CLIMATE CHANGE AND HUMAN POPULATION MOVEMENT

A SCOPING STUDY INTO HOW HUMAN POPULATION MOVEMENT DUE TO THE ENVIRONMENT IS REFLECTED IN LAW AND POLICY IN THE CONTEXT OF CLIMATE CHANGE

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Lay Abstract

As the negative impacts of climate change continue to worsen, and the number of people moving globally at a record high, a growing field of research concerned with understanding climate change related migration is emerging. Within these documents, few publications have looked at laws, policies and programs that these 'climate migrants' are impacted by. This thesis reviewed the research currently available and identified gaps that exist within it. Three themes were evident throughout the research and highlight that most publications are concerned with looking at this issue from the international level and often emphasize security concerns and international legal frameworks. This thesis illustrates that research should evolve to harness climate justice knowledge and local perspectives to ensure the voices of those negatively impacted by climate change are heard.

Abstract

This thesis explores the policies, programs and laws that exist for those individuals moving due to the environment in the context of climate change. Population movement within and between countries was examined to better understand the impact that different ways of discussing climate change related migration has on policies and access, as well as political action and inaction.

Utilizing the Arksey and O'Malley scoping review methodology, this thesis aimed to determine the current extent of research, as well as highlight existing gaps. 281 documents (210 from academic databases and 71 from grey literature databases) were accepted for this study and thematically analyzed. Three key themes emerged:

1. The scope of the publications fit into three overarching categories: service provision following specific climatic events and natural disasters; overviews and analysis into national and regional policy planning; and discussions surrounding the international implications regarding law, policy and practice.
2. Consensus exists that individuals who move because of climate change and the environment are not protected in current international and domestic laws and policies.
3. There is a division between top-down and bottom-up perspectives and approaches around this topic.

The three themes identified highlight a polarizing divide within the literature around human movement due to the environment. This thesis illustrates that a dominant narrative is present throughout most of the literature around population movement due to the environment, and that this narrative has come at the expense of silenced perspectives. Moving forward, the prioritization of documents that focus on the international level, securitization and top down perspectives, over documents that focus on local perspectives and harness climate justice principles must be reconciled. As research and policy moves forward, the gaps identified in this study must be addressed to appropriately amplify the voices of those most negatively impacted by climate change.

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List of Acronyms

2SLGBTQI	Two-Spirited, Lesbian, Gay, Bisexual, Transgender, Queer or Intersex
COP	Conference of the Parties
EDP	Environmentally Displaced People
EJF	Environmental Justice Foundation
EWE	Extreme Weather Event
FEMA	Federal Emergency Management Agency
GHG	Greenhouse Gas
HIC	High-Income Country
HRC	Human Rights Committee
HRW	Human Rights Watch
IDP	Internally Displaced Person
IFRC	International Federation of Red Cross and Red Crescent Societies
ILO	International Labour Organization
ICCPR	International Covenant on Civil and Political Rights
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
LMIC	Low- and Middle-Income Country
MSF	Médecins Sans Frontières/ Doctors Without Borders
OAU	Organization of African Unity
OCHA	Office for the Coordination of Humanitarian Affairs
OECD	Organisation for Economic Co-operation and Development
PICT	Pacific Island Countries and Territory
PTSD	Post-Traumatic Stress Disorder
SDG	Sustainable Development Goal
SDH	Social Determinants of Health
SIDS	Small Island Developing State
UHC	Universal Health Coverage
UN	United Nations
UNCHR	United Nations Commission on Human Rights
UNEP	United Nations Environmental Protection Program
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
USA	United States of America
WHO	World Health Organization
WIM	Warsaw International Mechanism for Loss and Damage

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1. Introduction

Global health research aims to illuminate and better understand the inequities that exist within and between countries around the world, often identifying the "unequal distribution of power, income, goods, and services" as an underlying cause (Canadian Coalition for Global Health Research, 2015). There is an increasing awareness that global warming and climate change are unavoidable concerns for countries globally (International Organization for Migration, 2014). While the movement of people due to environmental and/or climate factors is not new, there is a growing discussion and academic focus around the idea of 'climate refugees' (Environmental Justice Foundation, 2009; Myers, 1997b; UN High Commissioner for Refugees, 2011). Given the current trajectory, the number of individuals displaced from their homes due to environmental concerns is expected to grow (Environmental Justice Foundation, 2009).

While there are internationally accepted definitions for migrants, internally displaced people and refugees, there is contention around these ideas when it comes to individuals being forced to leave their homes due to the impacts of global warming (International Organization for Migration, 2014; Palinkas, 2020). International organizations, national governments, media and academic literature all use varying (and often incompatible) definitions to emphasize different points and reach different ends; Climate refugees, environmental migrants and other competing definitions lead to contention around the conceptualization and definition of this growing global population, and subsequently the laws, policies and programs individuals are impacted by (Cattaneo et al., 2019; Kolmannskog, 2012). Overall, gaps in knowledge, a lack of consensus around climate

refugees and no clear and globally accepted definitions, make it difficult to develop strategies to move forward.

Without a clear conceptualization of the problem, or specific definitions of population groups, major gaps in policy and practice are inevitable (Joanna Briggs Institute, 2014). This thesis will utilize the Arksey and O'Malley scoping review framework to explore how climate change has impacted discussions of population movements within and across borders, to identify gaps in the existing literature and determine the potential impact of these varying conceptualizations on policies and access, as well as political action and inaction. As this is an emerging field, a wide range of academic and grey literature databases will be reviewed. Additionally, as a fairly new field, documents relevant to this study rarely distinguish between environmental conditions due only to climate change. In order to appropriately review the types of policies, programs and services available to those moving due to climate change, the resulting group of documents reviewed represent a wide range of literature that discuss climactic events, environmental degradation and natural disasters.

Addressing the issues experienced by climate refugees, as well as the conditions contributing to their existence in the first place, should be seen as critically important to the field of global health. To move forward, understanding the gaps in knowledge around the conceptualization of climate refugees and how this impacts political (in)action, is necessary to promote the health and wellbeing of those individuals forced to move due to climate change. This thesis will move forward by providing background information on the documents currently available, as well as describing the Arksey and

O'Malley scoping review method and the results of the search and review. Finally, the discussion will further delineate themes of the results and highlight gaps in policy and practice.

2. Background

2.1. Global warming and climate change: A growing concern

With increasing international consensus on the existence of climate change, a special report published in 2018 by the World Health Organization (WHO) identified climate change as "the greatest challenge of the 21st century, threatening all aspects of the society in which we live, and the continuing delay in addressing the scale of the challenge increases the risks to human lives and health" (World Health Organization, 2018). With an increasing global population, growing scarcity of natural resources, and rising pressure on the physical environment, the importance of understanding the consequences of climate change is of growing concern internationally (Environmental Justice Foundation, 2009; Watts et al., 2019; World Health Organization, 2018).

With a vast range of impacts, climate change can be understood as the "long-term change in the average weather patterns that have come to define Earth's local, regional and global climates" (Shaftel, 2020). Climate change can be used to describe the conditions of specific locations or the experience of the whole planet. Throughout history, Earth has experienced various forms of climate change, including multiple glacial advancements and retreats throughout the last 650 000 years as a result of

variations in orbit impacting the solar energy the planet received (NASA, 2020). Ongoing natural processes that include shifting ocean patterns and changes in the energy produced by the Sun, further influence climate change (National Geographic Society, 2019). However, climate change that has taken place at an unprecedented rate in the last century has been primarily the result of human activity, specifically the burning of fossil fuels that releases greenhouse gasses (GHGs) into the Earth's atmosphere (National Geographic Society, 2019).

Climate change has far-reaching impacts on the health of the planet and populations. Over the past 100 years, average global temperature has increased by 0.85 degrees Celsius, with a two degrees Celsius increase from pre-industrial levels recognized as a critical threshold for the health of the planet (World Health Organization, 2018, 2020a). Additionally, with increased burning of fossil fuels in the last 50 years, the quantity of carbon dioxide and other GHGs in the atmosphere has grown so that "each of the last three decades has been successively warmer than any preceding decade since 1850" (World Health Organization, 2020a). As the Earth's average temperature continues to warm at unprecedented rates, climate change continues to impact human lives (IPCC, 2015). The WHO estimates that between 2030 and 2050, these processes will cause approximately 250 000 climate-related deaths every year (World Health Organization, 2020a). While efforts to adapt to and mitigate the impacts of global warming are being undertaken at varying rates internationally, the accumulation of GHGs already within the Earth's atmosphere will continue to cause climatic changes that cannot be stopped (World Health Organization, 2018).

Climate change, and the associated increase in global average temperatures due to GHGs trapped in the atmosphere, have led to substantial impacts on both human and natural systems globally (IPCC, 2015). Warmer temperatures have impacted glaciers, ice sheets and snow cover as polar regions are experiencing accelerated rates of melting, contributing to sea level rise and loss of habitat. Expanding and warming oceans, combined with higher sea-levels, have increased erosion and damage to coastlines (IPCC, 2015). Shifting weather patterns, changing precipitation levels and expanding drought periods have been occurring at more rapid rates (David Suzuki Foundation, 2020). In addition, there has been an increase in climate and extreme weather events that include hurricanes, typhoons, and floods. Extended dry periods have led to more wildfires, as well as a loss of crops (Palinkas, 2020). Furthermore, the GHGs that have driven the rising global temperature have also contributed to ocean pH decreasing (a process known as ocean acidification), impacting ocean species survival (National Geographic Society, 2019). These variables directly affect both humans and the natural environment. Humans, however, frequently experience additional impacts of climate change as a result of exposure to climatic events. There is general agreement globally that this rapidly changing and more variable climate poses the highest-impact risk for society globally (World Economic Forum, 2019; World Health Organization, 2018; World Meteorological Organization, 2018).

While climate change is impacting the entirety of the Earth, the burden will be felt more in certain regions. Small Island Developing States (SIDSs) or Pacific Island Countries and Territories (PICTs) in the Western Pacific area are predicted to be some of the most affected (Palinkas, 2020). With reduced access to fresh water, more frequent droughts

impacting agricultural productivity, and cyclones that are more frequent and intense, SIDSs local populations are particularly at risk (Palinkas, 2020). From 1976 to 2015, the SIDSs recorded 622 storms, floods and droughts related to climate, with 38.5 million people affected (World Health Organization, 2018). As island nations, certain SIDSs are also uniquely impacted by rising sea levels due to the risk of being completely submerged (Palinkas, 2020; World Health Organization, 2018, p. 24). Other coastal cities in the pacific region, like those within Bangladesh and the Philippines, which already experience many extreme weather events (EWEs) like cyclones, are also predicted to be affected disproportionality by sea-level rise, flooding and storms (Environmental Justice Foundation, 2009). It is also predicted that droughts of increased duration and frequency will be more prevalent throughout Syria, as well as East, West and Sub-Saharan Africa (Palinkas, 2020; World Meteorological Organization, 2018). Finally, communities in the Arctic will feel the burden of global warming through melting and shrinking ice sheets, permafrost layers and glaciers, as well as ocean acidification (Palinkas, 2020).

In addition to climate change impacting physical regions in differing severity, the impact will also be felt disproportionately by specific populations (Environmental Justice Foundation, 2017). While low- and middle-income countries (LMICs) cumulatively emit less GHGs than high-income countries (HICs), those residing in LMICs are more vulnerable to the impacts of climate change (Palinkas, 2020). For this reason, climate change is often acknowledged to be a poverty multiplier as over 100 million people globally are at risk of experiencing extreme poverty due to climate change (World Health Organization, 2018). Inequities exacerbated by climate change

do not exist only between countries, but within, as various social, economic, and environmental determinants are impacted by climate change. As weather patterns become less predictable, and EWEs more common, agricultural productivity and food security are threatened. Those communities already living in high-risk conditions with reduced access to secure housing, health systems, safe working conditions and educational opportunities will be disproportionally affected by climate change (United Nations Task Team‘ on Social Dimensions of Climate Change, 2011; World Health Organization, 2018). As temperatures continue to rise, food and water insecurity will also increase, economic opportunities will decrease, and populations that have already been made vulnerable will be pushed further into precarious situations (World Health Organization, 2018).

As the United Nations (UN) body tasked with assessing and synthesizing science related to climate change, the Intergovernmental Panel on Climate Change (IPCC) provides their assessments to policymakers and desccribe that “scientific evidence for warming of the climate system is unequivocal” (IPCC, 2015). Despite the plethora of evidence that illustrates the role of humans in contributing to climate change, denial exists around the world and influences political responses (Norgaard, 2006; Weart, 2011).

2.2. Climate change, human health and population movement

2.2.1. Climate change and health

As climate change contributes to a rapidly changing and more variable climate, substantial improvements to health gained in the last century are increasingly threatened (World Health Organization, 2018). With profound impacts on individuals and their environments, the consequences of climate change on health are far-reaching. While some communities may experience localized benefits, such as experiencing increased food production due to shifting weather patterns, negative health effects due to climate change are the norm and progressing at an unprecedented rate (Environmental Justice Foundation, 2017; Palinkas, 2020). By impacting air and water quality, food availability and options for health services and shelter, as well as other environmental and social determinants of health, climate change is shifting the health landscape (World Health Organization, 2020a). As evidence continues to gather around the intersection of climate change and health, it is overwhelmingly clear that the severity of health impacts will only continue to increase as global average temperatures continue to rise (IPCC, 2015; World Health Organization, 2018).

Building on the idea that climate change is a poverty multiplier, it is often also referred to as a "risk multiplier" for health issues (McMichael, 2017). An estimated 250 000 additional deaths per year will occur from climate change due to heat stress, malnutrition, diarrhea and malaria from 2030-2050 (World Health Organization, 2020a). Vector-borne diseases, like dengue fever, Lyme disease and malaria, will be at an increased risk for populations already impacted and new populations, due to rising temperature and precipitation levels, as well as the expansion of vector habitat areas (Ahdoot et al., 2015; Banu et al., 2014). An increase in cholera, as well as diarrheal diseases, will result from heavy precipitation and a greater number of drought events

(Zhang et al., 2012). Rising ambient temperatures will increase the number of heat-related deaths in adults, as well as impact birth outcomes, increasing adverse events like preterm births (Basu, 2009; Basu et al., 2010; Kent et al., 2014). Children, especially those living in LMICs, will be particularly at risk of the negative health impacts of climate change, including an increased risk of stunting their physical development (Palinkas, 2020; World Health Organization, 2018).

Heatwaves, temperature changes, droughts, wildfires, storms, and floods will have direct and often interconnected health impacts. However, indirect consequences of climate change like decreased water and air quality, as well as changes in ecology and land use, will also impact the health of populations globally (World Health Organization, 2018). For example, the same burning of fossil fuels that has contributed to the warming of the planet has also raised levels of air pollution (World Health Organization, 2018). Over 90% of the population around the world is already breathing air with higher levels of pollution than recommended (World Health Organization, 2018). Increased exposure to air pollutants brings with it an increased risk of non-communicable diseases like heart disease, stroke and lung cancer (World Health Organization, 2018). Additionally, ecological shifts, such as those related to water and land usage, are expected to increase global food insecurity and malnutrition considerably. “Malnutrition is anticipated to be one of the greatest threats to health resulting from climate change” and is connected to both the direct and indirect climate change impacts (World Health Organization, 2018). Climate change and its many effects will also have a profound impact on access to health care services, particularly in LMICs and areas within HICs with fewer resources (World Health Organization,

2018). Extreme weather events and sea-level rise can destroy health and physical infrastructure, making it more difficult or impossible for people to access them (World Health Organization, 2018).

2.2.2. A growing global discussion

Humans and their environment are intricately connected, and the consequences of climate change severely impact these relationships. As environmental degradation continues, population displacement as a result of climate change is a growing concern (Environmental Justice Foundation, 2009; Palinkas, 2020; World Health Organization, 2018). The physical manifestations of climate change that increase pressure on populations to move are numerous. For example, the increasing number and severity of droughts impacts agricultural productivity, particularly in rural areas, and subsequently food security and economic opportunity (IPCC, 2015). As sea levels continue to rise, coastal regions will be at an increased risk for flooding and shoreline erosion, as well as experience agricultural degradation (Palinkas, 2020). Ocean acidification and wildfires will have a negative impact on the survival of other species humans rely on for food, culture and economic productivity (Palinkas, 2020). In addition, as certain areas and population experience the negative health impacts of climate change more than others, being at an increased health and safety risk is recognized as a population movement motivator (World Health Organization, 2018). The impacts of climate change and global warming are far-reaching and broad in scope; the influence of these processes on human population movement is, therefore, also unpredictable, vast, and varied.

2.2.3. Movement due to environment not a new phenomenon

While climate change has the potential to increase the scale of human displacement, population movement due to environmental and climatic conditions is not a new phenomenon. Mega-droughts pushed populations in tropical Africa towards the coast approximately 135 000 years ago. Following a prolonged period after the Earth's axis shifted, green corridors opened that allowed Homo sapiens to move from Africa to many other areas of the world (Palinkas, 2020). Additionally, long periods of drought are believed to have led to the first urban societies moving from the increasingly arid interior and densely organizing closer to sources of water (Brown, 2007; Palinkas, 2020). Large-scale population movement due to famines and crop failures associated with climatic changes also occurred beginning in the fourteenth century. For close to 500 years, ending in the nineteenth century, Europeans were forced to move to different areas where they were less impacted by heavy precipitation throughout the summer and colder winters (Palinkas, 2020). Populations in North America felt similar pressures to move throughout history, including recently in the 1930s, when prolonged droughts, dust storms and drier conditions made it difficult, if not impossible, to live in certain areas (Palinkas, 2020). In these examples and many more, changes in the climate and environment necessitated human movement in varying ways and on different scales.

Although the impact of climate change is being felt now more than ever before, for communities most at risk, the warning signs have been present for some time. As such, many of these communities (and countries) have been actively working towards

complete relocation. Kiribati is an island nation in the Pacific Ocean and one of the SIDSs that is at risk of being submerged due to rising sea-levels. In preparation for this, a potential relocation plan was developed for the population, with the national government purchasing land (20 square kilometers) in Fiji (Palinkas, 2020). Another example of communities that are trying to relocate in advance of worsening climatic conditions is the northern, coastal communities in the United States of America (USA). As of 2018, there were 17 isolated, remote, and primarily Native American and Alaska Native communities undertaking formal relocation applications on the basis of climate change (Palinkas, 2020). As global warming continues to progress, communities at risk will continue to experience worsening conditions.

2.2.4. Population movement expected to grow

The human-environment relationship is critical for survival, and with worsening climate change, increased population movement is inevitable. However, some communities that are currently more susceptible to variations in climate have longstanding migration patterns already in place. For example, to mitigate the impacts of drought, the Lake Chad Basin, which includes Chad, Niger, Cameroon and Nigeria, has historically had migration flows within and across these four borders (Palinkas, 2020). On a broader scale, the same climate and environmental conditions that predicate human movement within Africa at the national and regional levels have also created migratory paths to Europe (Palinkas, 2020). Additionally, when economic opportunities related to agricultural production are negatively impacted by climate change, movement from

rural to urban areas (and back to rural areas if the environmental conditions improve) is a common practice (Palinkas, 2020).

The IPCC continues to emphasize that the risks of climate change will be greater for those individuals and communities already in precarious situations (IPCC, 2015). Geographical predisposition to the negative impacts of climate change, as well as preexisting sociopolitical conditions, have contributed to certain hotspots for ongoing climate change-related population movement. Whether it be prolonged droughts in the middle east, desert expansion in China or glacial melting in the Amazon basin (to name just a few), climate change is already having a profound influence on population movement (Palinkas, 2020). With increasing global warming, extreme weather events, droughts, flooding, and coastal erosion that already cause population displacement, will continue to increase in number, scale and intensity and further influence population movement globally.

2.3. Current definitions

The world is currently experiencing an unprecedented period of population movement. The United Nations High Commissioner for Refugees (UNHCR) reported that by the end of 2019, the number of people forcibly displaced globally had reached an all-time high of 79.5 million people (United Nations High Commissioner for Refugees, 2020c). This number included all those forced to leave their homes due to “war, conflict, persecution, human rights violations and events seriously disturbing public order” (United Nations High Commissioner for Refugees, 2020c). This included 26 million

refugees, 45.7 million internally displaced persons (IDPs), 4.3 million asylum-seekers and 3.6 million Venezuelans displaced abroad. While forcibly displaced people are found around the world, 68% of those 79.5 million people are from just five countries: Syrian Arab Republic (6.6 million), Venezuela (3.7 million), Afghanistan (2.7 million), South Sudan (2.2 million) and Myanmar (1.1 million). Not only was 2019 the highest reported year on record, the last decade saw the highest number of forcibly displaced people ever recorded (United Nations High Commissioner for Refugees, 2020c). The UNHCR reporting of forcibly displaced people does not include those forced to move because of climate change or environmental conditions (United Nations High Commissioner for Refugees, 2019, 2020b). While it is difficult to predict what the next decade will look like, an increasing global population coupled with wars and global crisis' preventing the return or integration of displaced people, protracted displacement is likely to increase in the coming years (Palinkas, 2020; World Health Organization, 2018).

2.3.1. General

To accurately capture the dynamics of human movement, many specific definitions have been agreed upon at national, regional, and international levels. The UNHCR categorizations of forcibly displaced people (e.g. refugees, internally displaced and asylum-seekers) are just a few (United Nations High Commissioner for Refugees, 2020c). For future analysis, this paper will focus on three overarching categorizations: Refugees, IDPs and migrants. The different groupings associated with population movement carry unique policy implications and outcomes.

2.3.1.1. Refugees

The current accepted legal definition of a refugee is “someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion” as defined by the 1951 UN Refugee Convention (United Nations High Commissioner for Refugees, 2010). The 1951 Convention and subsequent 1967 Protocol has been internationally agreed upon by 149 states as of 2019 (United Nations High Commissioner for Refugees, 2020c). As such, 20.4 million people internationally are considered refugees by the UNHCR. While it is often presented that fleeing countries of origin due to violence is enough to be granted refugee status, this is not true as proof of persecution is required to access that status (United Nations High Commissioner for Refugees, 2020c). Until an individual is recognized legally as a refugee, they are referred to as asylum seekers. At the end of 2019, the UNHCR recognized 4.1 million people as asylum seekers (United Nations High Commissioner for Refugees, 2020c).

While the 1951 Convention forms the basis of the internationally accepted definition, regional and national initiatives have expanded specific components (United Nations High Commissioner for Refugees, 2010). For example, the Organization of African Unity (OAU) Convention Governing the Specific Aspects of Refugee Problems in Africa, expanded the 1951 definition to include “every person who, owing to external aggression, occupation, foreign domination or events seriously disturbing public order

in either part or the whole of his country of origin or nationality, is compelled to leave his place of habitual residence in to seek refuge in another place outside his country of origin or nationality" (United Nations High Commissioner for Refugees, 1969). Similarly, the 1984 Cartagena Declaration on Refugees extended the 1951 refugee definition, including "...persons who have fled their country because their lives, safety or freedom have been threatened by generalized violence, foreign aggression, internal conflicts, massive violation of human rights or other circumstances which have seriously disturbed public order" and while non-binding, was adapted into the national laws of some countries, as well as accepted across Central America (Refugee Legal Aid Information for Lawyers Representing Refugees Globally, 2020; United Nations High Commissioner for Refugees, 1984). These definition expansions have allowed regional cooperation and experiences to be acknowledged within respective refugee definitions, programs and policies, while others eliminate their inclusion all together (United Nations High Commissioner for Refugees, 1969, 1984, 2010).

2.3.1.2. Internally displaced persons (IDPs)

Unlike refugees, IDPs do not have an internationally accepted definition or a corresponding legally binding instrument. However, at the request of the UN Commission on Human Rights (UNCHR), the UN Office for the Coordination of Humanitarian Affairs (OCHA) produced the *Guiding Principles on Internal Displacement*, which were presented in 1998, outlining 30 standards to protect this group (United Nations High Commissioner for Refugees, 2004). This document defines IDPs as "persons or groups of persons who have been forced or obliged to flee or to

leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized border" and the principles within the document have been widely accepted and adopted into some national and regional policies (Office of the United Nations High Commissioner for Human Rights, 2020). While widely accepted in some contexts, these changes are still made at the discretion of local governments and the UN can provide little support in these instances. Unlike refugees, IDPs have not crossed international borders, and it is estimated that there are 43.5 million IDPs globally, with 44% of those residing in three countries (Colombia, Syria and The Democratic Republic of the Congo) (United Nations High Commissioner for Refugees, 2020c).

2.3.1.3. Migrants

Similar to IDPs, there is no single internationally accepted legal definition of a migrant. As such, it is often used as an all-encompassing term for human movement. The International Federation of Red Cross and Red Crescent Societies (IFRC) describe “migrants as people who leave or flee their places of habitual residence to go to a new place, across international borders or within their own state, to seek better or safer prospects” and this idea is generally echoed in other migrant definitions (Canadian Red Cross, 2020; Palinkas, 2020; United Nations High Commissioner for Refugees, 2020c). Migration can take place within and, across borders and can be through legal and non-legal channels. When migration is discussed, it often includes the interplay between

push factors that emphasize loss and necessity to move, and pull factors that offer opportunity and advantage (Hammar et al., 1997; Lee, 1966; Palinkas, 2020). Push and pull factors highlight the complexity of movement and how difficult it is to separate individuals who move into distinct subcategories like forced, voluntary, temporary, and permanent. As such, migration encompasses many groups of people, for instance, migrant workers, international students, and smuggled migrants. The WHO estimates that there are 1 billion migrants globally, with 258 million residing outside their country of origin, and 763 million internal migrants (World Health Organization, 2020b).

2.3.2. Population movement due to climate change

2.3.2.1. Competing definitions

There is currently no legal term that has been internationally recognized to capture the experiences of those moving due to climate change or the environment (Environmental Justice Foundation, 2009). However, over the last few decades, there has been an increasing awareness of the role climate change has on population movement (IPCC, 2015). In 1990, the IPCC advanced the idea that the "gravest effects of climate change may be those on human migration" (IPCC, 2015). In 2009, the Environmental Justice Foundation (EJF) suggested that climate change would put 500-600 million people at risk of displacement and that at the time, approximately 26 million people had already migrated (Environmental Justice Foundation, 2009). In 2020, for the first time, the UNHCR identified climate change as a cause of refugee movement, despite it not fitting within the formal refugee definition (United Nations High Commissioner for Refugees,

2020c). As more evidence is gathered, it is predicted by 2050, over 200 million people will be displaced due to climate change (International Organization for Migration, 2014).

It is increasingly recognized that natural disasters and climate exacerbate threats that motivate people to move across borders or within countries (United Nations High Commissioner for Refugees, 2020a). Disrupted agricultural production, as well as increasing shoreline erosion and coastal flooding, are just a few of the impacts of climate change influencing increased population movement (International Organization for Migration, 2014). The complex nature of climate change and its implications also make it difficult to discern if movement is specifically a consequence of climate change (Palinkas, 2020; Weerasinghe, 2018). Food insecurity is one example that has strong roots in climate change and climate related movement, and is felt across 55 countries, negatively impacting 135 million people (United Nations High Commissioner for Refugees, 2020c). While distance travelled varies for those displaced, it is expected that most impacted by climate change will be internally displaced (International Organization for Migration, 2014). The interplay between climate change, human movement and health, and the lack of agreed upon formal definitions that capture these experiences often leave these individuals out of official counts of population movement, especially as it relates climate change (Environmental Justice Foundation, 2009; Palinkas, 2020).

To capture these ideas in the absence of formal categorizations, individuals and various groups have utilized different terms to fit their respective purpose. In his book, *Global*

Climate Change, Population Displacement, and Public Health: The Next Wave of Migration, Lawrence A. Palinkas uses the term "climigrant" to focus on common circumstances during and post-migration, rather than what motivated it (Palinkas, 2020). Following Hurricane Katrina, those displaced from New Orleans and relocated to Houston experienced discrimination through pressure from predominantly white and affluent residents to send back the "Katrina illegal immigrants" and "Katrina refugees" (Palinkas, 2020). While neither term reflects an internationally or nationally accepted definition, they highlight the discrimination felt by climate induced forcibly displaced populations that exists just by crossing state lines. Despite the broad range of these terms, and many more not mentioned, each term is comprised of two components. The first relates to climate change and the environment, while the second addresses human movement. The semantics of language chosen to represent these experiences carries with it specific outcomes (Canadian Red Cross, 2020; Environmental Justice Foundation, 2009; International Organization for Migration, 2014; World Health Organization, 2018).

When discussing population movement related to the environment, the language used to describe the environmental component varies. Climate change, global warming and environmental are general descriptors often used to capture the conditions encouraging or forcing population movement. This is also the case when movement follows EWEs (e.g. flood induced movement) or changing environmental conditions (e.g. arctic shrinkage, desertification and environmental degradation induced movement) that connect climate change to environmental destruction (Environmental Justice Foundation, 2009; Palinkas, 2020).

In addition to the broad categorization of terminology related to the environment, two other distinctions are often used when discussing the conditions related to the environment that motivates movement. The first is whether it is an acute event or whether it is based on long-term environmental changes. Acute events are often extreme weather events, like Hurricane Katrina, that ravaged New Orleans, USA causing 1836 deaths in 2005, or Typhoon Haiyan that caused 6300 deaths in the Philippines in 2013 (Palinkas, 2020; United Nations High Commissioner for Refugees, 2014). In comparison, examples of long term environmental changes include the SIDSs like the Marshall Islands, Vanuatu and Tuvalu, which are low-lying islands that due to rising sea levels, are at risk of being submerged (Palinkas, 2020). The second distinction is whether the environmental impact is temporary or permanent. This is often linked to the question of whether it is an acute climatic event or more related to long-term destruction. However, social, political, cultural and economic pressures can also impact the permanence of environmental events due to rebuilding efforts that occur. The wildfires that destroyed the town of Fort McMurry in Canada did not destroy the possibility of return in that area, and the majority of residents were able to eventually move back once it was rebuilt (CBC News, 2016). In contrast, in the Andes of the Amazon Basin, major reductions in freshwater due to glacial melting have contributed to increased droughts and much-longer term environmental destruction impacting the ability of humans to remain residing there (Palinkas, 2020).

The second component of population movement related to the environment is how the movement itself is described. While preexisting definitions accepted at the national and

international level are common (e.g. migrant, refugee and IDP), depending on the context, these are not always utilized correctly, as was the case for the Katrina refugees (Palinkas, 2020). Additionally, similar to distinctions applied to environmental conditions, population movement is also further categorized in two ways when it is in the context of climate change. The first is whether the movement is forced or voluntary. While forced is often associated with refugee status, it can also be used when describing climate-related movement. For example, while acute events are often described as experiences that force population movement, long-term environmental changes that impact agricultural production and, therefore human movement, are more likely to be associated with the voluntary choice to move, whereas a hurricane often "forces" people to move (Environmental Justice Foundation, 2009). The second is whether the movement is temporary, long term or permanent, and similar to the permanence of environmental impacts, this is also significantly influenced by the social, political, cultural and economic conditions. Overall, the varied experiences of persons moving due to climate change contribute to the different ways of identifying these experiences (Environmental Justice Foundation, 2009; International Organization for Migration, 2014; Palinkas, 2020).

2.3.2.2. Nexus dynamics

With global migration at a historical high, and the negative impacts of climate change increasing every day, understanding the relationship between human movement and the environment is critical. One example of this work is the idea of nexus dynamics. The UNHCR defines nexus dynamics as, "situations where conflict and/or violence and

disaster and/or adverse effects of climate change exist in a country of origin," and this intersection often impacts human movement (Weerasinghe, 2018). Nexus dynamics are used to highlight the multifaceted relationship that climate change has in exacerbating preexisting conditions that may cause population movement (e.g. Haiti and the aftermath of the 2010 earthquake), as well as the role climate change can have in creating the conditions that cause civil unrest and subsequent population movement (e.g. the mass movement of Somalis in 2011-2012 due to conflict and famine) (Weerasinghe, 2018). When looking at the history of human movement, the role of climate and environment is often present but not identified as the primary motivation to move (Palinkas, 2020). Nexus dynamics are important to recognize when looking at the broad scope of population movement due to intensifying climate change.

2.3.2.3. Contention around conceptualization and definitions

Complimenting the increased movement of people due to climate change, contention continues to grow as consensus around how to label these individuals has yet to be met. Despite the categorization of environmental refugee and climate refugee often used, various national governments, as well as institutions, like the International Organization for Migration (IOM), oppose this as "these migrants do not meet the definition of refugee as established by the 1951 Geneva Convention, that the term itself is derogatory and discriminatory, and that not all climate-related displacement is forced" (International Organization for Migration, 2014; Palinkas, 2020). The IOM instead utilized multiple variations of environmental migrants, highlighting different aspects of population migration (e.g. forced, voluntary and permanent) (International

Organization for Migration, 2014). In contrast, other organizations like EJF, advocate for the expansion of the refugee definition, or the creation of a new legal instrument, that acknowledges the impending need that “climate refugees” will require and how those already most vulnerable will be most in need of support (Environmental Justice Foundation, 2009). Human movement within and across borders is complicated. The causes and effects of climate change make this experience even more complicated to manage. The expected global increase in the number of people moving due to climate change poses a difficult to address problem for countries globally. Additionally, as this movement will be taking place primarily from and within LMICs, little agreement has been made internationally on how to address this issue moving forward.

2.4. Forced displacement and migration as determinants of health

The social and economic factors that influence health are known as the social determinants of health (SDH) (Commission on the Social Determinents of Health, 2008). These factors can influence health, both positively and negatively. Living in safe and secure housing, being part of a strong social network and having access to employment are SDH that have a positive impact (Commission on the Social Determinents of Health, 2008). In comparison, living in poverty, being food insecure and lacking access to education are determinants of poor health (Commission on the Social Determinents of Health, 2008). While numerous factors influence health, a social gradient between those with greater access to capital and, subsequently, other determinants are evident within and between countries. The WHO highlights that "poor and unequal living conditions are the consequence of poor social policies and

programmes, unfair economic arrangements, and bad politics" and directly connect to the SDH (Commission on the Social Determinents of Health, 2008). The health of humans is intimately connected to the spaces in which they occupy, and as global population movement continues to increase, understanding the health impacts of migration and displacement is of growing concerning (Pan American Health Organization, 2019).

While international migration has reached the highest level in recent history, the majority of this has taken place within LMICs, with movement within countries still representing the majority of population movement (Environmental Justice Foundation, 2009; Palinkas, 2020). In addition to individuals migrating often experiencing negative health impacts, migration in and of itself is a determinant of health (Environmental Justice Foundation, 2009; Palinkas, 2020; Wickramage et al., 2018). When individuals and communities decide to move, or experience forced displacement, the journeys they take, and where they end up also impacts their health (Palinkas, 2020). The push factors of migration are also critical indicators of population health outcomes. While political instability, poverty, diseases, conflict and other push factors motivate population movement, they also directly impact health (International Organization for Migration, 2014). As the majority of migration is taking place in LMICs, where the likelihood of living in conditions that promote poor health is greater, the health of those migrating within LMICs will be different at the outset than those within HICs (Palinkas, 2020). Therefore, as migration continues to increase, the relationship between migration and health has been identified as a global health priority (International Organization for Migration, 2014). To help understand the impacts on health, we can consider various

stages of the migration process, including pre-migration, post migration and movement phases.

2.4.1. Pre-Migration

Humans are impacted by the SDH, as well as their biological makeup, on an ongoing basis (Commission on the Social Determinents of Health, 2008). Therefore to understand the health of those moving, it is necessary to look at experiences prior to migration. Various cross-cutting variables influence a person's well-being regardless of what stage they are at in the migration process (Wickramage et al., 2018). Often referred to as individual or biological factors, an individual's gender, age and genetics impact how other factors affect health (Wickramage et al., 2018). The socioeconomic status of an individual, as well as the legal, cultural, and physical environment they exist in, are some of the primary determinants. These determinants influence the ability to be resilient throughout the process of migration (Palinkas, 2020). For example, an individual in a LMIC, who lives in poverty, is malnourished and has never been to school or accessed a health service, is likely to be more susceptible to disease and generally experience worse outcomes, when compared to someone in a HIC (Wickramage et al., 2018).

When examining health in the pre-migratory phase, it is also critical to understand the conditions and events that are influencing people to move (Environmental Justice Foundation, 2009). This is especially significant for forced migration flows that are transpiring because of war, conflict, violence and human rights violations (Wickramage

et al., 2018). As the impacts of climate change continue to grow, it will increasingly force human movement. Climate change has an impact on the SDH, by negatively impacting air and water quality, as well as altering the availability of food (World Health Organization, 2020a). Additionally, as the speed of coastline erosion increases and ocean acidification intensifies, the ability for marine species to survive is threatened. Coupled with the number of extreme weather events, as famine become more prevalent, humans will need to move to survive (Environmental Justice Foundation, 2009).

2.4.2. Movement phase

Many different factors impact health during migration (Palinkas, 2020). The distance and time of the journey, as well as the circumstances, will considerably influence the health of those making the trip (Wickramage et al., 2018). Another key variable is whether movement is taking place as part of a mass movement, a smaller group, or as an individual. Additionally, where are they moving to and what lies ahead in their journey? Are they staying within their country of origin, or do they have to cross borders? Are they travelling by land, water, or air? Migration paths and travel conditions are often unpredictable, unsafe, and lack secure shelter, thus, placing those moving at an increased risk of malnutrition, dehydration and communicable disease (International Organization for Migration, 2017a). It is also important to note that the movement phase is not linear, and there are various routes that can be taken. While in-transit, those who live in one or multiple refugee camps, will have differing experiences than those who do not (Newbold & McKeary, 2018). These differences are also

heightened depending on whether they are accessing the camps within their country of origin as an IDP, or after crossing an international border, as well as the length of time they spend in refugee camps (e.g. months versus years in protracted states of displacement) (Newbold & McKeary, 2018).

The conditions that influence an individual's decision to migrate can exacerbate negative health outcomes. When someone of higher socioeconomic status migrates, they have more capital to arrange a safer route. For those of lower socioeconomic status and/or who are actively being persecuted, the migratory paths become a lot riskier (Palinkas, 2020). For example, IDPs, who are fleeing violence or war, are extremely vulnerable as they are unable to move further away from the crisis areas and often end up trapped in conflict zones (United Nations High Commissioner for Refugees, 2020b). Additionally, the majority of IDPs are women and children, which, combined with increased proximately to areas of violence, puts them at a higher risk of experiencing sexual assault, physical violence and abduction (Office of the United Nations High Commissioner for Human Rights, 2020). In the context of climate change and extreme weather events or natural disasters, different movement patterns occur due to the nature of the event, particularly in comparison to a civil war. In addition, as many who are moving for environmental reasons will do so within their country of origin, they are not protected under international refugee law and must rely on national disaster responses and international humanitarian aid (Legerski et al., 2012; Newbold & McKeary, 2018).

2.4.3. Post Migration

The hazards and impacts of the journey, such as the physical environment that was traveled through, any exposure to violence and the method(s) of transport taken to their current destination, have lasting impacts on the health of those migrating. When migrants arrive at their new location, the health impacts of their journey are compounded with new factors that often have a profound impact on their health (Wickramage et al., 2018). What this looks like depends on a host of factors. When migrants in LMICs move from rural to urban centers, they are often in areas that are less likely to be resilient to future extreme weather events (Palinkas, 2020). Additionally, urban slum areas have reduced access to safe housing, clean water and education (Palinkas, 2020). For those in protracted states of displacement, whether they stay within their country of origin or cross borders, as well as their migrant status if they do resettle in a new country, all have an impact on their health (Office of the United Nations High Commissioner for Human Rights, 2020). Migrant workers are often in precarious situations post-migration. For those employed in difficult and dangerous sectors, low wages and demeaning work environments are common (Canadian Red Cross, 2020). At the same time, health and social service access for these workers is often less than those employed in other sectors (Migration Data Portal, 2020a).

Mental health issues are one of the most discussed and studied impacts of migration, and manifests in very different ways. Exposure to traumatic events, whether it be climate-related like wildfires, hurricanes and floods, or related to war and conflict, has detrimental mental health consequences and can increase rates of post-traumatic stress disorder (PTSD), anxiety and depression (Hynie, 2017; Palinkas, 2020). The loss of loved ones, property and/or cultural identity also has negative impacts on mental health

and contributes to higher rates of illness (Migration Data Portal, 2020a). The disruption of social networks, families and communities separated for varying periods of time, can lead to feelings of isolation, as well as contributing "to a reduced sense of belonging within a familial, regional, or ethnic network, which may contribute to poorer mental health" (Palinkas, 2020). It is also essential to recognize that throughout the migration process, certain groups, like women, children, older adults and those with a two-spirited, lesbian, gay, bisexual, transgender person, queer or intersex (2SLGBTQI) identity, are more like to develop mental health issues (Virupaksha et al., 2014).

Disparities surrounding access to healthcare are also prevalent after migration. For those who migrated but stayed within the country, access to healthcare is impacted by the events motivating movement (Kherallah et al., 2012; Palinkas, 2020). For example, climatic and extreme weather events have traditionally impacted access to health care services (Environmental Justice Foundation, 2017; Kherallah et al., 2012). When conflict arises between groups of people, those targeted are often unable to access services run by those in power (Weerasinghe, 2018). Violence associated with war, as well as extreme weather events, can both destroy healthcare infrastructure and limit the ability to rebuild (Environmental Justice Foundation, 2009). Additionally, LMICs often have healthcare infrastructure that is more vulnerable and may not have the capacity to serve all those who require it during times of conflict and climatic events (Palinkas, 2020). Alternatively, access to health care for those who migrate across borders is often determined by their categorization and the country of entry (United Nations High Commissioner for Refugees, 2020b). For those asylum seekers eventually classified as refugees, they are able to access care in their host country (Ekmekci, 2017;

Environmental Justice Foundation, 2009). For migrants without this designation, accessing national health care services may be logistically and financially impossible (Canadian Red Cross, 2020). For migrants who lack formal status within a country, fear of disclosure may also impact an individual's willingness to access healthcare. This is especially problematic as those often most at-risk of negative health are those who took the most dangerous and exploitive migration paths (e.g. through smuggling and human trafficking) that can result in not receiving refugee status (Canadian Red Cross, 2020). As many migrants are moving between LMICs, beyond status related issues in accessing care, local capacity may also be limited and equally vulnerable to extreme weather events (Palinkas, 2020). Even when migrants can safely and affordably access health care, their new countries may not be equipped to deal with the unique needs of migrant populations. The ability to access care is limited by complicated enrollment methods, structural barriers and discrimination by care provider(s), as well as culturally inappropriate care (Palinkas, 2020; Wickramage et al., 2018). However, regardless of these overarching concerns, national and regional provisions exist in some areas and may make access to care easier (Palinkas, 2020; United Nations High Commissioner for Refugees, 1969, 1984).

The health of migrants is also connected to the acceptance of migrants in their new environments (British Medical Journal, 2019). Distance travelled from country of origin, language, cultural and societal norms, as well ability to gain employment, all influence on whether migrants will feel isolated and/or socially excluded (Migration Data Portal, 2020a). Politicized and anti-immigrant rhetoric permeates much of the discourse surrounding migrants and contributes to discrimination and experiences of

"othering" (Wickramage et al., 2019) Those migrants who can find acceptance and community, are more likely to be able to integrate and experience positive health experiences (Palinkas, 2020). One of the most extreme forms of being unable to integrate is the practice of detaining migrants. Closed facilities like jails and detention centers are associated with poor sanitation, inadequate nutrition and other health issues due to densely packed populations and long stays (Canadian Red Cross, 2020). Irregular migrants, asylum seekers and those trafficked are those most likely to be detained, and also those who are most likely to have experienced the worst health impacts associated with the migration journey (Migration Data Portal, 2020a).

2.5. Ensuring the experiences of climate refugees are recognized

2.5.1. Leaving no one behind

Despite the many positive health improvements that have been made globally in the last decades, including improved access to drinking water, reduced under-five child mortality and the alleviation of poverty, inequality continues to rise within and between counties (Coffey et al., 2020; United Nations Development Program, 2018). As the wealth difference between rich and poor continues to grow, the world's poorest countries are becoming relatively poorer (Coffey et al., 2020). In addition, Oxfam reported that as of 2019, the 2153 billionaires in the world were richer than 4.6 billion people (Coffey et al., 2020). This growing inequality impacts those that are already living in poverty and reinforces cycles of poverty (Coffey et al., 2020; Environmental Justice Foundation, 2017; Palinkas, 2020).

Reflecting on the growing global inequality, UN Member States adopted the 2030 Agenda for Sustainable Development in 2015 (United Nations Development Program, 2018). This included the adoption of 17 Sustainable Development Goals (SDGs). Each goal has specific targets that will serve as indicators for progress in reaching these goals. These Global Goals are integrated, with the aim of tackling five factors that influence development and sustainability: discrimination, socio-economic status, governance, place of residence and vulnerability to shocks (United Nations Development Program, 2018). Embedded within the SDGs and other UN campaigns is the pledge to reach those that have been traditionally ignored and leave no one behind (United Nations Development Program, 2015). Overall, the SDGs are the latest initiative that serves as a "universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity" (United Nations Development Program, 2015).

For many, sustainable development is connected with the importance of achieving Universal Health Coverage (UHC) (Palinkas, 2020; United Nations High Commissioner for Refugees, 2020c; Wickramage et al., 2018; World Health Organization, 2018). This is emphasized as "achieve[ing] universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all" (SDG 3.8) (United Nations, 2015). Adapting to climate change and migration are critical components of achieving sustainable development and UHC (Abubakar et al., 2018). All targets under SDG 13 are focused on "tak[ing] urgent action to combat climate change and its impacts", SDG 10.7 identifies the importance of "facilitate[ing]

orderly, safe, regular and responsible migration and mobility of people, including through the implementation of planned and well-managed migration policies" and many other SDGs and associated targets address factors that impact the climate migration intersection (United Nations, 2015). As the SDGs "identify migration as both a catalyst and a driver for sustainable development," they highlight the influence of the conditions motivating movement and the migration journey on population health (Wickramage et al., 2018). As many countries only offer health services to citizens and residents, reconciling the aims of UHC with the capacity of national health services remains a growing concern (United Nations High Commissioner for Refugees, 2020c). While declarations like the SDGs and UHC emphasize that policies should include the right to health for non-citizens and migrants, they are often excluded (Abubakar et al., 2018). Similarly, the connection between climate change, health and sustainable development continues to be emphasized as a global priority, recognizing the need to adapt policies and practices in order to mitigate the ongoing threat of global warming (World Health Organization, 2018).

2.5.2. Environmental racism

The field of environmental justice developed in the USA during the 1980s as a grassroots movement concerned with the impact racialized communities experienced from toxic waste sites (Environmental Justice Canada, 2020). Dr. Robert D Bullard emphasized that "environmental justice embraces the principle that all people and communities are entitled to equal protection of environmental and public health laws and regulations" (Environmental Justice Canada, 2020). Environmental racism is one

component of environmental justice. It references that negative environmental features (e.g. toxic facilities, garbage dumps and other polluters) are disproportionately felt by racialized groups and those of lower socioeconomic status (Greenaction for Health and Environmental Justice, 2020). In addition to exposure to waste and pollution being felt at higher rates by certain populations, environmental concerns also connect to unhealthy working conditions, and an increased rate of health problems and a lower quality of life (Lumen Learning, 2020). The environmental justice movement directly connects to climate change as the brunt of climate change is felt by those already living in precarious situations, within and between countries (Palinkas, 2020; World Health Organization, 2018).

The reference to climate change as a poverty multiplier is connected to the difference in the impact climate change will have on HICs and LMICs (Palinkas, 2020). For example, while LMICs have produced less GHGs, extreme poverty in LMICs is expected to rise greatly due to climate change (World Health Organization, 2018). Following the environmental justice principles, those with less financial resources are more likely to be exposed to greater environmental risks and also be less likely to be able to avoid environmental health risks because they cannot afford to take protective measures (Brouwer et al., 2007; Palinkas, 2020). Additionally, even within HICs, critical disparities exist. For example, the ability of people to return to New Orleans after Hurricane Katrina was greatly influenced by their socioeconomic status (Palinkas, 2020). While those with wealth can move or rebuild with greater ease, rental units and subsidized housing in New Orleans experienced greater damage and received less federal funding to rebuild, making it difficult for the predominantly Black and/or low-

income residents to return (Palinkas, 2020). Similarly, Native American and Alaskan Native communities in the Arctic that are feeling the impact of long-term environmental changes have experienced extreme difficulty in accessing federal funding and support to facilitate their moves to less at-risk areas (Palinkas, 2020).

2.5.3. Protecting human movement due to climate change.

While international consensus around climate change and migration has increased, this growing recognition has not been matched with global action (Environmental Justice Foundation, 2017). The impacts of climate change are far-reaching and carry dire consequences for the planet and people globally (World Health Organization, 2018). Climate change and the subsequent increase of extreme weather events, desertification, sea- level rise and flooding, as well as the impact this will have on natural resources, crops and clean water access, will continue to shift the way humans live (World Health Organization, 2020a). Climate change will continue to influence the question of whether humans need to move or stay where they are. As research evolves to uncover more information on nexus dynamics and the way climate change influences factors of governance, populations will continue to be displaced within and across borders due to climatic events and the slow onset of climate changes (McDonnell, 2018). The ongoing and often repeated displacement of people moving due to environmental changes will continue and those moving will be made more vulnerable by policies, programs and practices that do not acknowledge their existence (McDonnell, 2018; United Nations High Commissioner for Refugees, 2019). While the importance of having an internationally accepted definition that coincides with legal protections continues to be

emphasized. This idea is contested and continues to promote debate around population movement due to the environment and climate change (Environmental Justice Foundation, 2009, 2017; International Organization for Migration, 2014). In attempting to learn more about population movement due to climate change, a scoping review is undertaken to highlight gaps in this area of research, specifically as it relates to access to different programs and policies on the basis of how those moving are identified.

3. Methods

3.1.Review question and objectives

Utilizing a scoping review framework, this research project seeks to explore how climate change has impacted discussions of population movements within and across borders, in geopolitical and environmental justice literature.

Specific objectives that will support this aim are:

- To explore the varying conceptualizations of "climate migrants" or more broadly human movement due to the environment, and how these are discussed in academic and grey literature.
- To determine the potential impact of these varying conceptualizations on policies and access, as well as political action and inaction.
- To identify gaps and trends in the existing literature.
- To illustrate future research opportunities to advance policy and practice.

3.2. Study design

This paper utilizes a scoping analysis study design. Scoping studies are generally used to map literature around key concepts on a particular topic or research area (Arksey & O'Malley, 2005). They are often used to capture a broad and comprehensive range of available literature, and depending on the purpose of the study, will go into varying depths (Arksey & O'Malley, 2005). This study utilized the Arksey and O'Malley methodological framework for conducting scoping reviews (Arksey & O'Malley, 2005). The Arksey and O'Malley framework was appropriate for the study as scoping studies are valuable to identifying conceptual boundaries and definitions around a topic, within a field where the literature is heterogeneous in nature (Grimshaw, 2010). While this framework has been built on and expanded by Levac, Calquhoun and O'Brien in 2010 and later by The Joanna Briggs Institute (JBI), the original framework will provide the methodological base of this study (Joanna Briggs Institute, 2014; Levac et al., 2010; Peters et al., 2020). To further ensure the protocol was as effective as possible, the framework was reviewed and discussed with a McMaster University librarian.

There are five stages within the Arksey and O'Malley framework for a scoping review, as well as a sixth optional stage (Arksey & O'Malley, 2005). The first five stages are: 1) identifying the research question; 2) identifying the relevant studies for the review; 3) selecting the studies; 4) charting the data; and 5) collating, summarizing and reporting the results (Arksey & O'Malley, 2005). The optional sixth stage involves a consultation exercise that will be limited to ongoing consultations with the McMaster University Faculty of Health Science librarian (Arksey & O'Malley, 2005). Based on

the recommended enhancements of the JBI scoping review framework, during step 1) of this study, an effort was made to incorporate the first two steps of the JBI framework, specifically step 1) "defining and aligning the objective/s and question/s; and step 2) "developing and aligning the inclusion criteria with the objective/s and question/s" (Peters et al., 2020). Additionally, during stage five of the study, the recommendation of Levac, Calquhoun and O'Brien to "identify the implications of the study finding for policy, practice or research" was considered due to the pressing global issues associated with this topic (Levac et al., 2010).

In the preliminary stage of the study, the research question was developed and refined. This question then informed the aim, objectives, and initial inclusion criteria. To further reinforce the importance of consultation, the process for search, and the inclusion and exclusion criteria were reviewed and informed by a librarian on an ongoing basis (Peters et al., 2020). A search was initiated to identify relevant studies within academic and grey literature databases, which were selected based on the research question and objectives, as familiarity with the literature increased. Search results were pulled from databases and added to a reference manager software, where an initial review was done to ensure all required fields were filled. From this software, the relevant studies were moved to Rayyan QCRI, a web application for systematic reviews (Ouzzani et al., 2016). While not explicitly designed for scoping reviews, the flexibility in creating and removing labels and exclusion criteria made it a useful tool for the ad hoc inclusion and exclusion processes associated with the Arksey and O'Malley scoping methodology (Arksey & O'Malley, 2005; Ouzzani et al., 2016). After the study selection phase, the data was charted according to key issues and themes, which were further developed

throughout the process as new learnings were gained (taking on an iterative process as recommended by Levac and colleagues) (Arksey & O'Malley, 2005; Levac et al., 2010). This process was done in Rayyan and Microsoft Excel.

During stage five, the results were collated, summarized, reported and illustrated the implications for research, policy, and practice, while also highlighting the critical gaps in the current literature (Arksey & O'Malley, 2005; Grimshaw, 2010; Levac et al., 2010). The Arksey and O'Malley scoping review framework has similarities to the systematic review framework, and both involve literature reviews employed with a high level of rigor, similar to conducting primary research (Arksey & O'Malley, 2005).

3.3. Search strategy

Throughout this study, it was important to engage with a wide range of sources, including grey literature. The searches therefore included a mix of scholarly articles as well as documents and reports published by international organizations. Overall, the search was conducted to capture relevant publications related to climate change, migration and associated laws, policies, frameworks, and programs. A comprehensive list of search terms was developed with librarian support and adapted for the specific academic databases and can be found in Appendix A. The academic databases were searched through the McMaster University library. They included: GeoRef, GEOBASE, Medline, Sociological Abstracts, Applied Social Sciences Index and Abstracts, PAIS, Web of Science, Proquest Dissertations and Abstracts A&I, CBCA, as well as the Refugee Research Network which was searched outside of the McMaster

Library system. These search terms were also used to search grey literature databases manually. Grey literature sources that captured the voices of international actors in the geopolitical, as well as environment and migrant justice, spaces were utilized. The grey literature databases searched were: the International Labour Organization (ILO) library, IOM database, United Nations Environmental Protection Program (UNEP), WHO databases, Refworld (for UNHCR documents), Médecins Sans Frontières (MSF), EJF, IFRC, Amnesty International and Human Rights Watch (HRW).

3.4. Inclusion and exclusion criteria

The third stage of the scoping study is focused on study selection. This is when the search results are reviewed to fit the inclusion and exclusion criteria. For this study, references from the searches were exported from a reference manager software and into Rayyan QCRI, which helped streamline the inclusion/exclusion process (Ouzzani et al., 2016). While an initial set of criteria was developed prior to the search, these evolved as the review progressed to be relevant to the review (Arksey & O'Malley, 2005).

To be included in the search, documents needed to have met the inclusion criteria, which meant being an English language document that included a variation of Concept A (human movement related to the environment) that connected to a variation of Concept B (e.g. program, policy or law). Given the broad scope of terms that were used during the search stage, there were many irrelevant studies included that could not have been avoided due to the terminology used within these studies (e.g. floods of refugees). Additionally, given the many causes of migration, and the many impacts of climate

change, the two concepts within Concept A (climate and migrant) had to be linked with Concept B. This ensured that the publications that made it to the full text review stage appropriately reflected the research aim and objectives.

Given the limitations to searching grey literature sources (e.g. the absence of enhanced search options), when searching within these resource libraries, built in filters and topics were used to refine the search before key words were used. In order to maintain consistency throughout the grey literature search process, beyond the content related inclusion criteria, those selected had to be classified as some form of produced document (e.g. report, article or policy brief). Additionally, throughout the selection process, if there was confusion about whether to include a document, it was automatically moved to the full text review stage. If there were still doubts around whether a document should be included after the full text review stage, it would be shared with my supervisor for their review. While this problem-solving mechanism was developed, it was never used during this study.

3.5. Charting and summarizing the data

All documents that fit the inclusion criteria were then thoroughly reviewed. Data charting was done primarily in Excel using a table that allowed for uniformity and comparison. A sample of the table can be found in Appendix B. Given the number of documents that made it to this stage, notes on more overarching categorizations were also made in Rayyan QCRI to ensure ease in reviewing during the fifth stage. The search strategy can be found in Appendix C. After the data was charted, the results were

collated, summarized and reported as per stage five of the Arksey and O'Malley framework (Arksey & O'Malley, 2005). These results were thematically analyzed to reflect the aims and objectives of the research project, as well as how they fit into broader scholarship in the field. In addition, policy and research implications were identified as per the Levac, Calquhoun and O'Brien recommendation (Levac et al., 2010).

4. Results

For consistency, all searches were undertaken over the course of one week. After the initial search of the ten academic databases, a total of 2 753 documents were retrieved. Following a title and abstract review, 251 abstracts were selected for a full text review. Complimenting the academic database search, 145 documents were retrieved from the nine grey literature databases for a title and abstract review, of which 86 were selected for the full text review (with an additional 3 articles identified in a bibliographic search). Of the 340 publications that were selected for a full text review, 288 publications (210 academic and 78 grey) fit the inclusion criteria. Data was summarized to fit the charting headings found in Appendix B.

While there were publications from 52 countries, the majority were from English speaking countries. The USA produced the most with 67 publications (60 academic and 7 grey), followed by Switzerland with 50 (14 academic and 36 grey) and the United Kingdom (UK) with 40 publications (26 academic and 14 grey). While there was a great variation in the type of documents, the majority were descriptive articles and reports,

legal notes, case studies and policy briefs. Additionally, although the publications were published between 1985 to 2020, the majority were produced in the last two decades.

Following a thematic analysis of the literature within the context of the research question and objectives, the results highlight three overarching ideas. The first is that the scope of the publications fit into three overarching categories: 1) service provision following specific climatic events and natural disasters; 2) overviews and analysis into national and regional policy planning; and 3) discussions surrounding the international implications regarding law, policy and practice (Appendix D). The second is that there is an unequivocal consensus that individuals who move because of climate change and the environment are not protected in current international and domestic law. Finally, the third idea is that there is a division between top-down and bottom-up perspectives and approaches around this topic. These ideas are expanded further below to illustrate the different ways in which climate change has impacted discussions of population movements within and across borders, and the impact of these varying conceptualization on policies and access to services, as well as political action and inaction. A bibliography of all the documents reviewed can be found in Appendix E.

4.1. Three overarching categorizations

One theme that was evident throughout the publications is that the research scope could fit into three categorizations and can be found sorted in Appendix D. The first of these three categorizations includes documents that reviewed service provision following specific climatic events and natural disasters. While many documents make reference

to events as examples, few focused specifically on the events themselves. Given the research question's scope, the articles examined focused on the services, or lack thereof, that were provided to those displaced due to circumstances caused by climate change and/or the environment, including natural disasters. These were produced in various formats including academic publications on specific health programs, policy briefs highlighting what worked and what did not, and program evaluations by organizations working in the field. Gaining greater understanding of what those displaced due to specific events have access to (e.g. health and social services) is critical as climactic events continue to increase in frequency, strength and duration globally. These documents also exemplify the risk that communities face due to changes in the environment, including environmental degradation, as well as natural disasters and climactic events.

Specific events and the respective disaster response services and policies that were discussed included:

- 2009 Hurricane Katrina: A category five tropical cyclone that struck the USA's Gulf Coast region, displacing over one million people at its peak. It had a devasting impact on New Orleans, particularly on low-income residents who were not considered during disaster planning. The role and work of the USA Federal Emergency Management Agency (FEMA) was frequently discussed.
- 2010 Haiti earthquake: A devasting earthquake with a magnitude of 7.0 struck Haiti and displaced over one and a half million people to IDP camps near Port-au-Prince and surrounding areas. The earthquake had a destructive impact on

the already limited infrastructure available in the country, and the role of humanitarian aid providers was a critical discussion point.

- 2004 Indian Ocean earthquake and tsunami: While this tsunami impacted many countries (e.g. Thailand, India, and Sri Lanka), much of the literature focused on the recovery efforts for those displaced in the Banda Aceh area of Indonesia. The role of humanitarian aid and government efforts was discussed in the decisions made regarding those displaced by the tsunami's impacts.

Second, representing a significant component of the literature were documents that addressed climate change and migration at the national or regional level. These ranged from case studies of specific countries to regional analysis of future policy options. These publications often included a mix of short- and long-term goals, as well as a combination of adaptation and mitigation strategies for climate change more broadly. While some discussed responses to specific climactic events, most addressed the predicted future climate change impacts. Additionally, the majority of the publications focused on the so-called "climate hot spots" where the effects of climate change are expected to be most evident/obvious. With some exceptions (e.g. Alaska or Scandinavia), most publications focused on LMICs. Three of the most common examples explored were:

- Kiribati, Tuvalu and other SIDSs/PICTs: Island nations in the Pacific region (e.g. Vanuatu, Kiribati, Tuvalu and the Marshall Islands) are one of the most consistently referenced when it comes to discussing the impact of climate change on migration. As low-lying islands, coastal erosion, sea-level rise, and the increasing intensity of EWEs are expected to impact their livability

negatively. As such, a significant amount of attention has focused on studying the legal implications of "disappearing islands." Often referenced as the first "climate refugees," the potential threat of statelessness, how to classify those moving from the island and the potential bilateral and regional agreements that can facilitate population movement is a common element within the publications. The role of Australia and New Zealand in supporting these nations is of particular interest within both the academic and grey literature.

- Bangladesh: Identified as one of the countries at the highest risk of experiencing the negative impacts of climate change, Bangladesh is another heavily studied and discussed country. While the coastal area is particularly at risk of sea-level rise and tropical storms, other regions of the country feel the impacts of droughts and landslides due to heavy rainfall events. Climate change is increasing migration to the capital Dhaka, with most of those settling in urban slums, placing increasing pressure on the infrastructure and services available in the city. While most of the population movement is expected to stay internal, cross border movement to India and countries within Europe is increasingly discussed.
- The Sahel Region: Compared to the emphasis focused throughout the literature on the SIDSs and Bangladesh, where rising tides and coastal erosion are discussed throughout the literature as the greatest threats, climate change related migration in the Sahel region of sub-Saharan Africa is associated with increasing drought and desertification. Publications on this region focused on how climate change migration impacted the rural, nomadic, pastoralist communities, as well as the nexus dynamics of climate change, migration and

conflict. The preexisting regional connections and agreements were commonly discussed as a potential mechanism to facilitate cross-border movement in the context of climate change.

Finally, the majority of the publications captured in the search focused on the climate change and migration nexus from an international perspective. While many of these made references to specific case studies to emphasize their point (e.g. the disappearing island example), or regional efforts (e.g. OAU expanded refugee definition), most focused on the international legal landscape and how to appropriately capture the needs of people moving because of climate change and/or the environment. Within these discussions, and the other categorizations, there were specific milestones consistently referenced to show where and how efforts at the international level were made regarding the climate change and migration nexus. These included:

- United Nations Framework Convention on Climate Change (UNFCCC): Ratified by 197 member states since 1994, the Convention is focused on addressing the root causes of climate change and encouraging cooperative action. It is recognized for its work in both avoiding the unmanageable (mitigation) and managing the unavoidable (adaptation). Mitigation and adaptation are consistently referenced throughout the publications in this review. The UNFCCC is the parent treaty of the 1997 Kyoto Protocol and the 2015 Paris Agreement, both of which are critical to the global response to climate change. Under this framework, the annual Conference of the Parties (COP) is held to assess how to deal with climate change (Gibb & Ford, 2012; UN High Commissioner for Refugees, 2017).

- Cancun Adaptation Framework: At COP16, held in 2010, the Cancun Adaptation Framework was accepted, and paragraph 14(f) identified the need to undertake "measures to enhance understanding, coordination and cooperation with regard to climate change induced displacement, migration and planned relocation, where appropriate, at national, regional and international levels" (Gibb & Ford, 2012). This was the first time population movement was discussed in international climate policy.
- Nansen Initiative: Launched in 2012 by Switzerland and Norway's governments, this initiative is focused on building consensus around the protection gap for Environmentally Displaced Peoples (EDPs). The planned outcome of this initiative was a protection agenda for those displaced across borders in the context of climate change and environmental degradation that addressed international cooperation, standards for treatment and operational responses. This initiative took place outside of the UN system and ended when the "Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change" was formally endorsed in 2015. It was followed by the Platform on Disaster Displacement (Gemenne & Bruecker, 2015).
- Warsaw International Mechanism for Loss and Damage (WIM): The WIM was established in 2013 at COP19. Loss and damage refer to climate change impacts that mitigation and adaptation cannot address alone and was developed out of COP16. Migration, displacement and planned relocation were included in their five-year work plan developed out of COP22 in 2016 (Mayer, 2017).

- Sendai Framework for Disaster Risk Reduction: Adopted in 2015, this framework runs until 2030 and supports action to prevent new and reduce existing disaster risks. This is commonly referenced in regard to national strategies regarding natural disaster risk reduction (Kälin, 2015).

Overall, while there were some common elements, the publications in this scoping review fit into one of these three categories.

4.2. Lack of legal protection for population movement due to climate change

The second theme that was evident throughout the publications is an explicit consensus that individuals moving because of climate change and the environment are not protected in current international and domestic law. As recognized by the Nansen Initiative, "there are inadequate protection measures in current international law and domestic policy to meet the anticipated needs of (potential) Environmentally Displaced Peoples" (Kälin, 2015). This acknowledgement was visible throughout the literature, and while it included the lack of a clear definition of this population, it also reflects the capacities of nations and international policies. This lack of legal protection can be seen throughout the literature, regarding those moving within national borders and around those who cross international borders due to climate change and/or the environment.

One of the overarching issues when discussing legal protections for those moving in the context of climate change is the multi-causal nature of migration. Discussions around the push and pull factors of migration have always acknowledged the impact on the

environment in influencing population movement. However, as the effects of climate change become more pronounced, publications have increasingly discussed the extent to which the changing environment will be the primary motivator to move. As motivation is often used to determine how individuals are classified, climate change, particularly slow-onset events, adds an additional layer of complexity to the migration conversation. This issue was a common theme throughout the publications in this review.

A few issues were consistently discussed in the literature for those who move within national boundaries due to climate change and/or the environment. As these individuals remain within national borders, they are subject to national law. Therefore, domestic policies and practices become of critical importance for the outcomes of those who move in the context of climate change and/or the environment. Much of the literature in this review highlights this. Whether a country has adopted disaster risk management policies is vital to determine how individuals will fare in a climactic event. The level of preexisting health and social infrastructure is also a determinant of the service provision that will be offered following a natural disaster. Evident throughout the publications is that national capacity and priorities significantly impact the availability of services for those displaced due to climate change and the environment.

While national policies have a considerable impact on the experiences of those migrating due to climate change, international frameworks and guidelines are also relevant. As a soft law international instrument, the *Guiding Principles on Internal Displacement* addresses those who are forced or obliged to flee or leave their homes or

places of habitual residence due to natural disasters (United Nations High Commissioner for Refugees, 2004). While this covers those who have to migrate in the context of extreme weather and climactic events, it does not explicitly address those moving due to the slow-onset events of climate change. Additionally, although soft law, many countries have adopted the principles into their national laws as a mechanism to further protect those displaced.

Beyond the aforementioned issues, also discussed throughout the literature are the concerns that arise when those affected actually attempt to receive supports. Within the literature that focused on the response following specific climactic events, many issues were identified. Domestic disaster response policies were commonly criticized for not being inclusively designed to accommodate those who were in most need of government support (e.g. New Orleans' policy for Hurricane Katrina which assumed everyone had access to a vehicle). Bureaucratic barriers made accessing supports that were available even more difficult, especially when displaced across state borders. The presence of discrimination and racism within a country or region also had an impact on accessing services. These issues were identified as both overt and directly related to not receiving services and covert and reflective of societal norms and values. The role of humanitarian actors was also discussed both as a mechanism to facilitate service provision, as well as one of the causes of concern.

The literature identified several concerns regarding those who migrate across borders into another country. Issues around discerning the primary cause of movement are of critical importance for these individuals. For instance the term "environmental refugee"

was first used in a UNEP document in 1985 (El-Hinnawi, 1985). It described an environmental refugee as someone "who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life," it was consistently referenced to have no legal basis (El-Hinnawi, 1985). Despite not reflecting the internationally accepted definition of refugee, variations of this term proliferate in the literature and are commonly debated. However, because these individuals do cross international borders, it is more than an issue of semantics as it carries with it legal responsibility. As such, much of the literature that was reviewed for this search is focused on this legal issue. From a high level political perspective, how can people moving due to the environment and climate change be protected under international law?

Various ideas have been put forward and debated however, no consensus has been reached. One potential approach is to expand the 1951 Convention on Refugees and the role of the UNHCR to support those displaced across borders due to climate change. While most believe this is unlikely or disagree because it will negatively impact those currently within the refugee definition, others think there is space to expand it. Other arguments have been put forward for a new internationally accepted convention and/or definition to precisely capture the needs of those displaced by climate change or the environment within and across borders. This idea has also been widely debated around its feasibility and often countered with the idea of potential development of a soft law tool. Similar to what was developed for IDPs, this idea is discussed because of the non-binding nature of the agreement and nation's ability to choose what they use. The value

of preexisting frameworks, like the UNFCCC, has been widely discussed and debated as a way to facilitate the creation of new or expanded upon international refugee definition. Overall, the literature illustrates that there currently is no legal protection for those moving due to the environment and/or climate change, and that future direction in this area is contested.

4.3. Top down vs. bottom up approach

The third theme that was evident throughout the publications is an apparent dichotomy between those taking a top-down approach, compared to those utilizing a bottom-up perspective. For the purpose of this thesis, these ideas will be kept broad at the outset and will be refined in discussions of the subthemes. Top-down represents actions taken to attain big-picture goals set at international, regional, and national levels, while bottom-up approaches developed at the community level. This dichotomy was emphasized by the subthemes discussed below, and the common thread that voices of communities impacted by climate change have yet to be meaningfully included in planning and policy-making to date.

Recognizing that the majority of the literature reviewed focused on international and regional perspectives, most of the publications harnessed a top-down perspective when discussing the environment, climate change and migration nexus. This was reflected in the common themes found within the reviewed publications, including:

- An emphasis on international frameworks and law: The importance of determining where those moving due to climate change fit within legal and

normative frameworks can be seen throughout the literature. The role of intragovernmental organizations like the UN, as well as regional initiatives setting a precedent is a common discussion point and often associated with the idea of being a global leader. While it is recognized that most movement will take place within national borders, publications predominantly focused on the implications of cross border movement for international law.

- The securitization of climate change-induced migration: The security dimensions of climate change are well discussed within the broader literature and are especially evident within migration discourses. Loss of territory and the increasing scarcity of natural resources, as well as the connections between conflict, climate change and migration, are often drawn upon to highlight these security risks. These themes are evident throughout the literature and reference the threat climate refugees pose to their potential host countries. As such, this theme is focused on border security and militarization, often utilizing rhetoric that "others" specific populations, like Muslim and African people. Furthermore, these groups already feel the negative impact of securitization discourse in other contexts. The focus on state security, rather than human security, throughout the literature reinforces this point.
- Emphasis on planned relocation as mitigation and adaptation tools: When faced with the potential impacts of climate change, within the mitigation and adaptation strategies of climate change, planned relocation is increasingly discussed in the literature. Building on relocation for development and conservation discussions, planned relocation, both individual and community, is posited as a mitigation and adaptation strategy in the context of climate

change and environmental degradation. While discussed as a beneficial tool to allow governments to move those communities most at risk of the negative impacts of climate change, it also carries risks. The need to ensure community voices are heard throughout the process is often referenced as a way to combat the harms that have been felt by those historically relocated by governments, but not actually seen in the literature as a strategy currently utilized.

In contrast, a small number of reviewed publications utilized a bottom up perspective when looking at the experiences of those moving due to climate change and the environment. The ideas mentioned by these publications often went against the dominant narrative and highlighted the research gaps around community-specific research, as well as other themes including:

- Climate justice: The principles of climate justice highlight that climate change is not a neutral phenomenon but rather an ethical and political issue. This recognizes the top down perspectives discussed previously, but with the emphasis on justice, highlights the unequal impacts of climate change. Discussions brought in various points to address the need for justice, often referencing the idea that resiliency does not necessarily equate to justice in the context of climate change and migration. Publications that referenced this idea brought in elements of the environmental justice movement and stressed the need for local voices and initiatives to be recognized at the international level. Publications focused on promoting community level, bottom up perspectives, often identifying the xenophobia and racism experienced, as well as the silencing of Indigenous voices in top down perspectives.

- Immobility: While much of the literature focused on those moving in the context of climate change and the environment, a small portion of the publications addressed those who were unable to move. The ability to move is consistently recognized in the literature as a privilege. This reflects both the financial ability to be able to afford to move, as well as reflective of the opportunities that allow for migration. While increasing the number of opportunities that exist for economic migration, these pathways are often identified as a potential opportunity moving forward to mitigate the negative impacts of climate change. However, these pathways often bring with them concerns of "brain drain" from within local communities. Additionally, the concept of migration as a form of adaptation relies on the idea that people are dynamic and fully in control of their ability to migrate. The literature recognizes the issues with that, as those often living in areas at risk of experiencing the most negative impacts of climate change, are also those that do not have the resources to move and are most likely to stay until they are forced out by a climactic event.

The results of the thematic analysis of the literature illustrate the presence of these three themes. Recognizing that the scope of the publications fit into three main categories, that individuals moving because of climate change and the environment are not protected in current international and domestic law, and that there is a division between top-down and bottom-up perspectives and approaches around this topic, is reflective of the global conversations around climate change and migration. These ideas have an impact on policies and access to services, as well as political action and inaction. The

implications, as well as future directions for policy and research, are discussed below in the context of geopolitical and environmental justice literature.

5. Discussion

This thesis set out to utilize a scoping review to explore how climate change has impacted discussions of population movements within and across borders, with an emphasis on how these discussions impacted policies, access to services and political (in)action. After reviewing thousands of publications for inclusion, it is evident that while this is an emerging field, interest in the climate change, environment and migration nexus is not new and many aspects have been heavily examined.

The idea of the heightened impact that climate change and the environment would have on migration was noted in 1985 by Essam El-Hinnawi in a report published by the UNEP entitled *Environmental Refugees* (El-Hinnawi, 1985). As this topic began to gain additional traction, scholars like Norman Myers gained notoriety for their large-scale, and largely unsubstantiated, predictions on the number of people who will fit under the environmental refugee category (Mayer, 2017; Myers, 1997a). While this narrative has often been criticized for being overly simplistic and sensationalist (an idea that will be elaborated on further in the discussion), interest in this topic has continued to grow in the last two decades (Mayer, 2017; McNamara & Gibson, 2009; Ribot et al., 2020). To date, and outside of the scope of this thesis, a vast amount of literature has been produced that looks at the potential impacts of climate change on a host of factors, including migration (International Organization for Migration, 2014; Lonergan, 1998;

United Nations High Commissioner for Refugees, 2020a). Academic emphasis was initially on understanding the potential drivers and causes of migration as it relates to climate change and the environment, as well as projections estimating and projecting the number of people that will actually move and where they will go (Abubakar et al., 2018; Myers, 1997a). However, over the same time period a smaller number of publications were produced in an increasing rate over the years, that looked at what movement in the context of climate change and environmental degradation looks like in policy, practice and programming for this population (Agustoni & Maretti, 2019). An analysis of these publications identified a lack of consensus about what needs to be done moving forward, in both the policy and research spaces.

This lack of consensus is not surprising as the debate sits at one of the most polarized intersections: climate change and migration. While various political forces and decisions have led to the environment, climate change and migration nexus that currently exists, the reviewed publications illustrate the influence of the current geopolitical order, specifically neoliberalism and globalization. How to address population movement globally remains a contentious issue. With security discourses pushing for more militarized borders, those moving across borders often face stricter regulations (Abrahams, 2019; Assan & Rosenfeld, 2012). As migration continues to increase globally, Global North narratives and policies often discuss how they need to prepare for incoming floods of refugees, as well as the risk that having more open refugee policies will have on their social and political infrastructure (Agustoni & Maretti, 2019; Ober & Sakdapolrak, 2017) .

Similarly, discussions around the causes and consequences of climate change are multi-faceted and evolving. However, it is increasingly recognized that the human activities that have contributed to climate change are directly related to industrialization and global development (World Health Organization, 2018). These processes have promoted and maintained the global order, keeping HICs in positions of power while also historically producing high GHG emissions. These processes, combined with the uptake of neoliberal policies, have contributed to rising inequality (Kothari, 2014; Ribot et al., 2020). As a process in and of itself, climate change exacerbates these preexisting inequalities (McMichael, 2017). Bound by these preexisting dynamics, addressing how to respond to the impacts of climate change becomes more complicated. Is the increasing frequency of natural disasters natural if it is due to the actions of humans (Mayer, 2014)? Should those responsible for producing the most GHGs be responsible for funding climate change adaptation and mitigation activities (Duong, 2010)? With current global powers unlikely to accept blame or responsibility for the actions of previous governments, topics related to climate change will likely remain polarizing.

Working at the intersection of these two issues heightens an already polarized debate and contributes to confusion around those moving due to climate change and the environment. There are various ways this has been highlighted in the literature. One example is the division between those who believe climate change will lead to a large portion of the global population moving, compared to those who do not believe it will lead to the large projections of migrants. Maximalist vs minimalist, alarmist vs skeptic and advocate vs contrarian are just three of the ways this dichotomy is reflected in the publications (Assan & Rosenfeld, 2012; Fatima et al., 2014). Using language like

"climate refugee" or "victims of climate change" carries with it certain implications, which are quite different from those who chose to focus on the "migration as adaptation" rhetoric (Fornale & Doebbler, 2017; Ober & Sakdapolrak, 2017; Perez-Martin et al., 2017). Additionally, many publications focused on what does and does not work, reviewing what policies exist and what can be done, while fewer publications reviewed mechanisms developed to support those moving due to climate change in the environment.

Overall, this scoping study's findings highlight these polarizing discourses, while also illustrating how this dynamic further minimizes the voices of those facing the most immediate threat. To illustrate this, I will first discuss how the themes identified in the results reinforce this dichotomy. Second, I will review the perspectives that are not traditionally heard in the publications. Finally, I will highlight the gaps that exist and highlight the implications this has for policy and practice.

5.1. Dominant perspectives in the climate change and migration discussion

While the three themes identified in the results represent specific and unique ideas, when evaluated as parts of a whole, they embody the two sides of this polarizing debate. The international focus, top down approach and emphasis on securitization that was seen so clearly in the literature has an impact on the ideas that proliferate. These publications privilege western and Global North knowledge, while reinforcing specific research priorities. In an article published in 2015, four distinct framings of those moving in the context of climate and environmental change were identified based on

the literature available at the time (Ransan-Cooper et al., 2015). The first three themes identified are those that have been historically used throughout the literature, and are those that emphasize environmental migrants are 1) victims, 2) security threats and 3) adaptive agents (Ransan-Cooper et al., 2015; Saad, 2017). While creating different narratives that have unique implications for those moving, these three framings all originate from the same general school of thought.

While there are many examples found throughout the literature that reinforce these framings, the experience of those living in the SIDSs are on the receiving end of "victim" framing most often (Allgood & McNamara, 2017; Kothari, 2014; Perumal, 2018). The idea of drowning, the threat of statelessness and their physical separation from the rest of the world, fits the helpless victim who requires international support narrative (Piguet, 2019; UN High Commissioner for Refugees, 2011). The "security threat" framing of environmental migration is commonly associated with those populations already experiencing the negative impact of global securitization (Abrahams, 2019; Kern & Kovesi, 2018; Ribot et al., 2020; Smith, 2007). As such, for those migrating from the Global South, they are associated with a risk of conflict and violent extremism for the receiving Global North countries (Burrows & Kinney, 2016; Weerasinghe, 2018). The third framing, which identified migration as an adaptation strategy, shifts the narrative to encourage migration with the acknowledgement that remittances can be a valuable tool for those who chose to stay, rather than migrate (Adger et al., 2002). Adaptation as migration is viewed as a tool for moving within a country, as well as across borders, away from areas at risk of experiencing the negative consequences of climate change. While these framings take different stances, they all

minimize the importance of addressing migration as a multi-causal choice, as well as the role of social, political and economic institutions in influencing decision making (Ali, 2017; Grolle, 2013; Ribot et al., 2020).

One example from the literature emphasized this point highlighting those migrating from the Sahel region of sub-Saharan Africa (Ali, 2017; Grolle, 2013; Ribot et al., 2020). For those pastoralists, or nomadic farmers, who have always utilized migration as a means to adapt to variable weather, "climate change and environmentally related poverty narratives are damaging and misrepresent why these young people are risking their lives to leave" their homes (Ribot et al., 2020). These narratives shift the topic away from a problem that needs to be solved, rather than movement that is the result of the broader geopolitical neoliberal world order (Fieldman, 2011; Ribot et al., 2020). While drought and variable weather patterns are the norm, poverty and precarious living result from government policies that exploit farmers in the area (Dawe, 2015; Ribot et al., 2020). Similarly, famine is not directly caused by drought, but rather is a reflection of political choices. This idea extends beyond the Sahel and can be seen in other case studies. For example, famines in North Korea, while predicated by periods of drought are acknowledged to be a result of political inaction (Avery, 1994; Dawe, 2015). Focusing on climate change and poverty as drivers of migration minimizes the forces that created the conditions they are migrating in the first place.

Another example is the idea of relocation as adaptation. This concept takes two forms: individual decision making to migrate, and the planned relocation of entire communities. While both are harnessed as a way to avoid the worst impacts of climate

change, they are not without criticism. The adaptation frame focuses on migration as a solution, rather than a negative consequence of not adapting (International Organization for Migration, 2017b; Kelpsaite & Mach, 2015; Ober & Sakdapolrak, 2017). However, this brings up the issues of equity and immobility associated with opening up migration pathways to facilitate remittances. Additionally, being able to migrate does not ensure protection or safety, and many migrant workers end up in precarious and dangerous employment (Hynie et al., 2017; Murray, 2011). Alternatively, when looking at the planned relocation of entire communities, those who are moved often end up in worse economic positions than before (Alam & Miller, 2019; Bronen & Chapin, 2013; Connell & Coelho, 2018). It is also difficult to separate the history of planned relocation as a form of colonialism, from the planned relocation in the context of climate change as the learnings from previous movements that have informed current planning (Miller, 2020). The idea that migration is an adaptive response to climate change relies on the idea that the projected impacts of climate change are inevitable or unavoidable (Methmann & Oels, 2015). This idea is recognized as minimizing the importance of global climate change action towards reducing the amount of global GHG emissions. It also shifts the conversation away from the actions and political choices that have led to the current situation.

While these three framings exist throughout all publications, there is a clear preference for the use of victim and securitization framings in the media and specific grey literature. The use of climate refugee is especially prevalent throughout news and media representations as it offers the most sensationalist way of discussing those moving due to climate change and the environment (Black, 2013; Hartmann, 2010; McNamara &

Gibson, 2009). While discussions have noted this often comes from good intentions, presenting the urgency of climate change through a focus on population movement, shifts the conversation away from addressing the causes of climate change (Ober & Sakdapolrak, 2017; Ribot et al., 2020). However, given the lack of a formal definition, when compared to other longer and much less engaging ways of describing population movement due to the environment and/or climate change, climate refugee is much easier to rally behind. This language is a valuable way to draw support, while also contributing to the erasure of other complementary motivators of movement.

However, while many publications prefer to utilize the climate refugee concept, it does not carry any legal standing. The 1951 Convention and 1967 Protocol put forward that a refugee is "someone who is unable or unwilling to return to their country of origin owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group, or political opinion" and this has become the international standard (United Nations High Commissioner for Refugees, 2010). Trying to utilize this definition for those moving across borders in the context of climate change is complicated and has been the focus of much of the literature reviewed. While some believe that this is impossible, or potentially detrimental to those currently represented by the definition, others believe and have tried to use this definition for those forced to move due to the environment.

The most visible attempt at gaining refugee status due to climate change was in New Zealand when Ioane Teitiota applied to Immigration New Zealand in 2013 for refugee status from Kiribati as a 'climate change refugee' (Baker-Jones & Baker-Jones, 2015).

Known formally as Teitiota v. the Chief Executive of Ministry of Business, Innovation And Employment, while dismissed three times in the court system for not meeting the refugee definition, received international interest (Weiss, 2015). The New Zealand court systems identified that "it wasn't their place to expand the scope of the international refugee convention to cover those displaced by climate change" but sympathized with the people of Kiribati (Weiss, 2015). This case brought up a series of questions: "Should international law protect those forced to leave their countries due to climate-related disasters? Do wealthy, high carbon dioxide-polluting countries have a responsibility to help the poor countries least capable of weathering a changing climate" (Weiss, 2015). However, due to Mr. Teitiota being unable to illustrate that he would be 1) persecuted if he returned to Kiribati, and 2) if that persecution had anything to do with the protected criteria (Baker-Jones & Baker-Jones, 2015). However, after he was denied refugee status within New Zealand, Mr. Teitota put his case forward for the UN Human Rights Committee (HRC). In January 2020, the HRC "issued a landmark ruling in which it recognized, for the first time, that forcibly returning a person to a place where their life would be at risk due to the adverse effects of climate change may violate the right to life under article 6 of the International Covenant on Civil and Political Rights (ICCPR)" (Sinclair-Blakemore, 2020). This decision will not only have a critical impact on those who are forced to migrate due to climate change, but also in promoting global climate action.

As this HRC decision is extremely recent, much of the literature regarding this case has focused on how climate change can or cannot fit the persecution component of the refugee definition (Baker-Jones & Baker-Jones, 2015; Scott, 2015; Weiss, 2015). Of

particular interest was the idea that "a person affected by environmental factors is not a refugee because that person is not targeted. There is no discrimination with climate change and, therefore, there is no persecution" (Baker-Jones & Baker-Jones, 2015). This idea, that climate change is a neutral force, is controversial, especially as it connects to the risk of statelessness. While the first three framings discussed represent the dominant trends and top-down focus of climate change and migration research, there is an acknowledgement that certain physical areas and populations experience more negative outcomes from climate change than others (Ransan-Cooper et al., 2015). The fourth framing, which identifies environmental migrants as political subjects, offers a more bottom-up view that acknowledges those harmed by climate change as having political importance (Ransan-Cooper et al., 2015). However, this fourth framing is not without gaps. Missing from this typology is the element of climate justice (Saad, 2017).

5.2. Silenced perspectives in the climate change and migration discussion

The lack of climate justice perspective in the literature is one of the most striking gaps in the publications reviewed. While it is consistently recognized that the negative impacts of climate change are not felt evenly, this is not recognized with publications aimed at addressing this. The climate justice narrative reflects the work done by environmental justice advocates, highlighting the role that climate change has in exacerbating global inequality (Adelman, 2016; Fatima et al., 2014; Hynie et al., 2017). Concerns raised by Indigenous people and other communities who are facing pressures to move globally, illustrate that this issue goes beyond simply migration. How can these groups remain autonomous in their decision making? What can be done so that they can

maintain access to land that is important to their culture and traditions? If nations like SIDSs are being disproportionately impacted by the GHGs that they have not produced, who is going to be held responsible, and how are solutions to their concerns going to be funded? These questions and many more are visible throughout the literature and yet action is minimal, and no clear direction is noted. This scoping review has reaffirmed the existence of recognized gaps in the field, specifically that there is a lack of consensus around future climate-induced movement and there is no clear definition of climate-induced movement. However, by reviewing the results in the context of the broader environmental justice and geopolitical literature, it has also identified new gaps that have implications for the future of research and policy.

As climate changes continue to progress, and the average temperature continues to warm at unprecedented rates, there is a global consensus that climate change will increasingly impact human lives and that the burden will be felt primarily by those in LMICs (IPCC, 2015). In addition, human migration is acknowledged to be at a historic high, with the health of those moving of growing concern. With the established link between development and migration, the number of migrants can be expected to continue to increase as the world continues to globalize (Migration Data Portal, 2020b; United Nations, 2019). With the UNHCR acknowledging that climate change is a growing motivator for population displacement, the connection between climate change and population movement continues to be recognized (United Nations High Commissioner for Refugees, 2020c). However, while these processes are recognized to be intricately connected, there is a lack of consensus internationally around how to

move forward and address the concerns associated with this growing phenomenon of population movement due to the environment and climate change (Palinkas, 2020).

One of the primary contributors to the lack of consensus is the absence of clear definitions around human movement due to the changing environment (Palinkas, 2020). While there is a recognition that people are moving because of climate change, without the ability to capture this group under a definition, the true extent of this experience cannot be captured. Not only does the lack of an internationally recognized definition make it difficult to know the true scope of climate change-related population movement, it impacts the provision of programs and services they are able to access (Environmental Justice Foundation, 2009). Similar to other groups that have been further marginalized by policies historically, if left unrecognized by governments and policies, it becomes challenging to create services and programs to address the unique needs of this population (Environmental Justice Foundation, 2009; International Organization for Migration, 2014; Palinkas, 2020; World Health Organization, 2018). Additionally, as climate change-related population movement continues to increase in scope and scale, the likelihood of humanitarian assistance being required from the international level increases (Environmental Justice Foundation, 2009; International Organization for Migration, 2014; World Health Organization, 2018). Without recognized legal status, the provision of health and social services for climate migrants within and across borders becomes even more difficult. The EJF believes that "there is a need to clarify the obligations of States to persons displaced by climate change within new legal definitions, and these must be developed without delay" (Environmental Justice Foundation, 2017). Until changes at the national, regional and international levels are

made that acknowledge the existence of this growing population, not being recognized will push this already vulnerable group into more precarious situations (Palinkas, 2020).

5.3. Research gaps and direction for policy and practice

The lack of consensus around future actions highlights the polarizing debates around population movement in the context of climate change. The maximalist vs minimalist, alarmist vs skeptic and advocate vs contrarian dichotomy has reinforced this, and also contributed to the mass proliferation of publications that take a top-down, international and securitization focus. This focus has led to a dearth of publications that utilize a bottom-up approach and amplify the voices of those at-risk of experiencing the worst impacts of climate change.

Implications for research: To ensure that the voices of those most impacted are heard, researchers should aim to fill the gap between high-level, legal research with on the ground, community-based research. Working with communities who are already adapting in the way that most protects their interests in critical to avoiding the issues that come from uniformly implementing initiatives with a top-down focus. Using local knowledge to inform research and practice, will ensure that those on the frontlines of climate change are not only involved in future research and policy, but leading the work. Shifting away from research that focuses on projections of potential numbers, to research that addresses the actual needs of communities is critical to ensuring climate justice for those being harmed.

Implications for policy: While there is no doubt that there is value in ensuring a formal definition and/or existence of a legally binding treaty to protect those moving in the context of climate change and environmental degradation, it is not the only policy action that should be emphasized. Additionally, not having these formal structures should not keep other complimentary policy mechanisms from developing. It is critical that the conversations and decisions around population movement due to climate change not distract from the larger conversations around climate change and migration. Equally important is that those moving in the context of climate change are not separated from the neoliberal and post-colonial systems that have perpetuated growing inequality globally. The many drivers of migration need to be recognized in order to create and promote meaningful and sustainable solutions. Policies and practices in climate change and migration, as well as those working at the nexus, have not adequately guaranteed human rights. As such, overarching all of the policy implications is the need to ensure human rights are recognized and promoted in all new policy streams.

6. Limitations

There are various limitations to this study, mainly related to study design. Only English language publications were included in this study. As most of the studies were from HIC English speaking countries, perspectives from other areas of the world may have been missed. Another limitation is that as the sole reviewer of the publications throughout the scoping analysis, it is possible that articles could have been excluded that fit the inclusion criteria because of subjective interpretation of the question and

objectives of the research. While attention was paid to follow the Arksey and O'Malley methodology, given the nature of this graduate thesis and associated timeline, it was not possible to hold stakeholder consultations around the findings of the review (Arksey & O'Malley, 2005). Additionally, while scoping reviews can incorporate some sort of quality appraisal process, because an important component of this study was to utilize grey literature, no quality appraisal was included.

7. Conclusion

Through analyzing the perspectives of those individuals working at the policy intersection of climate change and migration, a 2017 article posited that the shift towards a preference for migration as adaptation in the policy landscape can be attributed to the "every-day and seemingly mundane practices [that] accumulate and 'hang together' to shape and determine policy outcomes" (Ober & Sakdapolrak, 2017). The authors also emphasize that the neoliberal outcomes that persist should not be seen as malicious but rather the result of 'who is in the room' (Ober & Sakdapolrak, 2017). This scoping study has illustrated that there is a dominant narrative present throughout most of the literature around population movement due to the environment, and that this narrative has come at the expense of silenced perspectives. As the voices of those who are most negatively impacted by climate change continue to be kept out of influential international conversations, the idea that policy decisions are just the result of maintaining the status quo is harmful. As research and policy moves forward, the gaps identified in this study must be acknowledged and addressed in order to appropriately consider the needs of those moving due to climate change.

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9. Appendices

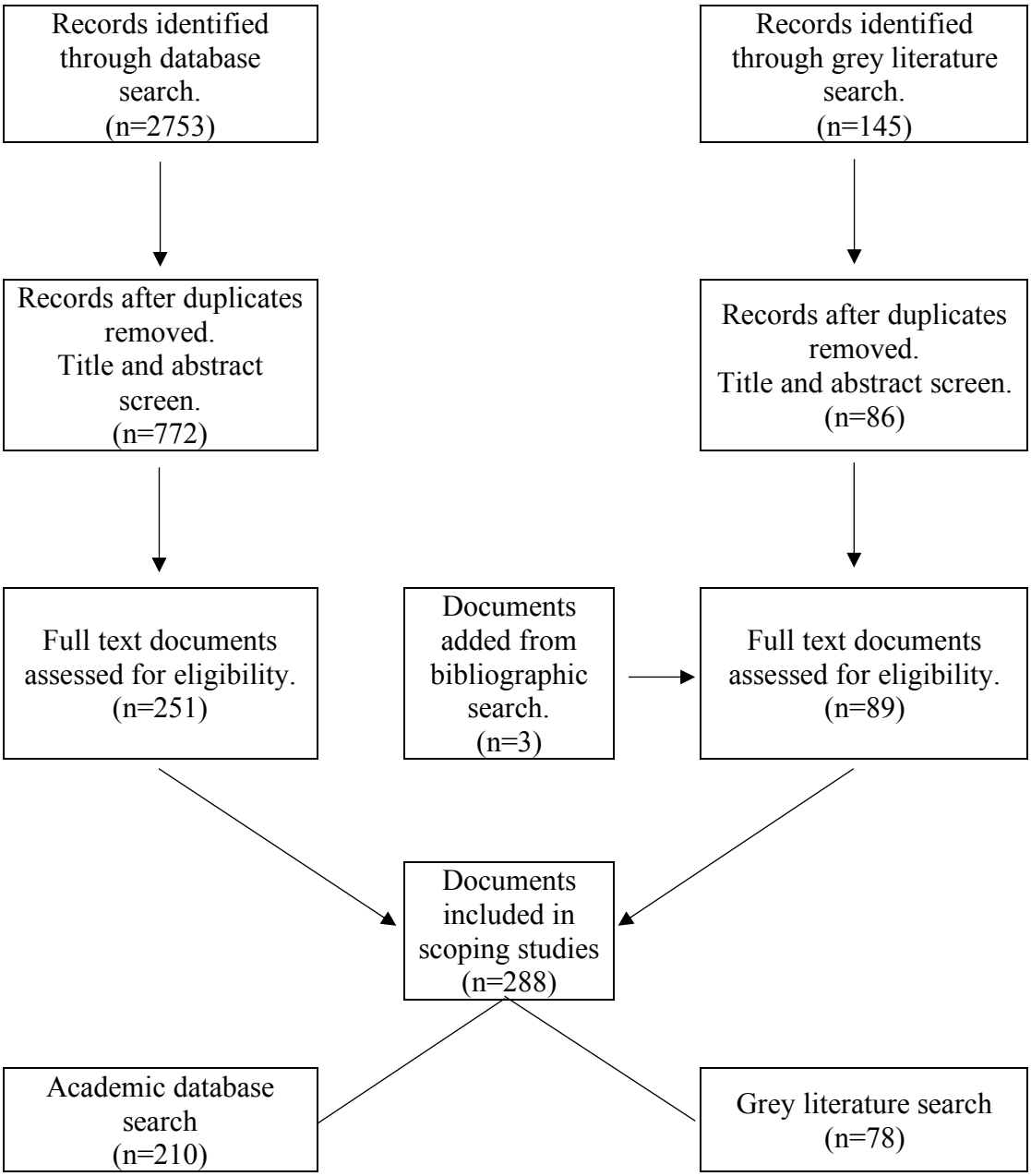
Appendix A: Search terms

Concept A: Climate Migrant				Concept B: Program/ Policy
Concept A1: Climate Search Term	AND	Concept A2: Migrant Search Term	AND	Concept B: Program/Policy Search Term
Searched with "OR"		Searched with "OR"		Searched with "OR"
Arctic shrinkage Climate Climate change Climate forcing Climate oscillation Climate variability Climate-induced Climatic processes Droughts Ecological Ecologically Environment Environmental Environmental degradation Environmental emergency Environmental forced Environmental motivated Environmentally Environmentally-induced Extreme weather Famine Floods Global warming Greenhouse effect Natural disaster Sea level rise Water scarcity Flood Landslide Tornado Wildfire		Displaced people Displaced person Displacee Displacement Emigrant Emigration Exiles Flee Forced displacement Immigrant Immigration Internal migration Internally displaced Internally displaced person Migrant Migration Population movement Refugee		Barriers to movement Government action Government inaction Law Laws Legal system Policies Policy Policy making Political action Political inaction Program Programme Programmes Programs

Appendix B: Data charting headings

Article title	Author(s)	Year of publication	Author location	Aims/ purpose	Population of interest	Methods	Key findings

Appendix C: Search strategy



Appendix D: Charted data – theme one

Categorization	Documents included
1. Service provision following specific climatic events and natural disasters	*Grey databases*: (Médecins Sans Frontières, 2011), (Sherwood et al., 2014)
	Academic databases: (Chan et al., 2010), (Das, 2016), (Dawe, 2015), (Ghose et al., 2013), (Haque et al., 2020), (Hedman, 2009), (InteliSpend Prepaid Solutions, 2014), (Islam & Hasan, 2016), (Kloos, 1990), (Lien et al., 2014), (Lindley, 2014), (Malik, 2011a), (McHattie, 2008), (Mellgard et al., 2019), (Norris & Bellamy, 2009), (Randall et al., 2014), (Schuller & Levey, 2014), (Settles & Lindsay, 2011), (Seymour, 2000), (Shehab et al., 2008), (Sou, 2015), (Sterett, 2015), (Talley & Boyd, 2013),
2. Overviews and analysis into national and regional policy planning	*Grey databases*: (Čadež & Hernandez Hevia, 2016), (Entzinger & Scholten, 2015), (Environmental Justice Foundation, 2019b), (Environmental Justice Foundation, 2018b), (Environmental Justice Foundation, 2012), (Guadagno, 2016), (International Labour Organization, 2010), (International Organization for Migration, 2014a), (International Organization for Migration, 2016), (International Organization for Migration, 2017a), (International Organization for Migration, 2017d), (International Organization for Migration, 2017f), (International Organization for Migration, 2018), (International Organization for Migration, 2019a), (J. S. Tangermann & Traore Chazalnoel, 2016), (J. Tangermann & Aissaoui Bennani, 2016), (Leal & Huaman, 2019), (Mostafa M Naser, 2015), (Naik et al., 2007), (Neelim & Siddiqui, 2015), (Neva et al., 2017), (Nguyen Anh et al., 2016), (Nyaoro et al., 2016), (Paone & Richmond, 2017), (Pires Ramos et al., 2016), (Puşcaş, 2018), (S. Sobhee, 2016), (S. K. Sobhee & Blocher, 2015), (Schade, 2016), (Sherwood et al., 2015), (Tabassum, 2019), (UN High Commissioner for Refugees, 2009b), (Walsham, 2010)
	Academic databases: (Afifi, 2011), (Allgood & McNamara, 2017), (Aulakh, 2014), (Baker-Jones & Baker-Jones, 2015), (Bethune, 2014), (Bose, 2014), (Bronen, 2008), (Bronen & Chapin, 2013), (Burkett, 2011), (Chinedu, 2008), (Collins et al., 2017), (Cooper, 2012), (Craven, 2015), (Crncevic & Lovren, 2018), (Geddes & Somerville, 2012), (Hingley, 2017), (Hynie et al., 2017), (Kelman, 2015), (Kelman & Naess, 2019), (Klepp & Herbeck, 2016), (Kälin & Cantor, 2017), (Koser, 2012), (Kolstad et al., 2019), (Kolmannskog, 2010), (Kothari, 2014), (Lei et al., 2017), (Lindegaard, 2019), (MacLellan, 2009), (Manuvie, 2018), (M. Martin et al., 2014), (M. Martin et al., 2017), (Benoit Mayer, 2014), (K. E. McNamara, 2015), (Miller, 2020), (Moberg, 2009), (Murray, 2011), (Mostafa Mahmud Naser, 2015), (Mostafa Mahmud Naser et al., 2019), (Nakayama et al., 2019), (Nawrotzki

	et al., 2017), (Nawrotzki et al., 2015), (Omeziri & Gore, 2013), (Pacheco, 2018), (Pegu & Dutta, 2019), (Perumal, 2018), (Pettus, 2019), (Philip, 2018), (Price, 2019), (Rainey et al., 2013), (Ramos et al., 2017), (Ribot et al., 2020), (Shen & Binns, 2012), (Weiss, 2015), (Wewerinke-Singh & Van Geelen, 2018), (Whelan, 2020), (Wood, 2015), (Wyett, 2014), (Yamada et al., 2017), (Yamamoto & Esteban, 2017), (Yamamoto et al., 2018), (Zaman, 1991), (Zhou et al., 2014)
3. Discussions surrounding the international implications regarding law, policy and practice	*Grey databases*: (Cantor, 2016), (El-Hinnawi, 1985), (Environmental Justice Foundation, 2009), (Environmental Justice Foundation, 2011), (Environmental Justice Foundation, 2014b), (Environmental Justice Foundation, 2019a), (Environmental Justice Foundation, 2018a), (Environmental Justice Foundation, 2014a), (Fatima et al., 2014), (Ghenis, 2016), (Gueye & Fyfe, 2015), (International Committee of the Red Cross, 2020), (International Organization for Migration, 2014b), (International Organization for Migration, 2019b), (International Organization for Migration, 2017c), (International Organization for Migration, 2017e), (International Organization for Migration, 2017b), (International Organization for Migration, 2010), (International Organization for Migration (IOM) Bangladesh, 2017), (Kelpsaite & Mach, 2015), (Myers, 1997), (R. McLeman, 2011), (K. McNamara et al., 2017), (Refugees, 2012), (Schade et al., 2015), (Traore Chazalnoël et al., 2016), (UN High Commissioner for Refugees, 2009a), (UN High Commissioner for Refugees, 2009c), (UN High Commissioner for Refugees, 2008a), (UN High Commissioner for Refugees, 2012a), (UN High Commissioner for Refugees, 2012b), (UN High Commissioner for Refugees, 2011a), (UN High Commissioner for Refugees, 2002), (UN High Commissioner for Refugees, 2011b), (UN High Commissioner for Refugees, 2011c), (UN High Commissioner for Refugees, 2008c), (UN High Commissioner for Refugees, 2008b), (UN High Commissioner for Refugees, 2001), (UN High Commissioner for Refugees, 2015), (UN High Commissioner for Refugees, 2009d), (UN High Commissioner for Refugees, 2017a), (UN High Commissioner for Refugees, 2017b), (Weerasinghe, 2018), (United Nations Environment Programme, 2012), (United Nations Environment Programme & Columbia University, 2017)
	Academic databases: (Assan & Rosenfeld, 2012), (Adelman, 2016), (Albrecht & Plewa, 2015), (Aminzadeh, 2007), (Arnall, 2019), (Arnall et al., 2019), (Baldwin & Fornale, 2017), (Bates, 2002), (Bettini, 2019), (Bettini, 2017), (Bettini & Andersson, 2014), (Bettini et al., 2017), (Biermann & Boas, 2010), (Biermann & Boas, 2008), (D. Black, 2013), (R. Black et al., 2011), (Blanton, 2019), (Boon & Tra, 2007), (Brown, 2007), (Burkett, 2018),

	(Byravan & Rajan, 2017), (Capisani, 2018), (Collins-Chobanian et al., 2010), (De Sherbinin et al., 2011), (Detraz & Windsor, 2014), (Doberstein & Tadgell, 2015), (Docherty & Giannini, 2009), (Drabo & Mbaye, 2011), (Drydyk, 2013), (Duong, 2010), (Fernandez-Huertas Moraga & Rapoport, 2014), (Fernández, 2015), (Ferris, 2015), (Ferris & Bergmann, 2017), (Fornale & Doebbler, 2017), (Gemenne & Bruecker, 2015), (Gibb & Ford, 2012), (Goff et al., 2012), (Hartmann, 2010), (Hoing & Razzaque, 2012), (Hugo, 2008), (Jason Margolis PRI's The World, 2017), (Johnson, 2012), (Johnson & Krishnamurthy, 2010), (Kanodia, 2017), (Kälin, 2015), (Kielburger & Kielburger, 2007), (Koser, 2008), (Kolmannskog, 2012), (Kolmannskog & Myrstad, 2009), (Kolmannskog & Trebbi, 2010), (Krishnamurthy, 2012), (Lam, 2012), (Lange, 2010), (Lewis, 1990), (Lohrmann, 1996), (Lopez, 2007), (Lopez-Carr & Marter-Kenyon, 2015), (Marshall, 2016), (Marshall, 2015), (S. Martin, 2010), (S. F. Martin, 2017), (S. F. Martin, 2012), (Benoit Mayer, 2017), (Benoit Mayer et al., 2013), (Benoît Mayer, 2013), (McAdam, 2011), (McAdam, 2013), (McAdam, 2016), (McAdam, 2015), (McAdam & Ferris, 2015), (R. A. McLeman & Hunter, 2010), (McMichael et al., 2012), (Melde, 2015), (Methmann & Oels, 2015), (Neuteleers, 2011), (Nishimura, 2015), (Ni, 2015), (Ober & Sakdapolrak, 2017), (Obokata et al., 2014), (O'Connor et al., 2019), (Odalen, 2014), (Oliver, 2009), (Owens, 2008), (Pelzer, 2009), (Piguet, 2019), (Piguet et al., 2018), (Piguet et al., 2011), (Pourhashemi et al., 2012), (Prieur, 2010), (Ramlogan, 1996), (Ransan-Cooper et al., 2015), (Ratuva, 2017), (Rothe, 2017), (Saad, 2017), (Sakellari, 2019), (Schwan & Yu, 2018), (Scott, 2015), (Scott, 2016), (Sipahi, 2009), (Skillington, 2015), (Smith, 2007), (Sriskandarajah, 2008), (Stojanov et al., 2014), (Su, 2020), (Tedenljung, 2020), (Telford, 2018), (The Nansen Initiative, 2016), (Thornton et al., 2019), (Turk & Garlick, 2019), (UK Climate Change and Migration Coalition (UKCCMC), 2013a), (UK Climate Change and Migration Coalition (UKCCMC), 2013b), (UN High Commissioner for Refugees, 2017), (Warner, 2010), (Warner, 2018), (Warner, 2012), (Warren, 2016), (Wei, 2011), (Wiegel et al., 2019), (Williams, 2008), (Wyman, 2013), (Zetter, 2011), (Zetter et al., 2008)

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