1) of the *Charter*: “Anyone whose rights or freedoms, as guaranteed by this Charter, have been infringed or denied may apply to a court of competent jurisdiction to obtain such remedy as the court considers appropriate and just in the circumstances”. See *Canada (Attorney General) v Power*, 2024 SCC 26.

However, the former may have little weight in some cases¹⁷⁵ and the latter is an *in personam* remedy,¹⁷⁶ which may bring a form of *corrective justice*,¹⁷⁷ but only to the victims directly affected by the MOT's differential treatment.¹⁷⁸

Accordingly, this approach may, to some extent, fall short of bringing meaningful and long-term changes to address the broader safety issues in the North. Rather, *systemic remedies*¹⁷⁹ with group-based and prospective characteristics ought to be favoured in order to effectively tackle *systemic discrimination* and reverse "entrenched patterns of discrimination and inequality that are the product of institutional, societal, and governmental structures and inertia."¹⁸⁰ Indeed, correcting systemic inequalities warrants a holistic and remedial approach to address widespread gaps within the MOT's institutional structure and governance over northern aviation activities.

In this particular context, the CHRC may therefore offer the most accessible, appropriate and effective forum given its human rights expertise, its jurisdiction over federal matters (e.g., aviation)¹⁸¹ and its broad remedial powers under which it can order a respondent to take measures to "redress the [discriminatory] practice or to prevent the same or a similar practice from occurring in the future".¹⁸² The FCA has noted that the CHRA permits awards of multiple remedies in the

¹⁷⁵ See Brodsky, Day & Kelly, *supra* note 31 at 42.

¹⁷⁶ Mew, Rolph & Zacks, *supra* note 71, s 18.04.

¹⁷⁷ Brodsky, Day & Kelly, *supra* note 31 at 34: "At bottom, the goal of corrective justice is to remedy the discrete harms suffered by the individual victim, and not to eradicate discrimination that can be embedded in the systems of large public institutions such as prisons, border security services, benefit schemes and funding arrangements through which public benefits are provided. Because the corrective theory of justice lacks the capacity to deal with group-based patterns of discrimination and systemic barriers to justice, it cannot meet the remedial purpose of human rights legislation and therefore fails to fulfill the legislatively prescribed duty of tribunals and commissions to deal with systemic discrimination".

¹⁷⁸ See *Ravndahl v Saskatchewan*, 2009 SCC 7 at paras 16 & 27.

¹⁷⁹ See Brodsky, Day & Kelly, *supra* note 31 at 3: "Broadly speaking, a systemic remedy is one that attempts to ensure that a group that has been affected by discrimination will "not face the same insidious barriers that blocked their forebears." The goal of a systemic remedy is to prevent the same or similar discriminatory practices from occurring in the future. This is a somewhat distinct purpose from corrective remedies such as financial awards and other forms of redress which are intended to return the victim of a legal wrong to the position they would have been in but for the harm caused".

¹⁸⁰ *Ibid.* at 4.

¹⁸¹ Bellehumeur, *supra* note 29 at 137.

¹⁸² See *CHRA*, *supra* note 3, ss 53(2).

spirit of the large and liberal approach to human rights legislation.¹⁸³ In addition to financial compensation,¹⁸⁴ the CHRC could, for example, order comprehensive changes to the MOT's regulatory, surveillance and funding approaches pertaining to aeronautical activities in the North, including remedies to federal legislation, policies, funding models, etc.¹⁸⁵ As noted by the CHRC:

While the CHRA's mandate focuses on addressing discriminatory practices, which does not include challenges solely to legislation, it will take primacy wherever another law interferes with the fulfillment of its object and purpose. [...] The Panel has held that while it will not draft policies, choose between policies, supervise the policy drafting process, or unnecessarily embark on the specifics of reform, it will intervene if it finds that Canada's policy choices are resulting in discrimination [...]

In other words, the CHRC's broad authority to grant systemic remedies, in addition to personal remedies,¹⁸⁶ may offer the best avenue to tackle the discriminatory effects of *State Factors* discussed in previous chapters and represent the first step in resolving the safety crisis that has persisted in the North for several decades. With respect to the hypothetical FDL case, the CHRC could therefore order far-reaching corrective measures covering the entire civil aviation regime and thus go beyond the singular remedies available to the Denesuline First Nation. The CHRA's framework therefore brings an additional dimension to the litigation roadmap outlined in this chapter, as the potential scope and effects of this regime's remedies are far-reaching and thus more effective in tackling systemic issues.

Bringing a claim before the CHRC could therefore “bring to light the many ways in which current practices and lack of policies cause harm to [indigenous victims] and discriminate against them. If successful, it could also lead to a mandate that systemic remedies be implemented.”¹⁸⁷ Moreover, the CHRA¹⁸⁸ provides the CHRC with a “broad discretion to accept any evidence it

¹⁸³ *Canada (Attorney General) v First Nations Child and Family Caring Society of Canada*, 2021 FC 969 at para 134 [FNC 2021 FC].

¹⁸⁴ *CHRA*, *supra* note 3, ss 53(2) & 53(3).

¹⁸⁵ See *First Nations Child & Family Caring Society of Canada et al v Attorney General of Canada (representing the Minister of Indigenous and Northern Affairs Canada)*, 2021 CHRT 41.

¹⁸⁶ See Brodsky, Day & Kelly, *supra* note 31 at 30.

¹⁸⁷ Bellehumeur, *supra* note 29 at 137.

¹⁸⁸ See *CHRA*, *supra* note 3, ss 50(3).

sees fit [...] so long as its decision-making process is intelligible and reasonable,”¹⁸⁹ meaning that the statistical gaps identified in earlier in this chapter may not have a bearing on the successful outcome of a claim.

For all these reasons, the CHRC appears to be—in the author’s opinion—the most logical and appropriate venue for this type of claim, given this tribunal’s express authority to grant systemic remedies.¹⁹⁰ The outcome of a recent CHRC case is also particularly promising in this regard. In *First Nations Child and Family Caring Society of Canada v Canada*,¹⁹¹ the CHRC ordered the Government of Canada to end its discriminatory underfunding of the First Nations Child and Family Services Program¹⁹² and its narrow interpretation of *Jordan’s Principle* in the provision of medical services to indigenous minors.¹⁹³ The Government of Canada eventually agreed to pay out CAD 23 billion dollars in compensation to the victims of this discriminatory treatment—the largest settlement agreement in Canadian history.¹⁹⁴

This landmark case is truly a game changer that will likely pave the way for future cases involving the differential treatment of indigenous people in various facets of our society. In the context of this thesis, it provides an authoritative precedent but also hope that the discriminatory

¹⁸⁹ *FNC 2021 FC*, *supra* note 183 at para 164.

¹⁹⁰ Bellehumeur, *supra* note 29 at 138.

¹⁹¹ For a list of all CHRC decisions and orders pertaining to this case, see First Nations Child and Family Caring Society, “CHRT Orders”, (2023), online: *First Nations Child and Family Caring Society* <<https://fnccaringssociety.com/i-am-witness/chrt-orders>>.

¹⁹² First Nations Child and Family Caring Society, “Compensation and Reform of First Nations Child and Family Services and Jordan’s Principle”, (2023), online: *First Nations Child and Family Caring Society* <<https://www.fnchildcompensation.ca/#About>>.

¹⁹³ Brodsky, Day & Kelly, *supra* note 31 at 5; First Nations Child and Family Caring Society, *supra* note 192: “Jordan’s Principle is a child-first legal Principle that ensures First Nations children have access to the services and supports they need, no matter where they live, without delay or denial.” Previously, jurisdictional disputes between provincial and federal governments regarding their respective responsibilities over indigenous children caused significant disparities. In one case, a disabled indigenous child – Jordan River Anderson – was caught in a dispute between governments about who should pay for his medical needs. He never received the recommended home-based care he needed and eventually died at the age of 5 years old; Indigenous Services Canada, “Honouring Jordan River Anderson”, (2019), online: *Government of Canada* <www.sac-isc.gc.ca/eng/1583703111205/1583703134432>: “In 2007, the House of Commons passed Jordan’s Principle in memory of Jordan. It was a commitment that First Nations children would get the products, services and supports they need, when they need them. Payments would be worked out later. Today, Jordan’s Principle is a legal obligation, which means it has no end date. While programs and initiatives to support it may only exist for short periods of time, Jordan’s Principle will always be there. Jordan’s Principle will support First Nations children for generations to come”.

¹⁹⁴ Darren Major & Olivia Stefanovich, “Judge approves historic \$23B First Nations child welfare compensation agreement”, (2023), online: *CBC News* <<https://www.cbc.ca/news/politics/judge-approves-23-billion-first-nations-child-welfare-agreement-1.7006351>>.

State Factors discussed throughout this thesis can one day be acknowledged in the legal arena and tackled with effective remedies addressing both the *personal* and *broad* rights and needs of northern indigenous people.

CONCLUDING REMARKS

1. Synopsis

We are now arriving at our destination—the conclusion of a comprehensive study, which admittedly commenced with a slightly different orientation. Before writing this thesis, the original purpose of this research was to identify and characterize how State (in)action can play a role in the chain of events leading up to air accidents, namely by examining known and potential gaps within Canada’s civil aviation regime. By considering the combined role of technical, human and organizational factors, the original *raison d’être* of this research was to demonstrate that adverse *State Factors* are causal elements that ought to be considered under contemporary accident causation models and regulatory frameworks.

The North—an area of the country that has seen its fair share of accidents over the years—provided solid evidentiary grounds to demonstrate this theory, but it unexpectedly offered a much greater problem to investigate. While systemic discrimination was only a peripheral consideration initially, it developed into a more central issue and dominant theme once it became apparent that the North was experiencing systemic safety deficiencies predominantly affecting northern indigenous communities. As noted below, it was at that point in time that the author questioned the role of the State, specifically the MOT, in creating and maintaining this differential treatment.

The original orientation of this research nonetheless provided invaluable foundations to understand the discriminatory roots of this systemic phenomenon. Indeed, **Chapter 1** became the theoretical backbone of this thesis; it highlighted the central role and responsibility of States in regulating elementary human safety needs, as a prerequisite for the societal order and survival of *homo sapiens*. This chapter further examined how States were quick to intervene and regulate air transportation soon after the birth of this industry. Chapter 1 underlined how *safety* is not only

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a primary *need* for all humans, but may also be evolving into a *right to safety*, particularly with the advent of contemporary human rights treaties and legislation across the world. While there is no *absolute* right to safety, there is a right to non-discrimination; when a regime is in place to protect the safety of individuals, it ought to provide equal benefits to all under law, given that safety is a common and universal need. More importantly, this chapter made it clear that a failure to protect a person's safety needs can usually be traced back to the State.

These were important findings, as they provided the foundational elements to explore in **Chapter 2** how States promptly ascertained their sovereignty over the domestic regulation of civil aviation, but also quickly became cognizant that a global activity warranted a universal regime to protect the wellbeing of the travelling public. Yet, Chapter 2 revealed some notable flaws in the “Constitution” of international civil aviation—the *Chicago Convention*, namely loopholes that enable States to depart from universally recognized safety norms and exempt purely domestic matters falling outside the jurisdictional scope of that treaty. It thus reaffirmed how a State-centric approach in the regulation of civil aviation can induce variations among countries with respect to risks and accidents statistics. In other words, a country's inclination to comply (or deviate) from universal norms will necessarily result in a distinct national “safety” identity for each country. Accordingly, Chapter 2 found that the heterogeneous implementation and enforcement of ICAO SARPs across the globe can be correlated with the emergence of systemic issues at the State-level, which in turn can contribute to increased accident probabilities within a country.

With this in mind, **Chapter 3** revisited contemporary accident causation models used to investigate civil aviation occurrences, as well as the key elements considered when regulating air safety matters: *technical*, *human* and *organizational* factors. Based on the findings made in the two previous two chapters, a fourth factor was proposed—*State Factors*. To characterize this concept, Chapter 3 illustrated how State actions, or lack thereof, can induce nationwide deficiencies within a country's civil aviation industry and in the long run, contribute to aircraft

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accidents. Relying on case studies, this chapter demonstrated how specific deficiencies within a country's domestic civil aviation regime (air safety legislation; public funding, oversight policies, surveillance actions; and aeronautical infrastructure, services and equipment) can create gaps within the Swiss Cheese model, allow risk pathogens to develop and even remove critical safety defences at the operator-level.

Chapter 3 thus highlighted that the behaviour of *regulatees* (i.e., pilots, air carriers, manufacturers, air traffic controllers, etc.) is ultimately influenced—positively and negatively—by the *regulator*, and remains somewhat at its mercy. Accordingly, State (in)action is a factor that must be considered when examining the causal elements of a civil aviation occurrence. Chapter 3 thus challenged traditional accident causation models by integrating the role of States in the chain of events leading up to a crash.

So when exactly did *systemic discrimination* become the core focus of this research? Upon reflecting on the findings made in the first three chapters, one cannot ignore the similarities between the proposed notion of *State Factors* and the theoretical construct of *structural determinism*,¹ in that events, such as air accidents, are all predicated and determined by structural factors. Accordingly, the flaws and strengths of the structure that regulates our civil aviation

¹ See also the theory of causal determinism: "Causal determinism is, roughly speaking, the idea that every event is necessitated by antecedent events and conditions together with the laws of nature." Carl Hoefer, "Causal Determinism", (2023), online: *Stanford Encyclopedia of Philosophy* <<https://plato.stanford.edu/cgi-bin/encyclopedia/archinfo.cgi?entry=determinism-causal>>.

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“ecosystem” can—in their interactions with various “organisms” within the industry—trigger certain effects,² mutual transformations, as well as notable perturbations,³ either positively or negatively.⁴

Through this determinist lens, it became apparent during this research that the conduct of stakeholders and their responses to disturbing agents is dependent on the industry’s environment, which is ultimately shaped and governed by the State.⁵ This means that any variation, such as the proliferation of systemic safety risks, and resulting events (e.g., accidents) are necessarily conditioned and ultimately determined by the structure of the State.⁶ But if that structure already has built-in inequalities, those flaws and their adverse effects will likely be mirrored in other layers of our society,⁷ with equally unjust outcomes.

The concept of *structural determinism*, if applied with a broader societal perspective, is particularly compelling when reflecting on the findings made in this thesis. It exposes the

² Maureen Leyland, “An introduction to some of the ideas of Humberto Maturana” (1988) 10 *Journal of Family Therapy* 357–374 at 360: “Maturana believes that because a living system is an autopoietic system it is also structurally determined. The overall organization of a living system is maintained by the circular process of constant self-referral, and as such the changes it undergoes are determined by its own organization and structure”.

³ Jérôme Proulx, “Some Differences between Maturana and Varela’s Theory of Cognition and Constructivism” (2008) 5:1 *Complicity: An International Journal of Complexity and Education* 11–26 at 16: “Every ontogeny occurs within an environment [...] it will become clear to us that the interactions (as long as they are recurrent) between [organism] and environment will consist of reciprocal perturbations. [...] The results will be a history of mutual congruent structural changes as long as the [organism] and its containing environment do not disintegrate: there will be a structural coupling [...] Therefore, we have used the expression ‘to trigger’ an effect. In this way we refer to the fact that the changes that result from the interaction between the living being and its environment are brought about by the disturbing agent but determined by the structure of the disturbed system. The same holds true for the environment: the living being is a source of perturbations and not of instructions”.

⁴ Nicolas Terry, “Structural Determinism Amplifying the Opioid Crisis: It’s the Healthcare, Stupid!” (2018) 11:1 *Northeastern University Law Review* 315–371 at 318 & 325: “Structural determinants create barriers that stop or slow the remediation of social determinants while perpetuating others. [...] Structural determinants include architectural, economic, or political frameworks that create barriers to remediating social determinants or perpetuate social determinants...”.

⁵ Proulx, *supra* note 3 at 16: “Maturana and Varela call this phenomenon structural determinism, meaning that it is the structure of the organism that allows for changes to occur. These changes are ‘triggered’ by the interaction of the organism with its environment. They give this example: A car that hits a tree will be destroyed, whereas this would not happen to an army tank. The changes do not reside inside of the ‘trigger’ (inside the tree), rather they come about from the organism interacting with the ‘trigger.’ The ‘triggers’ from the environment are essential but do not determine the changes”.

⁶ See Jérôme Proulx, *Structural determinism as hindrance to teachers’ learning: Implications for teacher education* (Morelia, Mexico: Université du Québec à Montréal, 2008) at 150–151: “... conducts are determined by the structure, but are also dependant on the environment in which they are enacted. It is in the interaction with the environment that one’s conducts arise, in its structural coupling with it. So, these conducts are coupled with, and embedded in, the environment within which they are made possible. Our conduct is a product of both”.

⁷ Richard Delgado, Jean Stefancic & Angela Harris, *Critical Race Theory: An Introduction*, 1st ed (New-York, NY: New York University Press, 2001) at 155–156.

Concluding Remarks

interrelation between racism and structural elements stemming from sweeping systems of power and explains how existing racial disparities can be reproduced within various components of a society's structure. The author of this thesis was confronted with this precise phenomenon whilst conducting research for Chapter 3, when it became apparent that indigenous people had to compose not only with well-known socio-economic problems, but also faced striking disparities in the safety their northern aviation networks. Was this simply coincidental or was there a potential relationship between these issues?

As the author progressively moved away from traditional legal principles of civil liability⁸ and endorsed a more scientific approach to causation, an evolution in the author's thinking occurred. By enlarging the scope of elements that can be considered when investigating aviation accidents, causal roots tied to *State Factors* that were previously invisible, as well as their relationship with inequalities in the North, suddenly emerged and could no longer be ignored. The contrast between the South and the North was indeed disturbing; a comprehensive study of aircraft accidents involving State (in) action revealed that a disproportionate number of accidents on flights to/from indigenous communities have been caused by excessive risk pathogens unique to the North.

This was a crucial point in this thesis but also in the author's personal outlook on *equality*, as it became plausible that the North and its indigenous residents were likely subjected to an asymmetrical treatment by the MOT. The author of this thesis initially struggled with this prospect: how could we even consider that such a sophisticated industry could act as a vehicle for discrimination? This perspective was perhaps rooted in the author's personal biases and opinions at the time, which acknowledged the existence of well-documented socio-economic inequalities, but subconsciously declined to accept that aviation was not immune from structural inequalities.

⁸ E.g., the proximate cause theory in common law torts.

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This unsuspecting perspective is not uncommon in Canada, as evidenced by statements made by the Premier of Québec (at the time of this writing)—François Legault, who has refused to recognize the existence of systemic discrimination in Québec.⁹ Unlike the Premier of Canada, Mr. Legault has refused to acknowledge that State legislation or conduct can systemically affect certain groups differently.¹⁰ He has acknowledged that racism does exist within our society¹¹ and that there have been instances where discriminatory acts have been carried out by government institutions.¹² However, there is—in his view—no government “system” in place to discriminate, therefore, there can be no systemic discrimination within Québec’s public institutions.¹³

Misleading statements like this made by prominent individuals in our society are alarming: they can influence how we think, perceive social issues, understand the broader concept of equality, as well as our inclination to challenge the *status quo*. But fortunately, so can education,¹⁴ as noted by the late SCC Justice Brian Dickson:

It is essential that law schools and indeed the entire legal profession, devote a great amount of attention and energy to studying and understanding some of the deep social problems of our time—problems of poverty, inequality and the environment. If the legal profession as a whole is to help solve some of the seemingly intractable difficulties faced by the poor ... native people, other minorities, new immigrants, and others, it seems to me that process must start in Canadian law schools.¹⁵

Higher legal education was precisely the catalyst in altering the author’s perspective on equality within Canadian society. In an attempt to define and characterize the role of *State Factors* in accidents, it became quite noticeable by looking at the map of Canada that the adverse

⁹ Delphine Jung, “Malgré le rapport de la coroner, Legault ne croit toujours pas au racisme systémique”, (2021), online: *Radio-Canada* <<https://ici.radio-canada.ca/espaces-autochtones/1829374/legault-systemique-racisme-mort-joyce-ec-haquan-coroner-reactions>>.

¹⁰ Vincent Larin, “Racisme systémique: Legault et Trudeau en désaccord”, (2020), online: *Le Journal de Québec* <<https://www.journaldequebec.com/2020/06/02/pas-de-racisme-systematique-au-quebec-reitere-legault-1>>.

¹¹ Geneviève Lajoie, “Pas de racisme systémique au Québec, maintient Legault”, (2020), online: *Le Journal de Québec* <<https://www.journaldequebec.com/2020/10/09/racisme-systemique-je-ne-veux-pas-une-guerre-de-mots>>.

¹² Marie-Michèle Sioui, “Legault reconnaît le racisme systémique... dans les pensionnats”, (2021), online: *Le Devoir* <<https://www.ledevoir.com/politique/quebec/638118/legault-reconnait-le-racisme-systemique-dans-les-pensionnats>>.

¹³ Frédéric Boisrond, “Le racisme systémique, selon François Legault”, (2021), online: *La Presse* <www.lapresse.ca/debats/opinions/2021-10-02/le-racisme-systemique-selon-francois-legault.php>.

¹⁴ See Kathleen Mahoney, “Judicial Bias: The Ongoing Challenge” (2015) 2015:1 *Journal of Dispute Resolution* 43–70.

¹⁵ Brian Dickson, “Legal Education” (1986) 64 *The Canadian Bar Review* 374–381 at 378.

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influence and severity of *State Factors* progressively increased in almost perfect harmony with the permafrost's escalating northern boundaries. In other words, there was a clear demarcation between the safety levels in the North compared to those experienced in the South. It was at that precise moment that the author's vision was altered and when this research took a sharp turn.

The following chapters indeed revealed that in Canada, *State Factors* are predominant in the North and have disproportionate consequences on local indigenous populations. **Chapters 4 and 5** revealed a striking asymmetry between Northern and Southern Canada with respect to the MOT's inadequate regulation, oversight, funding and provision of aeronautical resources in the North. While air carriers operating in the South and internationally have historically benefitted from proactive surveillance by the MOT, far more superior aeronautical infrastructure, equipment and services, as well as contemporary safety norms exceeding ICAO SARPs, northern operators must compose with the innate risks of the North coupled with a substandard safety regime.

Chapter 6 consolidated the findings made in the previous chapters and articulated them into a litigable issue under section 15 of the *Charter* and section 5 of the CHRA. This chapter demonstrated that there is sufficient evidence to demonstrate that the MOT has failed to provide the North with substantially equal levels of safety services, funding and infrastructure in comparison to Southern Canada. As they reflect the largest proportion of Northern Canada's population, indigenous people are disproportionately affected by the societal, physical and psychological trauma resulting from this asymmetrical treatment.

Accordingly, Chapter 6 concluded that the MOT's treatment constitutes a discriminatory distinction that has the effect of perpetuating existing disadvantages with indigenous people. There are clear indications that the MOT has been aware of these asymmetric safety levels for several decades and that it has the resources to correct the situation. Even though northern

indigenous people “need air transportation to connect them with basic human rights,”¹⁶ the MOT has consistently looked the other way and favoured the primary and secondary needs of the South at the detriment of the North, hence why a case of systemic discrimination is likely to succeed if brought forward in court.

2. Contributions to Legal Literature

It is important to acknowledge the three main contributions to legal literature flowing from this doctoral thesis. First, this thesis has successfully proposed a fourth element in the regulation, surveillance and post-accident investigation of safety matters: *State Factors*. In keeping with ICAO’s Total System approach,¹⁷ this proposal represents a natural evolution in the analysis of safety factors that contribute to accidents. Starting with technical factors almost a century ago, followed by human and organizational factors in recent decades, pushing the boundaries further and explicitly recognizing the positive and negative influence of State (in)action is a logical step in the evolution of how we perceive the notion of safety.

Acknowledging the (preventable) role of States in certain accidents represents an opportunity to advance air safety and develop new strategies to contain the adverse effects of *State Factors* not only in Canada but also across ICAO’s membership. In light of major tragedies characterized by overt failures by State actors (e.g., the FAA’S certification of the Boeing 737 MAX), it is undeniable that State (in)action does play a role in the emergence (or prevention) of lethal safety deficiencies. Accordingly, governments must be held accountable for their role in certain accidents. It is the author’s hope that by introducing the concept of *State Factors*, it will be considered from the outset as a potential factor in future air safety investigations, but also in the development of regulations and surveillance policies aimed at improving global safety levels.

¹⁶ Josh Kozelj, “Indigenous entrepreneurs take to the sky with new aviation initiatives”, (2023), online: *The Globe and Mail* <<https://www.theglobeandmail.com/business/article-indigenous-entrepreneurs-take-to-the-sky-with-new-aviation-initiatives/>>.

¹⁷ See Chapter 3.

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It is also the author's belief that further academic research on this concept could be carried out to investigate its potential applications in other modes transportation and more broadly in other facets of our society, including industrial accidents, space occurrences, public infrastructure or service failures, economic crimes, medical malpractice, pandemics, financial market crashes, etc. The theory of *State Factors* is indeed a malleable concept that can have generic applications in almost any discipline. This theory has potential benefits and applications that go beyond the study of air law, hence why it constitutes a notable contribution to academic literature.¹⁸

Secondly, this thesis succeeded in exposing the presence of systemic discrimination within Canada's civil aviation regime. Until now, the idea that systemic discrimination could contaminate civil aviation was absent from existing literature, the media and social discourse, presumably because *State Factors* are often an invisible link in the complex causal chain of modern aviation tragedies. This thesis presented compelling evidence demonstrating how the MOT's differential treatment has contributed to the emergence and persistence of adverse safety issues that predominantly affect indigenous people. The anticipated contribution of this finding is that it may one day influence how judges, policy-makers, regulators and politicians recognize the safety issues that persist in the North as a form of systemic discrimination, rather than a simple industry anomaly.

It must also be acknowledged that traditionally, aviation law is a niche and technical expertise that typically develops in silos, often isolated from other disciplines such as human rights law. This thesis has broken down these barriers by cross-pollinating both disciplines. As a result of this multidisciplinary exercise, this thesis has not only uncovered the causal role of the MOT in accidents, but it has also succeeded in characterizing *State Factors* in northern aviation as a form

¹⁸ Moving forward, one could also build on this concept and explore the role of a fifth element—*Supranational Factors*—and consider how cyclical and historical variances within the governance of international organizations, such as ICAO, can induce effects on the global safety of an activity, depending if the body in question is proactive or passive in tackling emerging issues falling under its jurisdiction.

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of systemic discrimination, i.e., a violation of Canadian human rights law. It is a striking conclusion that illustrates how systemic discrimination is a widespread phenomenon that can affect many layers of our society, even those that are least suspected. It is also a testament of how important it is to keep an open mind and broaden our horizons when investigating legal issues.

Finally, and more importantly, this thesis has succeeded in translating its theoretical findings into practical applications: it has proposed a preliminary litigation strategy to make a claim of discrimination under both the *Charter* and the CHRA. In the author's view, transposing the findings made in previous chapters into tangible litigation claims is particularly important in the context of this thesis; not only does it translate a theoretical discussion into practical applications, but it can also provide "a powerful tool to effect systemic change and provide legal empowerment to [indigenous]."¹⁹

As such, one of the distinctive contributions of this thesis is that it offers a pragmatic solution to the issues identified throughout chapters 4 and 5. By utilizing a real-life scenario (the FDL tragedy) to illustrate how the findings made in this thesis constitute systemic discrimination, the preliminary litigation roadmap presented in Chapter 6 offers a meaningful discussion on how to bring justice and foster equality within Canada's civil aviation regime, namely by proposing well-crafted arguments to draw upon and recommending sources of cogent evidence that could be introduced in legal proceedings.

3. Final Observations

In closing, the key takeaway from this thesis is that reliable and persuasive evidence clearly shows that widespread racism towards indigenous people, stemming from centuries of colonial and oppressive measures against them, has translated into systemic discrimination²⁰

¹⁹ Karen Bellehumeur, "Systemic Discrimination Against Female Sexual Violence Victims" (2023) 11:11 Canadian Journal of Human Rights 131–165 at 137.

²⁰ See *R v Gladue*, [1999] 1 SCR 688 at para 61.

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within Canada's civil aviation regime, specifically in the North. Institutionalized practices within the MOT, likely conditioned over time by Canada's dark history of racism, oppression and neglect towards indigenous people, appear to have contaminated Canada's civil aviation regime. Systemic discrimination may not be the sole reason explaining why *State Factors* contribute to excessive risks and a disproportionate number of accidents in the North, but they are certainly a major influence that warrants serious attention from elected representatives, policymakers, academics and judges.

Whether we like it or not, we must accept that systemic discrimination permeates Canadian society and its public institutions at varying degrees of severity. Accepting this fact and identifying the problem is only the first step in resolving the issues discussed in this thesis.²¹ The second step is ensuring that effective remedies are implemented to address these systemic disadvantages. This is particularly important given Canada's commitments under international human rights instruments, namely under UNDRIP which provides a universal right to equality for indigenous people and binding obligations for Canada to eliminate discrimination against them.²²

In order to ensure that those who have been historically marginalized attain the same benefits as those who have been privileged in the past, power structures and relationships between the MOT and indigenous communities must be overhauled in order to ensure equal safety benefits for the most vulnerable elements of our society, namely those who depend on civil aviation. Northern indigenous people are entitled to the full breadth of safety, social and economic rights and benefits tied to the aviation industry. "Western and urban" approaches, policies and funding models utilized by the MOT to govern northern aviation activities must be revisited in

²¹ Gwen Brodsky, Shelagh Day & Frances Kelly, "The Authority of Human Rights Tribunals to Grant Systemic Remedies" (2017) 6:1 Canadian Journal of Human Rights 1–47 at 4.

²² See *United Nations Declaration on the Rights of Indigenous Peoples Act*, SC 2021, c. 14, Preamble, arts. 2, 15, 21, 24 & 46.

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order to prevent the serious harm caused to indigenous people, protect their wellbeing and advance the process of reconciliation.²³ Addressing this pattern of systemic discrimination through academic discourse and litigation claims will promote the social participation and inclusivity of indigenous people, but more importantly, it may enhance their safety, increase their wellbeing and perhaps even save lives.

²³ See *Reference re An Act respecting First Nations, Inuit and Métis children, youth and families*, 2024 SCC 5 at paras 48 & 135.

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