

**The New International Relations of Migration:
A Planetary Health Agenda?**

By

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Declaration

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Abstract

The reality of climate change is upon us. Climate change has proven to affect a variety of International Relations issues. This includes the complex challenge of modern-day migration. There is a relationship that can be postulated which suggests that climate change, migration, and health are interconnected. When the 2015 Lancet Commission on Health and Climate Change formulated and theorised a conceptual framework of the marriage between climate change and health, the notion of “planetary health” was born. A number of questions formed when researching this connection. The study poses two questions, one primary and one secondary. The primary research question is: *Does planetary health suggest an agenda for addressing the relationship of climate change and global health (GH) in International Relations?* The secondary question is: *What are the implications of implementing the principles of planetary health as a response in resolving the challenges of migration?* This study works to answer these questions by first presenting the genealogy and theoretical evolution of ecological and global health studies. It sought to find an analytical tool that may be able to facilitate a better understanding of challenges, such as modern-day migration. This study develops and applies a planetary health conceptual framework to the case study of Bangladesh, as it is an undeniably dramatic example of a country that experiences health challenges and climate change consequences. The study follows a deductive logic and qualitative research method. It is based mainly on secondary sources and grey literature but includes a small number of semi-structured interviews with key informants as primary sources. The main conclusion of the study is planetary health successfully offers a response for climate change and global health as it clearly presents the interests of both narratives, whilst preserving the health of the earth and the well-being of the Earth’s population. Planetary health, as an emerging interdisciplinary field, understands that migration is not a challenge that can be addressed effectively merely by focusing on one variable; all other influences of climate change and health need to be a part of the conversation. The failure to translate this knowledge into action is what planetary health is often criticised for. Much is described, contributed, and researched, yet few of the challenges materialise into effective action.

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List of Abbreviations

ART – Antiretroviral Treatment

ARV – Antiretroviral

COP – Conference of Parties

CSA – Climate Smart Agriculture

DRC – Democratic Republic of Congo

FAO – Food and Agriculture Organisation

FDA – Food and Drug Administration

GH – Global Health

GHG – Global Health Governance

GT – Green Theory

ID – Infectious Disease

IH – International Health

IMF – International Monetary Fund

IPCC – Intergovernmental Panel on Climate Change

IR – International Relations

LDC – Least Developed Country

LECZ – Low-Elevation Coastal Zone

LGBTQ+ – Lesbian, Gay, Bisexual, Transgender, Queer+ Community

MDC – Most Developed Country

MDG – Millennium Development Goal

NCD – Non-communicable Disease

NGO – Non-governmental Organisation

PEPFAR – President’s Emergency Plan for AIDS Relief

PTSD – Post-traumatic Stress Disorder

SDG – Sustainable Development Goal

SIDS – Small Island Developing States

STI – Sexually Transmitted Infection

USA – United States of America

UNFCCC – UN Convention for Climate Change

WHO – World Health Organisation

WB – World Bank

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1. Introduction: Climate Change, Health, and Migration

1.1. Introduction

Several newspaper headlines expose the alarming palimpsest of climate change and its implications for human health, resulting in the forced or planned mass movement of people:

“The Great Climate Migration has begun” (NY Times, 2020)

“A quarter of Bangladesh is flooded. Millions have lost everything” (The Morning Call, 2020)

“World to miss 2020 climate ‘turning point’” (News24, 2019)

“Don’t trust the adults in the room on climate change” (The Guardian, 2019)

“Climate change- cause of most under-reported humanitarian crises” (The Guardian, 2019)

“143 Million people may soon become climate migrants” (National Geographic, 2018)

The reality of climate change is upon us. Well into the 21st century it is clear that the problem of climate change is rapidly escalating. The effects are seen across every continent and in every ocean, as people scramble to make meaning of it. Responses by policymakers and researchers on the topic are a priority for containment and ultimately reversal. The Intergovernmental Panel on Climate Change (IPCC) anticipated, in their initial assessment report released in 1990, that the “gravest effect of climate change may be those on human migration” (Miller, 2017: 89). In 2007 the IPCC acknowledged a vast accumulation of evidence on the topic of global warming and the impact of human activities on the global climate (IPCC, 2007). The United Nations Sustainable Development Goal (UN SDG) 13 calls for “urgent action to combat climate change and its impacts” (Riddle et al., 2019: 3). Climate-related economic losses, health implications, infrastructure damage and climate-induced violent conflicts are all factors that contribute towards people being left with little or no choice than to migrate. It is predicted that by 2050 200 million people will be displaced from their homes as a result of climate change (Miller, 2017: 89).

The purpose of this study is to establish whether planetary health suggests an agenda for addressing the connections between climate change and human health. This study examines

the implications of the response that this agenda may or may not suggest in resolving the issues of modern migration.

“Climate change has been recognised as both one of the biggest threats and the biggest opportunities for global health in the 21st century” (Verner et al., 2016: 1). The 2015 Lancet Commission on Health and Climate Change formulated and theorised a conceptual framework of the marriage between climate change and health: the notion of “planetary health” was born. Experts currently argue that protecting health from the impacts of climate change is one of the most defining challenges of the 21st century (Toan et al., 2014; Preet et al., 2010: 2; Biermann & Boas, 2011: 10; Maibach et al., 2010: 2). It is stated that health impacts related to climate change globally will be felt most acutely by the world’s most impoverished populations. This is tragic and ironic, as low- to middle-income nations are the least polluting drivers in global climate change. Impacts of modern livelihoods may be felt more harshly by those forced into migration as a result of complications brought by global factors, including climate change.

Reviewing this context and the literature that has tried to grapple, understand, and predict where the narratives of the interrelationship between climate change and human health are going, eight critical narratives can be identified:

1. Research focused on the indirect and direct impacts of climate change on human health¹;
2. Publications identifying the global inequalities of climate change impacts²;
3. Research focusing on the mental health issues related to climate change³;
4. Those focused on the presence of a gendered perspective on climate change⁴;
5. Publications that provide accounts of climate change as a driver of communicable and non-communicable diseases⁵;
6. Publications on policy interventions related to comparing the impact felt by climate change on health⁶;
7. Those related to the movement of people as a result of climate change⁷; and

¹ For example, see Schwerdtle et al. (2019), Kjellstrom & McMichael (2013), and Verner et al. (2016).

² For example, see Serdeczny et al. (2015), Bickton (2016), and Dreher & Voyer (2014).

³ For example, see Berry & Bowen (2010), Willox et al. (2015), and Trombley et al. (2017).

⁴ For example, see Rylander et al. (2013) and Preet et al. (2010).

⁵ For example, see Tong et al. (2015), McMichael (2015), Filho et al. (2018), and Farrugia et al. (2018).

⁶ For example, see Toan et al. (2014) and Stordalen et al. (2013).

8. Those focused on the security debate on the impacts of climate change⁸.

Each of these has a foothold in the overall narrative around climate change. This study, however, is concerned with the first, second, fifth, and seventh groups or streams of issues. The relationship between climate change and health starts with the drivers (people, pathogens, or events) that may directly or indirectly cause the impacts. One of the main implications of these drivers is, arguably, the emergence and re-emergence of communicable and non-communicable diseases (NCDs). For the purpose of this research, the focus will be on communicable diseases. The implications of climate change, such as the vectoring of communicable diseases, give people little to no choice but to plan or implement resettlement in order to adapt and survive in alarming conditions.

1.2. Climate Change and Health

Simply stated, the consensus among international climate change scientists is that the Earth has warmed by around 0.8 degrees Celsius since 1880 (Hansen et al., 2012: 7). These scientists agree that this warming is a result of an increased concentration of greenhouse gases in the lower atmosphere (Lindsey & Dohlman, 2018; IPCC, 2018). Friel et al. (2011) argue that this has led to alarming disruptions in life-supporting environmental systems, which have escalated inequalities in low- to middle-income countries. Globally, the poor face the heaviest burdens of climate change impacts, with little economic wealth and no stable governance to mitigate or adapt to the social, environmental, and physical changes (Friel et al., 2011: 198).

The 2015 Lancet Commission on Health and Climate Change has identified several connections between climate change and human health. These vectors include changes to disease patterns, lack of access to freshwater and food, poor sanitation, and extreme weather conditions (Rylander et al., 2013: 1; Schwerdtle et al., 2019: 2; Sclar et al., 2013: 23-31; Brzoska & Frohlich, 2015: 196- 197; Riddle et al., 2019: 3-4). Greenhouse gases (carbon dioxide (CO²) and methane (CH⁴)) are at an all-time high; according to Rylander et al. (2013: 1), the gases have “reached their highest levels in 650 000 years”. Narratives around climate change-related impacts have primarily been focused on Small Island Developing States (SIDS), because of their vulnerability to rising sea levels and extreme weather conditions

⁷ For example, see McMichael (2015), Semenza & Suk (2018), Miller (2017), and Lister (2014).

⁸ For example, see Skillington (2012) and Brzoska & Frohlich (2015).

(Dreher & Voyer, 2014: 58). While these states tend to be most vulnerable, Bickton (2016) and Schwerdtle et al. (2019) note that SIDS are not the only nations that are bearing the burden of the health implications stemming from climate change. These authors identify three geographic areas, in addition to SIDS, that are arguably the most susceptible to climate-related health impacts: Sub-Saharan Africa, South Asia, and Latin America. Bangladesh, a low-lying South Asian country, will be used as a case study to illustrate this susceptibility.

1.2.1. Climate-related migration and communicable diseases

Climate change is currently driving the high emergence and resurgence of communicable diseases. This outbreak is not only a consequence of climate change; it is, however, significant in exacerbating the variables that lead to the emergence and spread of communicable diseases (McMichael, 2015: 548; Riddle et al., 2019: 4-5). Infectious diseases are defined as illnesses that are transmitted from person to person through contact. Communicable diseases cover a wider range as they “are defined as an illness that is transmitted from person, animal, or inanimate source with assistance of an intermediate, or by a vector” (Webber, 2020: 1). Extreme weather events can also drive the spread of communicable disease; when temperatures rise, bacteria in food and water multiply. Vector-borne infections⁹ are highly sensitive to climate change-induced changes to rainfall patterns and humidity levels, which can increase the spread of communicable diseases such as cholera. These escalations tend to promote the mass movement of people in search of food and water security (Friel et al., 2011: 204-205; Filho et al., 2018: 589-590). Cholera can be endemic or epidemic as a result of several global vectors, and climate change exacerbates these and the spread of the acute diarrheal disease. Two examples will suffice regarding extreme temperature changes occurring in the Democratic Republic of Congo (DRC). The first took place in 2017 (weeks 31 to 40), when 18 006 cases of cholera were reported; the second in 2018 (weeks 1 to 2) when 1 027 cases of cholera were reported (Awofeso & Aldabk, 2018: 95). These authors argue that the greater movement of people across the region in search of access to clean water and sanitation allowed for further transmission of the disease. A cyclone hit Mozambique in 2019, creating conditions that have made the country a breeding ground for the rapid spread of communicable diseases, including cholera (Cambaza, 2019: 6-7).

⁹ Vector-borne diseases are defined as communicable diseases mainly transmitted by arthropod vectors. VBDs include malaria, dengue, Lyme disease, and yellow fever (Caminade et al., 2018: 157-158; Leitner et al., 2015: 1).

According to McMichael (2015), contemporary migration is shaped by several complex and wide-ranging vectors. These include globalisation, trade, skill shortages, economic and political crises, the search for work opportunities and innovations in travel, and ease of communication. McMichael (2015) and others (Miller, 2017; Kjellstrom & McMichael, 2013; Skillington, 2012) indicate that climate change will amplify these vectors, adding additional pressures that lead to the displacement of people or the decision of individuals to move away from their homes (2015: 548). People may face climate change-related health risks during all stages of migration. These risks may precipitate the start of migration and the increased morbidity of migrants. This can be the result of direct vectors, including extreme weather events, or indirect, including the changing patterns of vector-borne, food-borne, or water-borne diseases (Schwerdtle et al., 2019: 2).

1.3. Research Problem

The interrelationship between climate change, human health, and migration is complex. The 2015 Lancet Commission on Human Health and Climate Change identified and conceptualised the connection between climate change and health under a new conceptual framework of planetary health. This study aims to dismantle this new emerging concept, with a specific focus on the implications for human migrants. The purpose of this study is to understand the nexus between climate change, human health, and migration by providing a proposed conceptual framework for planetary health.

Despite the novelty and popular currency of planetary health, International Relations (IR) scholarship, as an epistemic community, has yet to define, describe, and explain migration within the context of planetary health. As IR scholarship is failing to do so, it is unable to suggest appropriate responses to the problems within the nexus of migration, climate change, and human health. In order to address this problem, the study poses two research questions, one primary and one secondary.

The primary research question is: *Does planetary health suggest an agenda for addressing the relationship of climate change and global health (GH) in International Relations?*

The secondary question is: *What are the implications of implementing the principles of planetary health as a response in resolving the challenges of migration?*

1.4. Conceptual Framework and Theoretical Underpinnings

In order to understand, explain, and analyse the relationship between climate change and human health, the relevant historical trends and theoretical underpinnings need to be presented and addressed. The research problem and questions indicated above highlight two main concepts: ecology and global health. IR traditional theoretical frameworks (for example, realism and liberalism) have typically focused on questions of ‘high politics’, such as military security. However, critical theories (e.g. feminism and green theory (GT)) emerged as a way of challenging orthodox thinking and incorporate issues of ‘low politics’ into the conversation.

Highlighting the theoretical underpinnings of GT and global health studies is imperative to understand the conceptual progenitors of planetary health. Many central concepts of planetary health have been present for decades in these fields. This study is set apart from others through its use of planetary health as the main vehicle of connecting migration to already existing narratives of climate change and human health. While the concept of planetary health is distinct, it builds on the formation of many similar concepts that address the intersections of health and the environment (e.g. see EcoHealth).¹⁰ Understanding this intersection between ecological studies and global health studies allows for a more effective approach to analysing modern migration as a dimension of planetary health.

1.4.1. The Greening of IR

Despite green politics, or ecologism, being seen as the newest introduction to the IR discipline, its foundation can be traced back to the 19th-century revolt against industrialisation. Its foundation was cemented further with the emergence of environmental protectionist groups in the early 20th century, and even further at the beginning of the 1970s as environmental degradation was catapulted onto the global agenda (Lawson, 2015: 220; Heywood, 2013: 50). GT exposes and challenges an ‘ecological blindness’ that it sees present in the discipline of IR. GT is not a uniform body of thought, but rather a plurality of approaches commonly concerned with the “protection of the natural environment” (Lawson, 2015: 227-229). Green theorists view humans as the most complex and developed species, therefore, understanding humans as having a responsibility and moral duty to show respect

¹⁰ Ecohealth or ecosystem health is defined as a system-based approach of seeing the connection between social and ecological health. It includes social dimensions in seeking solutions to ecological crises (Hill-Cawthorne, 2019: 8-9).

towards all other life forms living in coexistence with them (O'Neill, 2009: 160). The theory has brought the environment into the conversations about economic, security, and social justice. Narratives within the spectrum of green theories linked with the health of individuals include the strengthening relations between global economic and ecological interdependence, multiple-level security threats as a result of environmental crises, and historically-rooted global ecological injustices (Barry, 2014: 2; Lawson, 2015: 244; Eckersley, 2004: 250).

1.4.2. Global health: A theoretical approach

As in ecological studies, debates about what exactly defines “global health” (GH) are widespread. Historically, national security and prosperity tend to be at the forefront of the narratives around health. As a result, the state was seen as responsible for its own citizens’ health and for handling potential outbreaks of health crises in its domain. Globalisation has led to health issues transcending national borders and becoming a case of collective action with the idea of providing benefits for all. GH is preceded by issues of local public health, including the health of populations and coordinated global health governance. Principles of this governance of planetary health are inherently political as they include surveillance, identifying risk factors, seeing and using opportunities for interventions, and the implementation of mitigating factors; these principles are needed to achieve the aim of improving health on a global scale.

Pre-Cold War, health issues and IR were considered as separate entities. However, since the 1980s and the failure of the traditional theories of IR to predict the end of the Cold War, alternative perspectives arose as a way to address new issues. As a result, health issues entered the realm of high politics (as did environmental issues). New global institutional mechanisms emerged, including the United States President’s Emergency Plan for AIDS Relief (PEPFAR) in 2003 and the Global Fund to Fight HIV/AIDS, Tuberculosis, and Malaria, created in 2002 (McInnes & Lee, 2012: 4). From the mid-1990s onwards the term “international health” (IH) was replaced with “global health”. This was a response to globalisation as it includes the interconnectedness of all the effects on human health, including demographic, economic, social, and climate circumstances.

The seventh Millennium Development Goal (MDG) of 2015, “ensure environmental sustainability”, is a clear indication of the marriage between the concepts of climate change and global health. As of 2015, the SDGs were established as an agenda for development; this

collection of global goals includes six environmental goals. Labonte and Gagnon (2010: 1-19) explain this connection further as they frame global health in terms of several central conceptualisations. The most relevant for this study include the concepts of the global political economy, security, governance, human rights, and health diplomacy.

1.4.2.1. A move towards Planetary Health

Despite the recent popularisation of planetary health, the notion that human health is not separate from the health of natural systems within the Earth's biosphere stems its original popularisation in the 1980s-90s. As global health burdens shifted from focusing entirely on communicable diseases to NCDs, the role of a healthy lifestyle and its environmental successes became evident. Prescott and Logan (2019: 98-99) clearly illustrate that between 1970 and 2010, the concept of planetary health was used by "holistically-minded researchers, writers, clinicians, academics, and advocates". With planetary health's recent endeavours in mainstream conversations, such as the 2015 Lancet Commission on Health and Climate Change, questions and issues have emerged in the field of IR. The widely cited 2015 keystone report by the Rockefeller Lancet Commission on planetary health has been both praised for its contribution to the "new discipline" and critiqued for its glaring oversights regarding issues such as mental health (Hill-Cawthorne, 2019: 14-15; Prescott & Logan, 2019: 98-99). As a reasonably new approach to looking at the connections between climate change and health, the focus on planetary health does not seem to promise the capabilities to address major complexities effectively.

1.5. Research Design and Methodology

Burnham et al. (2008: 38) argue that a research design is the logical structure set up by political scientists as they engage in their research. The research design that has been selected for this study is a case study design. "The case study method is an ideal approach to attempt to understand complex social phenomena and is therefore commonly used as a research method in the social sciences" (Yin, 2009: 4). There are many advantages and disadvantages when investigating an issue using a case study. Case studies are widely recognised in many social science disciplines because of their ability to provide an in-depth look at the social and behavioural problems of single individuals or groups of individuals, as well as their ability to allow for an extensive understanding of complex issues (Zainal, 2007: 1). Hodkinson and Hodkinson (2001: 2-3) suggest that a case study has the ability to capture a "lived reality". Case studies can reflect the most microscopic to the most macrocosmic levels of phenomena

(Gomm et al., 2000: 119). Therefore, case studies allow a researcher to explain the complexities of a ‘lived reality’, which other survey research finds challenging to capture (Zainal, 2007: 4; Hodkinson & Hodkinson, 2001: 2).

On the other hand, despite these advantages, case study research has been the subject of much criticism. Yin (1984: 21) raises the most critical question: “How can you generalise from a single case?” Arguably, one is not able to generalise results from a single or multiple case study to the broader population. This is particularly the case when the targeted events are rare (Zainal, 2007: 5). Additionally, it is difficult to determine direct cause and effect from a single case study. Curtis et al. (2014: 81) see the idea that research can be acknowledged as a political process. It can be used as a tool to understand political behaviour, leadership, individual uniformities, and public opinions (Garceau, 1951: 74-76). However, Yin (1984: 21) illustrates the importance of using a case study to analyse the approaches of a new discipline such as planetary health and its association with, for example, the social phenomenon of migration caused by climate change. The migration of people is a historical-political issue that researchers and academics scramble to make sense of because of its “real-life” and “real-time” nature (Zaidah, 2007: 4). As climate change is worsening, the threat of ever-increasing migration grows. This reflects the highly relevant nature of a case study to address or resolve a research problem, as social scientists are able to determine cause and effect in the newer emerging issues experienced by modern-day migrants.

Methodologically, this is a qualitative study applying deductive logic. It is based mainly on secondary sources and grey literature, but it will include a small number of semi-structured interviews with key informants as primary sources. After a review of the literature, key informants who have knowledge of issues related to planetary health were identified. The following key informants were interviewed:

1. Peter Stenvinkel, professor and senior lecturer for the Department of Renal Medicine at the Karolinska Institutet in Sweden;
2. Umangh Harkhu, manager of prevention services at South African National Council Against Drugs and Alcohol;
3. Tracy Pascoe, regional programme specialist at Anglo American in Brisbane, Australia;

4. Colin Butler, honorary professor of public health at the Australian National University.

This study strives to contribute to the literature and data on planetary health, GH, and the relationship of migration to climate change. Given the nature of the study's research problem, it can be adequately addressed through obtaining secondary sources as defined by Burnham et al. (2008), including journal articles, books, newspaper sources, grey literature, and websites. However, interviews with a handful of key informants will aim to complement the secondary sources collected and studied. Grey literature¹¹ is considered to be of significant importance in the case of this study, as the Lancet Commission can provide much of the information relevant to this study's conceptual framework, planetary health. In addition to the Lancet Commission, social media will also be used to access resources, because sites such as Twitter have to be utilised as platforms to contribute to the discipline of planetary health.

1.6. Ethical Considerations

Kellstedt and Whitten (2013: 81) suggest that ethical considerations are not foreign to the social sciences. With small case studies and interviews, the question of ethics is always relevant. In recognition of the ethical codes of conduct of Stellenbosch University, this study has ensured that all relevant ethical standards have been applied. This thesis will use academic research, social media sites, and newspaper articles to obtain information in order to undertake and present the case study. The four interviews will in no way reflect the personal lives and experiences of the respondents, but instead will be strictly based on the research and reflect questions on climate change, health and migration at an academic level. Despite the low-risk nature of the interviews, all necessary procedures have been followed in order to ensure the respondents' safety and confidentiality. An informed consent form was signed before the respondent accepted taking part in the interview. The form specified all safety and confidentiality regulations and the ethics application was approved by the REC of Stellenbosch University.

1.7. Outline of Study

Chapter 1 provides an introduction to and the formulation of the research problem, questions, and objectives. This chapter gives a short background, followed by the conceptual framework

¹¹ Grey literature is defined as a wide range of documents not released by commercial publishing organisations (Thatjie et al., 2007: 85). "Grey literature is still one of the most important sources of knowledge about natural science research" (Thatjie et al., 2007: 85).

and theoretical underpinnings that will be used throughout this study. A methodology is briefly outlined and the ethical codes of conduct are confirmed.

Chapter 2 provides the historical evolution of ecological and global health studies. The chapter provides a timeline for the literature on climate change and global health.

Chapter 3 presents the theoretical antecedents of ecological and global health studies. The historical underpinnings provide the foundations for the next chapter dealing with the emerging conceptual framework of planetary health.

Chapter 4 presents the theoretical progenitors of ecological and health studies and the emergence of planetary health. The chapter outlines the key principles of planetary health and presents the proposed conceptual framework for planetary health to elucidate the complex relationship between climate change, human health, and migration.

Chapter 5 uses Bangladesh as a case study, applying the proposed conceptual framework in order to address the research problem and questions in a real-life context.

Chapter 6 offers a summary of the findings of the study, providing answers to the research problem and research questions. The chapter goes on to point out any limitations of the study and provides a shortlist of recommendations for further studies.

2. The Historical Evolution of Ecological and Health Studies

2. 1. Introduction

Several direct links between climate change and global health have been identified. These vectors include the contamination of freshwater supplies, changes in harvest times, species extinction, poor sanitation, and changes in disease patterns (Brzoska & Frohlich, 2015: 196-197; Riddle et al., 2019: 2). Chapter 1 acknowledged the complex interrelationship between climate change and human health. Planetary health has emerged as a key issue in an attempt by the 2015 Lancet Commission to identify and conceptualize this complicated relationship. The purpose of this study is to establish whether addressing planetary health suggests an agenda for exploring the connections between climate change and human health. This study investigates the implications of the response that this agenda may or may not suggest in addressing issues of modern migration. This chapter looks at the overlapping narratives of climate change and global health. It is vital to identify the overlapping variables as a means to understand the main elements of planetary health in order to suggest answers to the research problem and questions. The chapter is divided into the following sections:

2.2. Climate Change

2.3. Global Health

2.4. Conclusion

2. 2. Climate Change

Climate change is causing critical changes to the world as we know it. Growing public concern, policymaker decisions, and widespread media coverage all represent the urgency of the need to address climate change. It has become a prominent political (Brostrom et al., 1994: 959; Nicholson, 2014: 151; Tong et al., 2015: 11030) and economic (Stordalen et al., 2013: 1; Bickton, 2016: 70; Ridde et al., 2019: 3) concern. The following section will examine the issue of climate change by dividing the overlapping narratives into three clusters. These include:

2.2.1. Conceptual clarity;

2.2.2. An historical timeline and the emergence of multilateral organisations; and

2.2.3. Contending views of the implications of climate change.

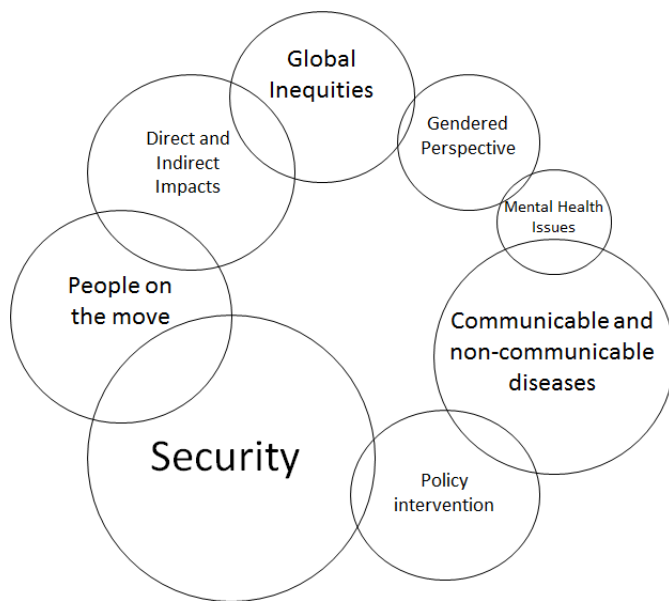
The first cluster of narratives deals with the conceptual clarity of the existing concepts of ecological studies (including ‘climate change’ and ‘global warming’). Conceptual clarity is crucial as it suggests the consequences of ideological leanings and indicates the implications of policy interventions. The debate on conceptual clarity will be placed within an historical context to provide an understanding of the evolution of climate change. This historical context suggests movement towards the establishment of several multilateral organisations, representing the institutionalisation of climate change. This chapter will focus on the following institutions, multilateral organisations, and global goals:

- Intergovernmental Panel on Climate Change (IPCC);
- United Nations Sustainable Development Goals (UN SDGs);
- United Nations Convention for Climate Change (UNFCCC);
- Conference of Parties (COP), and
- Rockefeller Foundation and Lancet Commission.

To a large extent, the history and emergence of multilateral organisations have not shown much success in addressing the challenges arising from climate change. As a result, multiple contentions about the implications of climate change emerge in several narratives. These include narratives regarding the following issues:

- Security (Skillington, 2012; Brzoska & Frohlich, 2015);
- People on the move (McMichael, 2015; Semenza & Suk, 2018; Miller, 2017; Lister, 2014);
- Communicable and non-communicable diseases (Tong et al., 201; McMichael, 2015; Filho et al., 2018; Farrugia et al., 2018);
- Mental health issues (Berry & Brown, 2010; Willox et al., 2015; Trombley, 2017);
- A gendered perspective (Rylander et al., 2013; Preet et al., 2010), and
- Global inequalities (Serdeczny et al., 2015; Bickton, 2016; Dreher & Voyer, 2014).

Figure 2.1: Interrelationship between the Literature on Climate Change, Human Health, and Migration



Source: The author

Figure 2.1 provides eight dominant conversations taking place in multiple spheres, including academic circles, the international political realm, and everyday life. These three topics are climate change, migration, and human health. This chapter will present these issues beginning with providing conceptual clarity (defining exactly what these concepts are), followed by the historical evolution of the understanding of climate change and health, continuing with the institutionalisation of these issues linked to the historical timeline (these institutions include WHO, IPCC, and Rockefeller Foundation), and finally, discussing the contentions that arise in the face of the increasing challenges experienced due to climate change.

2.2.1. Conceptual Clarity

Clarifying the conceptualisation of a widespread issue such as climate change is not an easy task. There is much debate around the meaning of these terms in the globalising world. Concepts can indicate ideological alignment, policy intervention, and institutional responses.

2.2.1.1. Climate Change or Global Warming?

The terms used to describe the climate in transition have a rich history of their own. Presently both the concepts ‘climate change’ and ‘global warming’ are widely used. A Swedish chemist, Savante Arrhenius, first documented the concept of global warming. Arrhenius first

predicted global warming in 1896 (Khasnis & Nettleman, 2005: 689). In 1975, Wallace Broecker (1975: 460-465) published a landmark paper entitled *Climate Change: Are we on the brink of profound Global Warming?* Despite the mention of the concept “climate change”, “global warming” was becoming popularly accepted amongst scientists around the early 1980s. A shift occurred in the early 21st century as scientists, academics and politicians preferred to make use of the concept ‘climate change’ when referring to extreme weather events, for example, ice ages (Khasnis & Nettleman, 2005: 689; Wu et al., 2015: 14-15). Furthermore, Henson (2014: 6) argues that in the 21st century, as a way to downplay the crucial realities of the weather led demographic shifts, politicians gravitate towards making use of the term “climate change”. The concept tends to sound not as alarming as phrases such as “global warming”.

Yoder’s (2018) article in *The Guardian* raises some interesting points about how making use of certain concepts can shift the way we approach the challenges of a changing world. “When we talk about saving the planet, we employ the narrative of war. Does it only deepen our division?” (Yoder, 2018). Politicians and the media have declared war on significant issues such as poverty, drugs, terror, and climate change. It is essential to analyse concepts used by politicians and the media such as ‘eco-warriors’, ‘climate emergency’, and ‘climate hawks’ as they lead to war-like responses against the implications of a changing climate.

On the other hand, on the far right of the spectrum of green issues are the climate deniers. These deniers see changes in the weather as just regular occurrences taking place in the form of ice ages and seasonal changes. Climate deniers see that no intervention is necessary, as a threat does not exist. “Climate change scepticism” is a concept used to describe individuals who dispute, reject, or question the conceptually orthodox view of the climate issue. These authors tend to use this as a way of shutting down any conversations on the main reasons to explain extreme weather events taking place in the modern world because they will not distinguish between accelerated climatic change and weather (Van Rensburg, 2015: 1; Gross, 2018: 2018; Dunlap, 2013: 691).

This chapter will use the concept ‘climate change’. This concept refers to a long-term global phenomenon that has been exacerbated by the large-scale and persistent burning of fossil fuels. It includes weather led demographic shifts and the increased temperature trends as seen under the definition of global warming. Climate change, as a concept, includes a trend of

rising temperatures, rise of sea-levels, loss of ice mass, and extreme weather events (such as hurricanes). These little increments of movement in temperature make a big difference over time (Wu et al., 2015: 14-15; Rylander et al., 2013: 1-2; Henson, 2014: 7; Schwerdtle et al., 2018: 2; Kjellstrom & McMichael, 2013: 3; Tong et al., 2015: 1130). Several studies have linked fluctuations in localised temperatures to the influence of climate change (Egan & Mullin, 2012; Hamilton & Stampone, 2013; Rylander et al., 2013; Zaval et al., 2014). The results of these fluctuations in localised temperatures are seen in the shifts of temporal patterns, spatial patterns of precipitation, ocean currents, and winds. The shifts, acting separately or together, have significant implications for human health and survival (Kjellstrom & McMichael, 2013: 2).

2.2.1.2. Direct and Indirect Impacts of Climate Change

Climate change is not a new topic of public discussion. However, clarity is urgently needed in understanding the causes and effects inherent in the concept. Stordalen et al. (2013) and McMichael et al. (2012) identify the impacts of climate change as being not merely a ‘one size fits all’ scenario. Climate change, its causes and impacts are complex phenomena. Romm’s (2018: VII-XII) book, *Climate Change: What Everyone Needs to Know*, provides an account of this complexity. It searches for answers to questions about the concept of climate change. Topics include climate science basics, changes in extreme weather, projected climate impacts, avoiding or dealing with these projected impacts, and the politics and policy interventions around climate change. Romm’s book is of great value as it is able to take a complex concept such as climate change and present it in a way all can understand, from heads of states to ordinary citizens. Romm’s book refers to the importance of clarifying the concept of ‘climate change’ and identifying the elements of the direct and indirect impacts of the topic. Such clarification is important because it offers a foundation upon which policy responses can be developed to directly combat the impacts of climate change. Concepts such as planetary health have recently become more popular in planning responses to climate-related impacts.

Disruptions to existing natural patterns can have extremely harmful implications for health, air quality, crop yield, fisheries, ecosystems and species extinction, as well as causing an increase in wildfires. Two global phenomena that must be mentioned are the El Niño and La Niña climatic patterns. El Niño is a naturally-occurring weather pattern, taking place every two to seven years when the Pacific Ocean temperatures near the equator vary from the norm

(when the average temperature remains more than 0.5°C higher than the long-term average for five consecutive months) (Getahun & Shefine, 2015: 6; Thatjie et al., 2007: 86). The most severe impacts of El Niño are felt several months later (particularly by countries in South-East Asia, the Pacific, and Eastern and Southern Africa) as the world's ocean temperatures increase. Most often, a year preceding an El Niño event the pendulum swings in the opposite direction and La Niña¹² occurs. El Niño and La Niña are understood to have negative impacts on coral reefs, among other things. Claar et al. (2018: 1) suggest the impacts of the El Niño and La Niña are felt with increased frequency (as a result of climate change) on coral reefs. These impacts on the reefs include bleaching, destruction, and mortality of plants and sea animals that rely on the reefs. Climate change consequences for coral reefs (which include variations of the aforementioned impacts) are only amplified further as a result of the impacts of El Niño. Scientists know that El Niño contributes mostly to increases in global temperatures; they are, however, attempting to answer the question of whether climate change-induced global temperature changes are in turn intensifying the strength and effects of El Niño. Cai et al. (2014: 11) conclude that super-El Niño events, such as the recent one experienced in 2015, could double in the future, as a result of climate change. Scientists criticise Cai et al. for their disregard of the already-existing natural variations in El Niño events over long periods. Despite all these conversations, it is undeniable that any changes to the frequency and characteristics of El Niño events, specifically as a result of climate change, will be detrimental to the socio-economic interests of populations across the globe.

2.2.2. Historical Evolution of the Institutionalization of Climate Change

The conceptual clarification of climate change must be placed within a historical context here, as it is not a new topic of discussion. This section will present the institutions that emerged alongside the historical evolution of the notion of climate change. The institutions which will be discussed are the IPCC, the UNFCCC, COP, and the Rockefeller Foundation. The world's climate has been changing for centuries as there have always been fluctuations in temperature. However, these fluctuations and changes have been accelerated by human-induced impacts. Climate change was the theme chosen by WHO in 2008 for the World Health Assembly (Preet et al., 2010: 5). This chapter tracks the responses to the conceptualization of climate change historically. But it must be noted that the history of

¹² La Niña occurs when “temperature at sea surface is cooler than normal sea surface temperatures. La Niña exists when cooler than usual ocean temperatures occur on the equator between South America and the Date Line. La Niña has a greater tendency to trigger intense tropical cyclones” (Singh, 2020: 6).

climate change coincides integrally with the history of multinational organisations. This history is tied to the decisions made by multinational organisations, as the role of governments and global agencies is vital for mitigating, adapting, and responding to climate change (Strodalen et al., 2013: 3). Responses by governments and these global agencies often take the form of conferences, policies, policing, and introducing ways to reduce greenhouse gases.

This section will begin with identifying the role of the IPCC from 1990 onwards in responding to climate change. The transition from the Agenda 21 SDGs to the MDGs will be discussed. These goals, adopted by countries as a way to tackle multiple issues, include addressing both climate change and health. The next section will look at the UNFCCC and its role in the creation of the COP. COP provides a platform for the world's leaders to come together to tackle growing tensions as a result of climate change. Particular focus is given to the COP21 meeting in 2015, which led to the signing of the Paris Agreement – a worldwide consensus signed by 175 parties to address greenhouse gas emissions (Crawford, 2019: 12-13). The next section will then illustrate the decision made by the current United States President, Donald Trump, to withdraw from the Paris Agreement. Lastly, the Rockefeller Foundation and Lancet Commission will be explored. Their detailed understanding of the connection between global health and climate change will be both praised and criticized for its oversights.

2.2.2.1. The International Panel on Climate Change and the United Nations Convention for Climate Change

In order to access climate change statistics and facts based on the latest science, the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP) established the IPCC in 1988 (IPCC, 2019). In 1990 the IPCC concluded that climate change was indeed accelerated by human activities (Verner et al., 2016: 2). However, in the early 1990s many countries and their populations were still uneducated on the topic. Therefore, parts of Africa, Asia, the Middle East and a few countries from the former Soviet Union did not fully agree with this conclusion made by the IPCC (Toan et al., 2014: 1-2). A “Warning to Humanity” was released in 1992 by the Union of Concerned Scientists. The scientists saw the impending biosphere crisis that would occur if rapid industrialization was not steadied (Ripple et al., 2017: 1026). Twenty-five years later, in November 2017, 15 364 scientists from 184 countries pledged an updated version of the “Warning to Humanity”. The

updated version saw these experts in the field declaring climate change at the forefront of the present issues jeopardising human welfare (Ripple et al., 2017: 1026-1028; Williston, 2019: 1).

There was a strong focus on collecting evidence on climate change, and the impact of human activities on it, by organisations such as the IPCC. The IPCC (2012) classified the impacts of climate change into three categories (Filho et al., 2018):

1. Impacts on the biological systems (fires);
2. Impacts on the physical systems (floods and droughts); and
3. Impacts on human and management systems (food production, health, migration).

The UNFCCC was adopted in 1992. It had created the COP in the early 1990s in order to negotiate the Kyoto Protocol, finalised in 1997. The Kyoto Protocol is a legally binding contract for developed countries to set target for reductions in their greenhouse gas emissions (Stordalen et al., 2013: 4; Henson, 2014: 368; Kuyper et al., 2018: 344). Global climate governance has since then undergone a challenging transformation. Betrill et al. (2015: 1) argue that global climate governance is predominantly a system of governance run by the UNFCCC and its Kyoto Protocol of 1997. Kuyper et al. (2018: 344) do not expect a single framework convention to deliver on the goal of reducing of greenhouse gas emissions. However, the UNFCCC is joined by governance bodies and organisations formed outside of governments, including the private sector, non-governmental organisations, and subnational actors (e.g. cities). Therefore, the governance of climate change is delivered at regional, national, and sub-national levels. A successful case of this is the United Kingdom's adoption of a landmark climate change act in 2008 following the Kyoto Protocol. The adopted act mandated an 80% reduction of six Kyoto greenhouse gas targets by 2050 from the countries' first recorded levels in 1990 (Henson, 2014: 388).

In December 2015 the UNFCCC held the landmark COP21. 175 parties adopted the Paris Agreement (entered into force on 4 November 2016), historic in its outcome as the first international climate agreement (Alcaraz, 2018: 310; Verner et al., 2016: 1). Popovski (2019: 2) states the agreement as a “decisive landmark for global action to stop human-induced climate change”. The Paris Agreement replaced the Kyoto Protocol. It was considered the multilateral organisation's transitional shift from targeting historically industrialized

countries' emissions under the legally binding Kyoto Protocol, to promoting voluntary contributions (NDCs) from countries under the new agreement (Kuyper et al., 2018: 345). However, it must be noted that indications of how successful the implementation of the agreement will be are still very uncertain (Popovski, 2019: 5).

The UNFCCC reached an agreement in 2015 to “pursue efforts to limit the global temperature increase to 1.5°C above pre-industrial levels” (Hulme, 2016: 222). In the Paris Agreement the COP invited the IPCC to release a special report in 2018. This report was to assess the impacts of global warming of 1.5 °C above pre-industrial levels and to target greenhouse gas emissions relating to climate change. It was considered pertinent for the UNFCCC to approach the IPCC to prepare such a report. The IPCC is made up of several governments, the same that engaged in the negotiations for the Paris Agreement. It is this intergovernmental makeup of the IPCC that many think makes it successful and influential (Hulme, 2016: 222-224). The report made it explicitly clear that the impacts of climate change are rapidly increasing and the results are alarming. The report concluded with high confidence that between 2030 and 2052, global warming would reach the 1.5°C threshold and the added that consequences of climate change are becoming increasingly alarming. The predicted warming would cause damaging and irreversible long-term changes to the climate system (IPCC, 2018: 6-7).

2.2.2.2. Trump administration turning its back on Climate Change

“The Paris Agreement is more about political theatre than addressing climate change” (McKinley, 2018). There has been much debate around the legitimacy and credibility of the Paris Agreement. By signing the Paris Agreement in 2015, the United States (USA) agreed that by 2025 it would cut the economy-wide greenhouse gas emissions by between 26% and 28% from the levels recorded in 2005. By June 2017 newly elected President Donald Trump announced the US's withdrawal from the Paris Agreement. Trump argued that the reasoning behind the Agreement was to jeopardize the US economy and its workers deliberately. The President further argued that, while jeopardizing the US economy and undermining its people, the Paris Agreement was granting a ‘free pass for years to come’ to China. Trump's Republican following boldly supported the President's decision (Barrasso, 2017).

Trump's withdrawal was met with much disagreement. By November 2018, at the time of midterm elections, the Democrats managed to retake the House of Representatives (loosely

referred to as Congress). What came next represented hope for environmentalists, citizens of the USA and around the world. It proved that not all US delegates were in agreement with President Trump's denial of climatic issues. With the support of 224 Democrats, the issue of climate change was introduced, once again, as a key priority for the USA, with the document "H.R.9" created by the Climate Action Now Act (Sauer, 2019).

2.2.2.3. A transition from the Millennium Development Goals to the Sustainable Development Goals

In June 1992, the same year as the adoption of the UNFCCC, 178 countries embraced Agenda 21 at the Earth Summit held in Rio de Janeiro, Brazil. The summit was held to provide a platform for discussions on a global scale on combating the most prominent environmental, health, and social challenges (Sitarz, 1993: 3). Agenda 21 is a plan of action for sustainable development to foster the improvement of individual lives and preserve oceans and forests (SDG, 2019). The roots of these goals were to be found in several all-inclusive UN summit conferences taking place from the 1990s (Cooper et al., 2007: 80). Since the beginning of the 21st century, public and private sectors internationally have aimed to reinvigorate discussions on sustainable development through the use of the MDGs and subsequently the SDGs. The goals are a manifestation of international efforts to operationalise sustainable development in countries via local policies and politics (Dauvergne & Alger, 2018: 40). Ajayi (2014) looks at this operationalisation in the Niger Delta (a region of Nigeria) by analysing the implications of climate change for the success of the MDGs achieving their goals in the region.

The MDGs were replaced by the SDGs in 2015 by UN member states. The states had pledged commitment to a new global agenda that would work to eradicate poverty and help foster sustainable development (Sterling, 2016: 208-209; IPCC, 2018: 22). The SDGs moved the content of environmentalism and global environmental politics away from being prioritised as merely a 'green issue'. Instead, the SDGs placed people at the forefront of the targets by seeing a connection between the environment and natural resources and issues of justice, rights, access to water and energy, urbanization, and poverty (Dauvergne & Alger, 2018: 41-42). While the 17 goals and 169 targets by no means comprehensively address what is needed, the SDGs truly represent the powerful unity of nations coming together to agree on the priority of global sustainable development (Sterling, 2016: 208-209).

2.2.2.4. *The Rockefeller Foundation and Lancet Commission*

There has been an increasing development of private actors' (for example, the Rockefeller Foundation and Lancet Commission) with interest in world politics. These private actors hold power in the global order and are able to shape global social and health policy. Despite popular belief that the involvement of private actors such as the Rockefeller Foundation is a recent phenomenon, the Foundation became active in the early 20th century (Eckl, 2014: 92). It was established by 'oil baron' John D Rockefeller, who was considered to be the richest man on earth at one stage in the mid-1930s. It faced much opposition, facing claims that the Foundation was a partisan actor in promoting Rockefeller's interests. As a result, the trustees concluded that the Foundation should limit its activities to a range of 'non-controversial' subjects, including agriculture, medicine and public health (Eckl, 2014: 97- 98). But the Foundation is no longer merely a philanthropic private institution, limited to issues of global health and agriculture. Despite this, it has arguably been highly successful in elevating the field of global health as no other organisation could do. It has been able to establish cooperation in matter of health as a legitimate venture between governmental and private institutions (Birn & Fee, 2013: 1618).

The published report by the Lancet Commission of 2009: *managing the health effects of climate change* highlights the direct and indirect drivers of climate change as a multiplier of existing threats to global health (Costello et al., 2009: 1694). To ensure the protection of public health on a national, international and global scale, climate change must be made a priority for governments, multinational organisations and citizens (Riddle et al., 2019: 3; Rylander et al., 2013: 1; Negev et al., 2019: 311; Watts et al., 2017: 1151). In 2015 the Rockefeller Foundation and the Lancet published a landmark report on the introduction of a new conceptual framework that would include climate change and global health: planetary health. The Lancet Commission recognised the threat of climate change and its impact on health, and responded in introducing planetary health. The 2015 Lancet Commission on Health and Climate Change identified, defined and conceptualized the marriage between climate change and health. It has become a highly cited keystone report by the Rockefeller Foundation-Lancet Commission as it introduced a new, growing field: planetary health. Planetary health will be further explored in Chapter 4.

The magnitude of centuries of human impact on our planet has resulted in many researchers and scientists adopting the idea of the "Anthropocene". Anthropogenic impact means that

every Earth system, from the upper atmosphere to the most bottomless pit in the ocean, has in some way been modified by human activities (IPCC, 2018: 6-7). Seltenrich (2018: 1) and Meyers (2017: 2861) suggest that, when looking at this impact through an environmental health lens, the crucial connection between human health and the food we consume, the water available, and the air we breathe, becomes evident. The director of the Rockefeller Foundation, Michael Myers, stated that “we’re now at a tipping point in which the exploitation of the environment is beginning to harm human health. The same natural systems that have benefited us for so long, are now beginning to collapse” (Seltenrich, 2018: 1). The final report of the Rockefeller Foundation-Lancet Commission on planetary health aims to address this. Planetary health situates human health within human systems; the field identifies the main vectors of risk as having being created by humans themselves. This is evident when considering the implications of climate change for human health, as the primary contribution to increasing climate change is human-induced greenhouse gas emissions (Horton & Lo, 2015: 1921). Chapter 4 identifies, defines and conceptualizes the evolution, agenda and challenges of planetary health.

2.2.3. Climate-related Contention

Serdeczny et al. (2015) explore the connections between climate change and human health in a Sub-Saharan African context. Strodalen et al. (2015) noted the limited attention paid to the catastrophic implications of climate change in three areas in particular: politics, security, and economics. However, the literature addressing these three areas of contention has expanded enormously in recent years (Miller, 2017: 89; Riddle, 2019: 2; Brooks & Boeger, 2019: 75-76). Despite the historical evolution and institutionalisation of climate change, there is still much debate taking place in several fields on its implications. These fields are identified in Figure 2.1 (Section 2.1) as the eight dominant circles.

2.2.3.1. The Securitisation of Climate Change;

2.2.3.2. The Global Inequalities Revealed by Climate Change;

2.2.3.3. A Gendered Perspective on Climate Change; and

2.2.3.4. Climate-related Reasons for People Moving.

2.2.3.1. The Securitisation of Climate Change

“Climate change acts as a threat multiplier in that it exacerbates already fragile situations and creates even more political instability” (Kendall, 2019: 97). The early 20th century saw

predictions of climate change as a threat, but limited and remote. However, the securitisation of climate change has only increased in representation and importance in the political arena. The international community is paying increasing attention to the security risks of climate change (Brown et al., 2007: 1142; Floyd, 2008: 61). Brzoska and Frohlich (2015: 190-191) argue that climate change will result in resource scarcities, which in turn will drive migration and limit societies' adaptive capabilities, resulting in destabilisation and violence. Gwynne Dyer's book *Climate Wars* (2011) sees climate change as a significant security threat on a global scale. Dyer's book does not merely look at the conceptual attributes of climate change, but exposes the existing and potential security challenges of climate change for nations. These issues include economic losses and social disruptions.

Moreover, there has been a shift in the fields of political science and international relations, as lines become blurred regarding what should be considered as traditionally "high politics" and "low politics". By seeing climate change as an international security threat, there has been a significant evolution. This is because in these fields threats are no longer regarded as simply related to international peace and security, which could be resolved by direct military intervention. Critical theories, for example GT, have emerged as a way of challenging this traditional idea of IR (Kendall, 2019: 86). Security studies in the 21st century have broadened the scope of security politics by introducing a variety of transnational phenomena being defined as potential threats. These include climate change, which has become a large part of international security discussions as a newly defined threat to security (Parsons, 2010: 87). These threats were first mentioned in 2007 at the UN Security Council (UNSC) debate on climate change security. Climate change is seen as a security risk as it can impede the development of a nation. It is projected to accelerate dramatic and long-lasting economic, human, and political unrest associated with catastrophic security consequences (Chmutina et al., 2018: 460-461; Parsons, 2010: 89). However, it must be noted that security risks can often be difficult to attribute only to climate change as several other factors are also at play, such as poverty, food insecurity, and corruption (Schafer et al., 2016: 90).

Schafer et al. (2016: 76) see regions highly prone to climate-related security risks as those "with extreme resource scarcity, regions with high levels of an existing conflict, and regions with exclusive identities" (Brzoska & Frohlich, 2015: 203). Weak, developing nations will be areas in which the effects of climate change will be felt the most directly (Parsons, 2010: 89). Poorer nations are faced with the heaviest burdens of the impact and security risks associated

with climate change, yet they contribute the least in its emergence (Friel et al., 2011: 198). While Western countries tend to focus mainly on border and energy security as related to climate change, South Africa, Thailand and India are focusing on food and water climate-related security threats (Schafer et al., 2016: 90).

The high possibility of several populations of low-lying islands being displaced permanently from their sovereign territories creates the idea of a global future where climate-displaced populations will be numerous and a threat to global security (Farbotko et al., 2015: 534). An example of this is shown in the Lancet Commission 2017 Global Health Film Festival. The chairperson of the film festival, Munir Muniruzzaman, pointed out that in the preceding few years India had been building a ‘security’ fence along the border with Bangladesh. Bangladesh is predicted to be one of the countries to experience the worst effects of climate change. The disruptions will result in the mass movements of people (mainly to India) in response to these climate change impacts. Thus, the ‘security’ wall built by India can arguably be considered as an act of securitisation in response to climate change (The Lancet, 2017: 2429).

2.2.3.2. The Global Inequalities Revealed by Climate Change

“The poorest will be hit earliest and most severely” (Byass, 2009: 1). This comment indicates that the effects of climate change are felt the most severely by vulnerable, poor populations, particularly those from developing countries (Schwerdtle et al, 2009: 2; Skillington, 2012: 1196; Dreher & Voyer, 2014: 58; Kjellstrom & McMichael, 2013: 5; Negev et al., 2019: 311; Mohamound et al., 2014: 6-8; Preet et al, 2010: 1-2). Russo et al. (2016) conclude that Africa will feel climate-related risks the most severely as a result of rising temperatures and disruptions because of the frequency, duration and intensity of heat waves. Negev et al. (2016: 311) and Amegah et al. (2016) link these rises in temperature and the disruptions caused by heat waves to an increase of cardiovascular diseases, cholera, and climate-related deaths. In particular, Sub-Saharan African populations will bear the heaviest burden of the effects of climate change, resulting in the most severe human consequences (Byass, 2009: 1; Bickton, 2016: 70-71).

SIDs have a unique vulnerability to climate change, climate variability, and rising sea-levels (Robinson, 2015: 670). Sharma (2019) sees population growth and climate change as keeping SIDs from being able to stay on track in successfully achieving several of SDGs by 2030.

Climate change impedes the development of any nation, regardless of location or the size of the economy (Chmutina et al., 2018: 460). Because of the clear vulnerability of SIDs to the effects of climate change, Stordalen et al. (2013:2) sees SIDs as being vastly represented, in comparison to the limited representation received by larger vulnerable populations of the ‘hotspot’ developing nations (Africa, South Asia, and Latin America) (Schwerdtle et al., 2019: 2). However, SIDs tend to experience little to no development, as they are highly exposed to environmental events, sensitive to stressors, and have little capacity to respond effectively to the implications of a rapidly changing climate (Barnett & Waters, 2016: 731; Robinson, 2015: 670). SIDs have small but growing populations, limited availability of resources, are highly susceptible to natural disasters, vulnerable to external shocks, very dependent on international trade, and have particularly vulnerable environments. SIDs are highly susceptible to climate change-related sea-level rise, storm surges, and coastal destruction (Sharma, 2019). Coastal destruction is a significant effect of climate change for many living close to coastal regions. The Food and Agriculture Organisation (FAO) suggests that fish are the primary source of animal protein for approximately 200 million people across nations in Africa and SIDs. Overfishing, water pollution and the destruction of coral reefs are reducing the availability of fish. As a result, economic loss and increasing food insecurity are experienced by millions (Kolding et al., 2016).

Moreover, land food consequences are also largely susceptible to climate change as “in developing countries, even small amounts of warming will lead to declines in agriculture production as crops are already close to critical temperature thresholds” (Skillington, 2012: 1196). In 2009, as a way to adapt to the climate uncertainty experienced in the agriculture sector, climate smart agriculture (CSA) was developed. CSA aims to provide globally suitable guidelines on managing agriculture for food security in response to the effects of climate change. CSA is a way of providing a base for policy support and recommendations by multinational organisations (for example, FAO and IPCC) (Lipper et al., 2018: 15; Whitfield, 2016: 172). Several countries in tropical and subtropical regions are additionally vulnerable to rises in temperature and extreme weather events, affecting their water balance, rain distribution, yield, and seasonal harvest times (Dinar et al., 2008: 1). The need for adaptation to climate change has therefore become a highly relevant discussion in the scientific and political realms.

In August 2017 Kenya made headlines by banning the use of plastic bags (Guardian, 2017). It was the first of many steps for the East African country on a path towards creating a sustainable environment. The country implemented a 2016 Climate Change Act, which has as its stated aim ensuring a healthy environment for all its citizens. However, Kenya is, and is predicted to be, profoundly affected by the negative implications of climate change. This is because of Kenya's heavy reliance on the climate-sensitive sectors of agriculture, tourism, and energy. Despite common belief, an increase in rainfall does not necessarily lead to an increase in agricultural production. Many rain-fed smallholder farmers (which make up 75% of the total agricultural output of Kenya) rely heavily on weather predictability as their yield is highly dependent on seasonal predictability. More unpredictable timing and spacing between precipitations is detrimental to farmers' livelihoods and can lead to adverse health outcomes. Increasing ambient temperatures causing prolonged droughts as a result of climate change can also lead to an increase in farmer suicide (Padhy et al., 2015: 3).

Climate change-related global inequalities are increasingly shown through developing nations' lack of funding for adequate health-care systems, as well as their low capability to respond to the increasing burden of climate change impacts (Rylander et al., 2013: 2; Negev et al., 2019: 311). Awofeso and Aldabk (2018) use cholera as an indicator of this inequality. Increased infection and mortality rates result from a lack of technology and development in health care supplies and infrastructure. Communicable diseases, such as cholera, and the limited availability of adequate medical responses by developing countries, will result in higher mortality rates than those of developed countries (Semenza & Suk, 2018: 1; Riddle et al., 2019: 3). Inequalities are even prominent in the suggested adaptation strategies. Kjellstrom and McMichael (2013: 5- 6) note the unequal medical facilities available in developed as compared to developing countries: “[a]ir-conditioning is standard infrastructure in all hospitals in high-income countries with very hot seasons, but in low-income countries, this is not true”. This lack of technology, equipment, and mitigation facilities is highly likely to have negative impacts on patients as well as on progress in treatments (Byass, 2009: 3).

2.2.3.3. Climate Change: A Gendered Perspective

In developed, wealthier countries, climate change is conceptualized as impacts caused by technological growth (e.g. industrialization), and it is understood and analysed through the

application of scientific principles. These issues are seen as solvable through technological advancement, the adequate management of resources, and economic expansion. On the other hand, in poorer, developing countries, climate change is instead framed in terms of social dimensions as the ethical consequences and environmental injustices are felt on ground level. Those who are contributing the least towards climate change, bear the biggest impacts of it. In addition to these climate change-related global inequalities and environmental injustices, women in low- and middle-income countries experience escalated vulnerabilities because of climate change (Rylander et al., 2013; Preet et al., 2010). Gender and poverty, specifically in the Global South, are major determining factors in who experiences the worst detrimental implications of climate change (Owusu et al., 2017: 13). It can perpetuate a “vicious circle whereby, the more women are affected negatively by climate change, the worse the inequalities get. And the worse the inequalities felt, the worse the impact becomes” (Eastin, 2018: 291). The study by Preet et al. (2010) concludes the differentiation of the burdens of climate change¹³ faced by men and women in developing versus developed countries. In both cases women are still largely unrepresented in policymaking, policies, and research (Alston, 2015: 55).

However, the vast majority of research on gender and climate change mitigation factors is focused on rural communities, with particular reference to poor urban migrants moving from these rural communities to urban areas (Owusu et al., 2017: 3). Gender is a crucial determinant when analysing vulnerabilities to climate change impacts because it intersects with several social, economic, and institutional variables. Mental and physical outcomes of extreme weather events and slow-onset climatic changes directly and indirectly affect women. Women in traditional male-headed households are often left to care for the sick and raise their children as men leave in search of better work opportunities. Daily activities are made more strenuous as drinking water becomes saline and agricultural land is destroyed. Those vulnerabilities felt by women are often not mentioned in policies and are generalized without any gendered perspective (Preet et al., 2010: 4-5). These variables create different degrees of vulnerability for men and women and therefore should be addressed differently (Owusu et al., 2017: 3; Van Aelst & Holvoet, 2016; 41). Climate change fosters a gender-specific variety of risks that create disproportionate burdens for women. Not only does this

¹³ Preet et al. (2010: 5-6) conclude that an enhanced process of including gender into policy and not just into research is vital to address the burdens created by environmental impacts such as climate change. Women need to be included at all levels of the decision-making process.

allow pre-existing gender inequalities to re-emerge, but it also reinforces and strengthens current inequalities (Eastin, 2018: 289).

There is limited research available on women and the detrimental effects of increased heat exposure, urbanization, declining food availability, limited freshwater access, and increased exposure to extreme weather events. There is, however, consensus that women of low-income and middle-income countries tend to spend additional time performing day-to-day activities as a result of these variables. These activities include collecting water, farming, and other household essentials including cooking, cleaning, looking after the sick, and raising children (Kjellstom, 2009: 87; Preet et al., 2010: 2; Eastin, 2018: 290). Women are the backbone of households in several traditional cultures, resulting in women performing the essential daily tasks and burdened by caring for the sick and weak. These burdens will magnify under climate change, as it accelerates the spread of communicable disease such as cholera, malaria, and dengue (Rylander et al., 2013: 4; Negev et al., 2019: 312). Consequences of these gender inequalities include undermining a women's ability to achieve economic independence, and maintain their good health and wellbeing (Eastin, 2018: 290).

Furthermore, Gaard (2015: 23) states that women and children are fourteen times more likely to die in ecological disasters than men (Gaard, 2015:23). Climate change multiplies the already existing gender-based health disparities. Both men and women do suffer health impacts as a result of climate change. Globally, women and girls are increasingly sensitive to higher rates of malnutrition and climate-driven food insecurity. This is due to their distinct needs during pregnancy and menstruation (Sorensen et al., 2018: 2). Pregnant women, particularly those in developing nations, are faced with more burdens stemming from climate change; food and water security in these nations is highly climate-sensitive. Climate sensitivity leading to limited access to food, inadequate sanitation, and unsafe drinking water results in women and children facing malnutrition and becoming severely underweight. It is more likely for underweight women to give birth to underweight children, while other pregnancy complications tend to lead to higher rates of infant mortality (Preet et al., 2010: 3-4; Rylander et al., 2013: 4-5). Women and children who survive climate change-related disasters are then often faced with issues of sexual assault. These assaults may occur in refugee camps and at the hands of people who prey on the vulnerabilities of these women by providing 'solutions' with an ulterior motive. Climate-driven sexual assaults can occur in developed and developing countries. An example of this is that, after Hurricane Katrina, a

category 5 hurricane that made landfall in Florida and Louisiana in 2005, rapes were reported by dozens of survivors finding refuge in overcrowded shelters (Gaard, 2015: 23).

Lastly, a topic rarely mentioned in climate change research is the vulnerability of the LGBTQ+ community to climate change. The LGBTQ+ community “already live on the margins of most societies, denied rights of marriage and family life, denied health care coverage for partners and their children, denied fair housing and employment rights, immigration rights and more” (Gaard, 2015: 844). Climate change exacerbates these burdens on marginalized individuals, who are less likely to have the capabilities to mitigate impacts as a result of homophobic behaviour (Gaard, 2015: 844).

2.2.3.4. Climate-related Reasons for People Moving

“Experts now estimate that by 2050, 200 million or more people will be displaced from their homes due to climate change” (Miller, 2017: 89). Climate migration is in serious need of requiring active responses from governments and intergovernmental organisations (Schwerdtle et al., 2018: 5). Present debates are addressing the inadequacy of existing institutions’ capabilities of managing increases in migrant flow, as a result of climatic influences (Miller, 2017: 91; Schwerdtle et al., 2018: 5). Climate change is foreseen as contributing to substantial increases in human population movements in the coming decades (McMicheal, 2015: 548; Riddle et al., 2019: 3). Multiple environmental drivers of migration exist, yet climate change can exacerbate these drivers even further (Schwerdtle, 2019: 1). Firstly, individuals are on the move in response to climate change, and secondly, their vulnerabilities are further exacerbated by climate change while they are on the move. Migratory flows are highly likely to be shaped by climatic influences including food availability, water sources, air temperature (both increases and decreases in temperatures), and environmental conditions (McMicheal et al., 2012: 646). The physical and social repercussions are detrimental as the increased vulnerability of populations to climate change can lead to forced displacement, planned relocation, or migration (McMicheal et al., 2012: 648; Serdeczny et al., 2015: 1586). Increases in climate-related migration are seen as a significant security risk, particularly by the Global North. This is because of the negative image painted of people displaced from the Global South as a threat to the success and lives of people in the Global North (Brozoski & Frohlich, 2015: 190; Dreher & Voyer, 2014: 70; Lister, 2014: 623; McMichael, 2015: 549- 550).

Climate change acts a catalyst for migrants to lose parts of their identity, culture, and livelihoods (Miller, 2017: 90). It should not be addressed only a matter of science, but also as a vital social and cultural phenomenon affecting every sphere of a nation's future development (Weir et al., 2017: 1026). There are emerging issues, beyond the pure science of climate change, that require more profound engagement with its human implications regarding values, fears, and people's individual experiences (Tschakert et al., 2017: 1). Farbotko et al. (2015: 533) point out that SIDs' identities are challenged by several wide-ranging issues arising from sea-level rises and the increased frequency of extreme weather events. Farbotko et al. (2015: 534) ask: "How does such knowledge affect how people feel about their lives and circumstances?" The challenges to the livelihoods of SIDs include moving away from family and friends, the destruction of community buildings, and the destruction of religious buildings. Those islanders who are aware of the science of climate change and predictions present, constitute their states populations as climate change migrants. These individuals living in SIDs start to question their identities as islanders due to sea-level rise. These questions may heighten fears of the disruption of identity, culture, and livelihoods (Miller, 2017: 90-91).

A challenging feature of climate change is the adverse health issues experienced by people on the move. Impacts on health from climate change include physical injuries, mental illness, malnutrition, heat exposure, and the spread of communicable diseases. Riddle et al. (2019: 4), McMichael (2012: 647), and Scherdtle et al. (2019: 2) focus strongly on the climate-related health implications of direct and less direct heat exposure as a result of increases in temperatures. Direct exposure to climatic change (including heat waves and other extreme weather events) has negative health outcomes. Less direct exposure also has negative health outcomes including disruptions to social support networks and disruptions in the geographic and seasonal patterns of several communicable diseases. Disruptions to supportive social networks, identity, and culture may have adverse effects on the mental health of migrants. The connection between climate change, people on the move and health will be further discussed in the next section. "Climate change has been recognised as both one of the biggest threats and the biggest opportunities for global health in the 21st century" (Verner et al., 2016: 1).

In order to successfully address the research problem facing IR scholarship, as an epistemic community, of failing to define, describe, and explain migration within the context of

planetary health, the relationship between climate change and global health needs to be fully explored.

2.3. Global Health

Climate change is widely acknowledged as one of the most severe global threats to future generations' development and health. Therefore, in order to address the first research question – *Does planetary health suggest an agenda for the relationship of climate change and GH in IR?* – the following issues are addressed in the sections below:

- 2.3.1. The conceptual evolution of health;
- 2.3.2. From international health to global health;
- 2.3.3. The emergence of institutional health governance; and
- 2.3.4. The connection between global health and climate migration.

Understanding the conceptual evolution of 'tropical medicine' to 'global health' is essential as it indicates the ideological movements and consequences of global phenomena (such as globalisation, the industrial revolution, and climate change). It places the institutionalization of health within the global context. It is vital to provide an in-depth examination of the institutions that govern health on a global scale, such as WHO and PEPFAR. These institutions address global health challenges, support policy creation, and foster partnership agreements, associating them closely with issues such as the health risks of climate change. The conceptual clarity and institutionalization of global health have not been able to resolve significant issues facing the international community. There are still contentious discussions around health and its relation to security, mental health, global inequalities, gender inequalities, and people on the move.

2.3.1. The Conceptual Evolution of Health: Tropical Medicine, Public Health, and International Health

Health issues have been debated as an aspect of the subject of transnational political cooperation since global efforts made in the 1800s to contain the communicable diseases that were hampering colonisers in their endeavours. Cooper et al. (2007: 15-16) and Armstrong-Mensah (2017: 1-3) identify the evolution of global health through three historical periods: the mid-19th century to the early 20th century; the early 20th century through to the 1980s; and the 1990s to the present. The historical roots of GH can be traced back to the emergence of

tropical medicine, public health, and international health (Armstrong-Mensah, 2017: 1; Havemann & Bosner, 2018: 1; Buekens, 2012: 1). These three fields have contributed to the core makeup of the unique field GH.

Tropical medicine is considered to be an outcome of colonialism. It sought to identify, diagnose, prevent, and treat ‘new’ and unfamiliar diseases that European colonialists were exposed to when entering tropical regions in their colonising enterprise (Havik, 2018: 81; Buekens, 2012: 2). The Industrial Revolution emerged in the late 18th century. With it came urbanisation, as people moved from rural to urban areas in search of work and higher wages. Britain's citizens moved into the cities, which resulted in massive overcrowding. Several health problems skyrocketed as sanitation, housing, and the demand for food could not meet with an adequate supply. A landmark report released in 1842 by Edwin Chadwick,¹⁴ the Report on the Inquiry into the Sanitary Conditions of the Labouring Population of Great Britain, exposed the vast number of public health challenges that affected Britain at the time (Armstrong- Mensah, 2017: 2). By the mid-19th century, the British government had taken steps to address the dire health situation of its working-class citizens with reforms. Through an accumulation of efforts, the first Public Health Act was passed in 1848. The term ‘public health’ was coined as part of the government's responsibility to protect and preserve the health of the country’s citizens (Armstrong- Mensah, 2017: 3).

2.3.2. From International Health to Global Health: A Look at Globalisation

Following the introduction and increased recognition of planetary health, the global community turned its focus to international health. With the re-emergence of communicable and non-communicable diseases, increased malnutrition, and maternal and child mortality, international bodies searched for ways to strengthen, control, and manage the health of the developing world (Buekens, 2012: 2). Armstrong-Mensah (2017: 5) states that, unlike the way that the field of tropical medicine is said to have emerged from European imperial repression, international health is said to have born out of European benevolence towards the developing world. Fidler (2005: 366-368) questions the intentions underlying international health, asking whether international health is in fact an ambitious foreign policy effort by the members of the international community to address health issues experienced by the

¹⁴ Edwin Chadwick (1800-1890) was a civil servant whom Morley (2007: 67-68) describes as “a key player in the meshing of medicine with the moral and political economy of Britain” Chadwick is regarded as one of the British public health pioneers.

developing world, or whether it is instead rather a health field driven by the greed of European capitalists' interests. Despite this and similar questions, international health has become an important poster child for providing the necessary health aid needed by several nations that fall apart of the developing world (Buekens, 2012: 3).

Before the 20th century nations were primarily concerned with the health issues that affected them directly. However, globalisation has had an increasing impact on the healthcare demands presented by people worldwide (Havemann & Bosner, 2018: 2). Havemann and Bosner (2018: 2) suggest globalisation is best understood as “the rise of transplanetary connectivity”. Globalisation has led to the breakdown of barriers of communication, trade, travel, and global consciousness. Through the intensification of economic, social, and physical interconnectedness, complex contemporary global health challenges have emerged (Cooper et al., 2007: 6). GH challenges are transcending national borders and are calling for further coordinated policy responses and diplomatic interventions (Rucker et al., 2016: 61). Globalisation has led to many issues, such as climate change, becoming a major part of the global agenda. Brown et al. (2007: 1141) and Serdeczny et al. (2015: 1585-1586) note that many people see climate change as merely an “environmental problem”. The conceptual underpinnings of GH have paved the way for identifying the interconnectedness of such problems to be exposed as plural rather than singular. Maibach et al. (2010: 9) see the importance of redefining climate change and other environmental problems in public health terms. These environmental implications must shift away from merely being defined as abstract problems that do not affect individuals' daily lives, and instead, be defined as consequences that can significantly impact day-to-day activities negatively (examples including asthma, allergies, and communicable diseases).

2.3.2.1. Conceptual Clarity: Global Health

It is essential to understand what the concept GH means to the international community and how relevant it is to the changing world we are currently living in. Concepts embody ideological leanings and therefore indicate whether policy interventions will take place. Like many discipline-based concepts, there is no accepted global definition of what exactly GH entails. Authors tend to give GH several different definitions, suggesting the term GH emerges as part of a more extensive existing political and historical process, rather than as an absolute conception. Its foundations can be traced back from IH (Brown et al., 2006: 62), public health (Havik, 2018: 80), and tropical medicine (Banta, 2001: 74; Jain, 1991: 113).

Armstrong- Mensah (2017) provides the historical background to the significance of GH in today's context. It is an umbrella term which enables the concept of GH to amalgamate all the specific and separate elements and dimensions of the earlier conversations, making it a unique and multidisciplinary enterprise (Havemann & Bosner, 2018: 4). Havemann and Bosner (2018: 12) identify GH as being made up of three combined elements: health and disease; society and environment; and political and healthcare systems.

In order to fully understand the concept of GH, it must be placed in the context of current fields of health disciplines. This thesis draws on the discipline of International Relations (IR). Rucket et al. (2016: 66) focus on the meaningful engagement between the fields of IR and GH. This reveals the political agendas, ideological leanings, and present-day relevance. However, the authors tend to see both sides of a coin, as they indicate the negative implications of the relationship between IR and GH. Several authors (Rucker et al., 2016: 66; Taylor & Dhillon, 2011: 56) comment on how traditional IR scholarship has made a clear distinction between what is known as 'high politics' (economic growth and security risks) and 'low politics' (environmental issues and health issues). In today's increasingly borderless world, and with reference to the securitisation of health, this separation is becoming increasingly out-dated and highly unreliable (Cheng et al., 2015; Serdeczny et al., 2015; Schwerdtle et al., 2019).

2.3.3. The Institutionalisation of Health

Through the evolution of health and the conceptual clarification of the term GH, several institutionalised responses emerged. Several institutes of health have been established, including the WHO, the Rockefeller Foundation (see section 2.2.2.4), and PEPFAR. This section will begin with an account of the evolution of the WHO, then briefly describe the Rockefeller Foundation, and lastly, outline the main elements of PEPFAR.

2.3.3.1. The World Health Organisation Talks "Global Health"

One cannot fully understand the origins, elements, and responses of GH without a brief understanding of the WHO and its role in global responses to health issues. The League of Nations Health Organisation had been formed in 1922, placing the global health agenda at the forefront of the international agenda. In 1948 the League of Nations Health Organisation was renamed the World Health Organisation at an assembly in Geneva, Switzerland (Brown et al., 2006: 64; McCarthy, 2002: 1111). Brown et al. (2006: 64) suggest that renaming this

organisation the WHO indicated its global perspective. The WHO's constitution gives it a broad mandate to promote the fostering of the "highest possible level of health" for all people, regardless of race, religion, political belief, economic or social status (Cueto et al., 2019: 3). The WHO's importance is shown through the recognition of World Health Day, which takes place every year on 7 April in honour of its establishment (McCarthy, 2002: 1111).

The Cold War had a considerable influence on the internal conversations within the WHO because of its influence on the policies, personnel, and decisions made by the organisation. The Plan, as a primary contributor to the WHO funding, had the capacity and 'right' to intervene when thought necessary. The Soviet Union and its allies left the WHO in 1949. As a result, the USA could easily exert its dominance over the WHO. The political balance of the World Health Assembly experienced a shift once again in 1956, as the Soviet Union returned to the WHO (Fee et al., 2016: 1912).

The WHO can be portrayed as a dominant player, as it is acknowledged as an international leader in matters regarding health and disease. WHO is seen as a centre agent of the global arena, as scientists, physicians, and health policymakers turn to it when seeking answers. However, this dominance was placed in jeopardy in the changing political environment of the 1960s and 70s. It was in the 1980s that the WHO began to bargain for power with the emergence of several other global agencies, including the World Bank (WB) (Reddy et al., 2018: 3). The WHO's credibility and convening authority had been hampered by the presence of these newer global agencies. "WHO is caught in a cycle of decline, with donors expressing their lack of faith in its central management by placing funds outside the management's control" (Godlee, 1995). The organisation was facing funding shortages, a rigid hierarchical structure, and a near impossible task of prioritising in the face of unrealistic demands (De Cock et al., 2013: 1192-1193).

Controversy continued to attach itself to the WHO as a Japanese researcher, Hiroshi Nakajima, was elected head of the organisation in 1988. He was the first-ever Japanese head of any UN agency. The USA and its allies had not supported the nomination of Nakajima. The performance of the Japanese head did not reassure those with doubts about his election as he seemed to have little ability to communicate effectively, and his tenure was riddled with talks of cronyism and corruption (Brown et al., 68).

It became clear that the WHO had to begin to work to reposition itself as an authoritative institution, global coordinator, and strategic planner, following the embarrassing setbacks it had experienced (Brown et al., 2006; De Cock et al., 2013). In an attempt to restore credibility and accountability, Gro Harlem Brundtland was elected as head of the WHO in 1998. Brundtland was the former prime minister of Norway and a public health professional. Brown et al. (2006: 69) note Brundtland's significant background in environmental affairs as she had chaired the UN World Commission on Environment and Development of 1994, which produced the influential Brundtland Report. Godlee (1995: 1493) indicates the importance of this report as it illustrates Brundtland's evident knowledge of the connection between health and the environment.

The WHO financial agency, under the newly appointed leadership, was improving through restored relationships with stakeholders, including a significant partnership with the Bill and Melinda Gates Foundation. The foundation committed US\$15.3 billion between 1994 and 2011 to aid international programmes to prevent and eradicate communicable and non-communicable diseases in poorer countries as part of the foundation's GH programme (Youde, 2013: 10). Yamey (2002: 1172) suggests that under Brundtland's leadership, the WHO attempted to use global health governance as an organisational and strategic instrument which promised the survival, indeed the renewal, of the organisation's authority on a global scale (Brown et al., 2006: 70).

On 29 May 2020 an address by US President Trump in the Rose Garden blind-sided the organisation and the world when he announced the US intended to withdraw from the WHO. The USA has been a part of the organisation since 1948 (Rotella et al., 2020: 1; Joseph & Branswell, 2020: 1). The announcement came 11 days after Trump's administration had sent a list of reforms to the WHO, threatening to withdraw if the demands were not met. "Global health was our bipartisan moral leadership that had been preserved through this administration" (Joseph & Branswell, 2020: 4) was the response by Amanda Glassman, executive Vice-President of the Centre for Global Development. The US government is the administration Glassman is referring to as the soft power governing global health.

"It's making an earth-shattering decision in the middle of the greatest health crisis we've experienced literally out of pique and whim, without any deliberative process" (Joseph &

Branswell, 2020: 3). Trump's announcement has come under heavy scrutiny, which is intensified as the world is faced with the COVID-19 pandemic. The withdrawal of US funding from the WHO will have major implications for the delivery of essential health services and for progress in the search for a COVID-19 vaccine globally. However, the WHO has also been faced with scrutiny. The lack of effectiveness in countering the spread of COVID-19 and its history of unresolved fundamental structural issues during crises of the past have been criticised. President Trump's administration wishes to replace the US funding of the organisation with "direct aid to foreign countries, creating a new entity based in the State Department to lead the response to outbreaks" (Rotella et al., 2020: 4).

Trump's decision comes in the midst of tensions in China-US relations during the COVID-19 pandemic. "The world is now suffering as a result of the malfeasance of the Chinese government. China's cover-up of the Wuhan virus allowed the disease to spread all over the world; instigating a global pandemic that has cost more than 100,000 American lives" (Trump, 2020). The use of the term "Wuhan virus" is an acknowledgement that the president sees China has having complete control over the administration of the WHO, as China is able to ignore WHO regulations with no repercussions from the organisation.

2.3.3.2. The President's Emergency Plan for AIDS Relief

"Seldom has history offered a greater opportunity to do so much for so many" (Bendavid, 2016: 257). This comment is taken from the 2003 State of the Union speech on 28 January 2003 by US President George W. Bush. The President outlined the US\$15 billion commitment made by the US over five years to fight against AIDS in the most affected nations of Africa and the Caribbean (Bendavid, 2016: 256). Congress authorised the President's Emergency Plan for AIDS Relief (PEPFAR) in May 2003 to enhance the treatment of citizens living with HIV/AIDS in the developing world, and to provide care for their families (Venkatesh et al., 2012: 1429). PEPFAR partners with government agencies, private institutions, and non-governmental organisations (NGOs) in order to provide care and antiretroviral treatment (ART) for those already infected with HIV/AIDS and tuberculosis (TB), as well as to improve countries' public health, prevent further transmission of TB and HIV, and strengthen health capacities. The influential support for an increasingly established cause did not come without controversy. The establishment of such an extensive foreign aid programme in the early 21st century went against much of the thinking at the time regarding foreign aid (Bendavid, 2016: 258).

Moreover, to dismantle the stigma attached to the treatment of HIV/AIDS, Kakaire et al. (2016: 2) suggests that HIV/AIDS should be ‘normalized’ into the same category as any other chronic condition to allow funding models to reflect more closely the economic and social realities faced by a country affected by the virus. Upon PEPFAR’s establishment, an immediate hurdle to its success was the cost of providing antiretroviral (ARV) therapy. PEPFAR’s initial guidelines set out by the Office of the Global AIDS Coordinator stated that all ARVs purchased must have been approved by the Food and Drug Administration (FDA). This prevented PEPFAR from making use of generic ARVs, as the FDA had approved only brand names. Because of the cost implications, this limited the number of patients able to receive ARTs. However, after the Global AIDS Coordinator recognizing the need to start accessing generic ARTs instead, by the end of 2007 more than 90% of ARTs provided in eleven of the PEPFAR focus countries were generic (Venkatesh et al., 2012: 1430). In 2016 PEPFAR reported its support for 11.5 million persons living with HIV on ARTs, which represented a 50% increase from 2014 (Raizes, 2017: 805). The multinational organisation also accelerated capacity building and the expansion of healthcare systems (Raizes et al., 2016: 805; Venkatesh et al., 2012: 1435).

2.3.4. The Connection between Global Health and Climate Migration

“Climate change is now viewed as the defining issue for the 21st-century health system by the WHO” (Every-Palmer, 2016: 16). In September 2015 the Director of the WHO, Carissa Etienne (an American), pledged her allegiance in targeting the challenges of climate change and health. Two years later, in 2017, the newly elected WHO Director-General, Dr Tedros Adhanam Chebreyesus of Ethiopia, saw that “health systems must be sensitive to the needs of migrants” as he prioritised the engagement of climate change, health and migrants (Riddle et al., 2019: 4).

Global health is highly influenced by global phenomena, including the industrial developments and climate change. This section on global health and climate change will illustrate the connection between global health and climate change concerning people on the move. Despite the framework of conceptual clarity, historical evolution, and the institutionalisation of GH, disputes within global health are still very much present. Among the disputes in global health are issues of security, changes in disease vectors, mental health, and global inequalities.

2.3.4.1. *Global Health, People on the Move, and Mental Health*

Several authors (Hayes et al., 2018; Sorensen et al., 2018; Rylander et al., 2013: 1) argue that people on the move are highly susceptible to health-related challenges. These migrants face not only health issues, but also endure “layered challenges”, or “multilevel challenges”. Multilevel or layered challenges are faced by individuals (in this case, people on the move) who are experiencing challenges not only from moving from one region to another, but who also experience multiple other challenges that are climate-related, health-related and security-related, as well as gender inequalities, political instability, and racial discrimination. These challenges are further aggravated because of the already vulnerable nature of these marginalised groups and by global phenomena such as climate change.

Forced displacement, planned resettlement, and migration leaves people in extremely vulnerable and dire positions (McMichael et al., 2012: 648). Riddle et al. (2019: 3) point out the high economic costs that accompany movement from one place to another. People are likely to be exposed to overcrowded settlements, unsanitary conditions, limited or no access to adequate health care, and poor nutritional status. There are three explicitly identified dominant barriers to the wellbeing of people on the move:

1. The emergence and re-emergence of IDs, including cholera, malaria, and dengue. IDs thrive in overcrowded and unsanitary areas (Schwerdtle et al., 2018: 2-5; McMichael et al., 2012: 648-649);
2. Reduced access to healthcare services as population pressures become too much to handle for existing health establishments, as well as cultural and language barriers affecting the services being provided (Awofeso & Aldabk, 2018: 96; Wu et al., 2016: 21-23);
3. The mental health of these individuals is negatively impacted as a result of disrupted social systems and these individuals have a higher risk of being exposed to violence, discrimination, stigma, and sexually transmitted infections (STIs) (Berry & Brown, 2010: 123; Byass, 2009: 2; Negev et al., 2019: 312; Every- Palmer, 2015: 16).

Climate change thus has variety of health consequences for migrants. Not only is climate change expected to affect the physical health of people, but it is also highly likely to affect their psychic health. Droughts, increasing ambient temperatures, rising sea levels, floods, and

other repercussions of climate change can produce adverse psychological outcomes including stress disorders such as post-traumatic stress disorder (PTSD), mood disorders, anxiety disorders, dementia, and suicidal thoughts (Padhy et al., 2015: 3-5). Climate change can lead to economic hardships for people on the move and societies dependent on agriculture. Agricultural land may be encroached upon by rising sea levels, desiccation, or flooding. Increased levels of stress and helplessness occur as the communities are strained under economic pressure. These economic constraints can impact negatively on the availability of healthcare in these areas (Padhy et al., 2015: 5).

2.3.4.2. The Securitisation of Health

“With disease rising as a threat to the state’s material power and wellbeing, states have started to engage public health governance with more intensity” (Cooper et al., 2007: 45). The “new” (21st century) GH concerns cross all borders as governmental and multilateral institutions aim to alleviate poverty and provide successful health services globally. The economic implications (De Cock et al., 2013: 1196), security risks (Ooms, 2014: 3-5; Rucket et al., 2016: 63), and social stigmas (Harrison, 2017: 2429) are a few of the several aspects discussed when addressing the globalisation of disease. IDs have become a priority when limiting the effects of globalisation on health (De Cock et al., 2013: 1194). Ooms (2014: 3-4) says that heads of state tend to identify health security risks through the cross-border nature of globalisation, as disease vectors are no longer limited to or remain within singular borders. Climate change further exacerbates the securitisation of disease. Vector-borne and water-borne pathogens are disrupted, people are exposed to new diseases when on the move, and diseases begin to move cross international regions with the movement of people.

Framing the risk of climate-related conflicts as a health issue exposes the profound health implications of these climate-related conflicts. Pressures on health determinants (food prices, agriculture production, and the increased risk of conflict) all pose a challenging risk to the political stability, economic prosperity, and the well-being of citizens in a country. Conflict fuelled by climate change is a critical causal path in exacerbating these risks. The predicted increased frequency of extreme weather events, unpredictable precipitation patterns, and increases in temperatures, particularly in Sub-Saharan Africa and parts of South Asia, may rupture established social fabrics and disrupt perceived resilience.

Climate change has already resulted in several civil conflicts. An example includes the argument that climate change may have contributed to triggering the Arab Spring protests in 2010-2011. In 2010 the world's wheat prices had doubled as a result of several extreme and intense climatic events in the wheat hubs of Russia, Ukraine, and Canada. The extreme vulnerability of many Arab countries, specifically those in the Middle East and North Africa, to the impact of this was a consequence of their low incomes and high reliance on imported wheat. These Arab countries' governments were unable to meet the demands of their citizens and questions about their legitimacy consequently arose. Thus, climate change was a likely significant contributing factor to the wave of rebellions across the region (Bowles et al., 2015: 393).

Conflict is detrimental to health at all levels of society in several different ways. These include its direct implications, involving violence, strained health-care systems and destruction of infrastructure, and its indirect implications, involving the conflicts facilitating conditions conducive for IDs, malnutrition, mass migration, overcrowding, disruptions to social systems, and lack of sanitation and shelter (Bowles et al., 2015: 390- 394).

2.3.4.3. The Global Inequalities of Health

“The poorest and most vulnerable nations in the world that have contributed least to global warming are bearing the brunt of climate change” (Harrison, 2017: 2429). To mitigate and prevent health consequences, accelerating the transition away from fossil fuels towards clean, renewable energy, is arguably one of the necessary global actions to be taken (Hathaway & Maibach, 2018: 201). Despite the predominance of the environmental and economic risks of climate change, the associated health risks are becoming increasingly recognized. It is important to note that these health risks will be distributed according to levels of inequality, with the poorest and most vulnerable communities experiencing the heaviest burdens (Bowen & Ebi, 2015: 80). Climate change will have the most considerable impact on the most sensitive systems of a nation: agriculture, health, and water. Under nutrition, water-borne and food-borne diseases (e.g. diarrhoeal diseases) will thrive in these regions. These consequences form a substantial portion of the global burden of diseases, particularly among vulnerable by people on the move, those in conflict-prone regions, women, and children (Bowen & Ebi, 2015: 80; Hathaway & Maibach, 2018: 197; Simane, 2016: 28).

In addition, the most vulnerable citizens of the developing world do appear to recognise the changes to specific climatic conditions where they are living. These citizens understand that the changing climatic conditions are having deleterious health impacts, even though the majority have not even heard of the concepts ‘climate change’ or ‘global warming’ (Hathaway & Maibach, 2018: 201). These developing nations are most vulnerable to the consequences of climate change as it impedes the gains made in their development, exacerbating the social and economic challenges faced by their citizens (Simane, 2016: 28). These vulnerable populations often do not have the economic capability to adopt successful mitigation options fully, and instead are left with a rise in communicable diseases, depleted healthcare systems, and variability in agricultural production. Vulnerable citizens are left to deal with poor air quality, increased mortality rates due to floods and storms, and malnutrition as a result of the limited agricultural production and water supply. The economic, physical, and physiological burdens on rural households and individuals are magnified immensely (Simane, 2016: 31- 33).

Sub-Saharan Africa (SSA) and Pacific Island Countries (PICs) are among those most vulnerable to the health impacts of a changing climate. These vulnerabilities are only increased as a result of the limited capacity of these countries to adapt and manage such risks. PICs are particularly vulnerable as a result of their “unique geographic, demographic, and socioeconomic characteristics, combined with their contemporary burden of ill-health and relatively low health systems capacity” (McIver et al., 2016: 1708).

Observed rates and projections indicate that warming over South Africa is taking place at twice the global rate. Unless significant international action is taken to reduce global greenhouse gas emissions, temperatures could potentially rise more than 4 °C in the Southern African interior by 2100. This increase is 2.5°C over the Paris Agreement’s 1.5°C optimal outcome (McIver et al., 2016: 1709; Chersich et al., 2018: 6). Chersich et al. (2018: 1) see the increasing challenges that climate change has created for South Africa and its citizens, especially as it targets the numerous vulnerable groups in the country. Climate change exacerbates the pre-existing vulnerabilities of fishing communities, rural subsistence farmers, those living in informal settlements, and women in particular. Policy uncertainty and talks of corruption have hindered the country's response to the impacts of climate change. Important implications of a rapidly changing climate for South Africa include:

- Direct effects including heat exposure, infrastructure damage, and lack of health system capabilities to respond to extreme weather conditions;
- Indirect effects of climate change impacts including the transmission of vector-borne and water-borne diseases;
- Mental health impacts as a result of extreme weather, malnutrition, and violence, as climate change could signal a tipping point for many already vulnerable South African citizens (Cherich et al., 2018: 6-8);
- UNICEF reported that South African children are highly vulnerable to the consequences of climate change, as they face higher risks during extreme weather, malnutrition, and respiratory disease from increases in pollution and pollen (UNICEF, 2011: 1);
- Rainfall irregularities, increases in temperature, and reduced soil moisture may lead to migration, as many of the country's citizens living in informal settlements are reliant on natural resources (firewood and seeds) and rain for their survival (Cherich et al., 2018: 8);
- The threat is even further exacerbated in the country because of the population's reliance on natural resources, and rain is the basis of the livelihood of the majority of the HIV/AIDS-infected population of South Africa (Simane et al., 2016: 35).

2.4. Conclusion

This chapter has described the increasingly complex relationship of climate change, health, and people on the move. The direct and indirect consequences of climate change for health are important at a national, international, and global level. The World Medical Association urges national governments to “facilitate the active participation of health sector representatives in the creation and implementation of climate change preparedness plans and emergency planning and response on local, national, and international levels” (McGushin et al., 2018: 2-3).

Climate change is defined as a long-term global phenomenon mainly created through the burning of fossil fuels (human-induced activities). It includes changes in temperatures, sea-level rises, ice mass loss, and increases in extreme weather events. Defining the concept reveals ideological leanings and determines policy interventions. Several multilateral organisations have evolved as a means of confronting and addressing the increasing impacts of climate change. These organisations include the IPCC, UN SDG, UNFCCC, COPs, the

Lancet Commission, and Rockefeller Foundations. Despite the valiant, optimistic goals set by these institutions, several alarming contentions continue to exist. These include the implications of climate change and security, communicable and non-communicable diseases, gender inequalities, global inequalities, and migration.

Climate change is widely acknowledged as one of the most severe threats to global health. Health systems have transitioned from tropical medicine to public health and international health. As diseases have re-emerged and child mortality rates are rising, international bodies search for ways to strengthen, control, and manage the health of the developing world. As globalisation expands and economic, social, and physical interconnectedness intensified, there was a need for an increase of coordinated policy responses and diplomatic interventions. Institutionalised responses to these challenges include those of the WHO, the Rockefeller Foundation, and PEPFAR. These multilateral organisations' responses have been both praised and criticised.

Global health is susceptible to rapid changes in an increasingly globalised world. This chapter addressed disputes emerging in responses to climate change and climate-related migration. Forced displacement, planned resettlement and migration leave people in extremely vulnerable positions. These migrants endure layered challenges as they are further susceptible to health issues, security issues and inequality. The poor and most vulnerable bear the heaviest burdens of climate change-related challenges, even though they contributed the least to the phenomenon.

3. Theoretical Antecedents: Ecological and Global Health Studies

3.1. Introduction

Chapter 2 introduced direct connections between ecological studies and global health studies. It drew upon the following meta-narratives:

- Institutionalisation of ecological studies and global health studies;
- The securitisation of climate change and health issues;
- Existing global inequalities in climate-related health issues;
- A gendered perspective on the impacts of climate-related health implications; and
- Climate-related migration.

When identifying overlapping areas between what academics, scientists, and policymakers are saying in the fields of global health and ecological studies, one is able to see emerging trends in their respective agendas. Chapter 2 laid the foundation for this chapter's theory; it provided a review of the literature on ecological and global health studies. Chapter 2 identified security, justice, institutionalisation, and gender as all the major overlapping variables in the fields of global health and climate change, whilst still relating to the overall conversation of migration.

On a theoretical level, Chapter 3 seeks to identify a relationship between the variables through looking at the genealogy of global health and GT. The chapter aims to represent the theoretical makeup of ecological and global health studies. This is important for successfully answering the research questions as the background of planetary health and its principles derives from both fields of study. Ecological studies have a much longer history and therefore will be introduced first in this chapter; this will be followed by an account of the theoretical principles of global health studies. This chapter will proceed as follows:

3.2. GT will be introduced as the main theoretical root of ecological studies. This chapter does not attempt to provide full details of the several strands of GT (due to time and space constraints), but provides a holistic overview of its meaning and timeline;

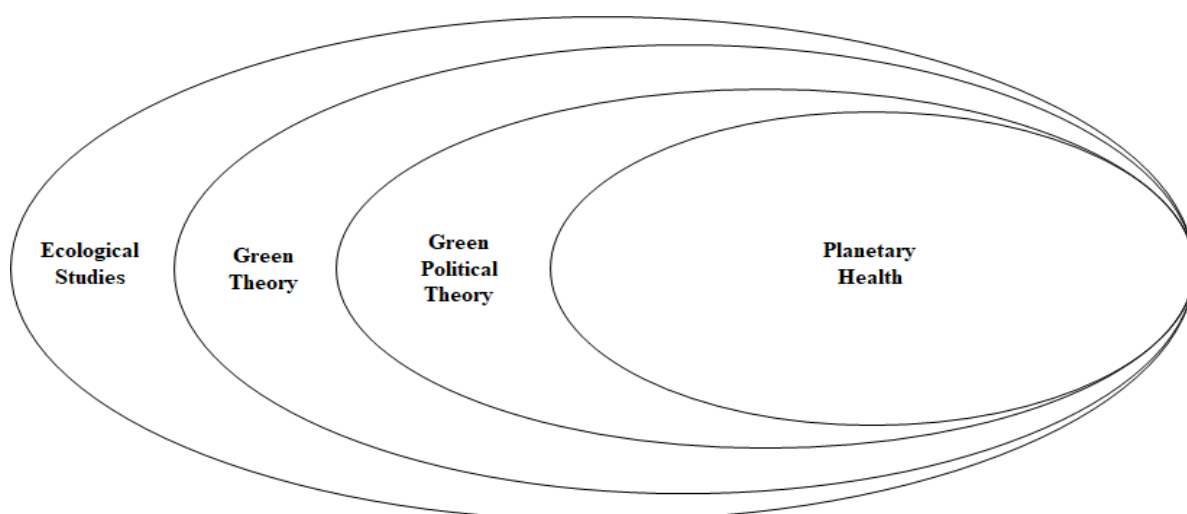
3.3. Global health (GH) theory will be presented by offering the main theoretical narratives within the field. These include social justices, gender equity, and the global political economy of health, security, migration, and GHG.

On the basis of both GT and GH theories discussed this chapter, Chapter 4 will present a heuristic framework offered as a planetary health agenda addressing problems associated with modern migration. This proposed conceptual framework works as a tool in providing an answer to the presented research question: What are the implications of implementing the principles of planetary health as a response in resolving the challenges of migration?

3.2. Green theory

To address the research problem holistically, the historical underpinnings and theoretical make-up of planetary health need to be examined. Many of the features and principles of what is known as planetary health today stem from elements of GT. Throughout this section the academics, clinicians, politicians, and theorists who have contributed to, and continue to develop, ecological studies will be referred to as the 'Greens'. Greens view the world as a holistic system guided by relationships, particularly the relationship of human interactions, with the natural world. Their focus is not on the scientific method exclusively, but rather institutions are seen as the key to understanding this important relationship (Martin, 2000: 10).

Figure 3.1: Genealogy of the Greens



Source: The author

Figure 3.1 illustrates the genealogy of the broader realm of ecological studies. It starts with the emergence of ecological studies and GT as environmental concerns become a topic of interest, tracing its roots back to rapid industrialisation beginning in the 18th century. As urbanisation and industries expanded, environmental concerns increased because of the impact of industrialisation on the environment, such as air pollution (causing respiratory illnesses) and water pollution (rapidly increasing the spread of water-borne diseases such as cholera). Green political theory was popularised by the 1990s. Planetary health is seen as the last circle in the figure as it has gained popularity as a concept after the 2015 release of the *Lancet Commission* report on planetary health. The principles of planetary health are a formation of the multiple elements of all the circles illustrated in Figure 3.1. This section will begin with the IR response to the emergence of ecological studies and, as a consequence, the emergence of GT out of the Frankfurt School of thinking in order to address a gap. It will present a rationalist versus a positivist approach as this section indicates and expands on the elements that make up GT. From identifying the elements of each approach, two dominant schools of thoughts have emerged that focus on justice and security. The Greens' focus is particularly on justice by addressing the opportunities and challenges inherent in combating the human-induced environmental scars of the past.

3.2.1. The Greening of IR: Rationalist versus Positivist Approaches

With the globalisation of environmentalism, environmental concerns have been brought forward into the global arena as involving more than merely addressing environmental problems. Instead, environmental concerns are understood to involve issues of security, justice, gender, and health. The IR discipline has two sides. On the one side lies the rationalist, traditional approach of orthodox IR theories, including realism and liberalism. On the other, clear deficiencies in these approaches have created an opportunity for more reflective, critical approaches to bring new perspectives to the discipline; two of these perspectives are GT and feminist theory. Environmental issues have historically left their mark on multiple branches of social science studies. It was only in the late 1980s that a distinctly 'green' political and social theory emerged as a means of giving a collective voice to social movements including environmental, peace, anti-nuclear, and women's movements. There are multiple strands of the Greens. This chapter does not pretend to cover all of them, but instead will concentrate upon a select few key themes of GT.

Green politics or ecologism dates back to the revolt against rapid industrialisation spearheaded by the Third Industrial Revolution of the 1980s (Eckersley, 2004: 249). Reflective, critical approaches saw rapid economic growth and the modernisation promoted by rationalist theories feed the ecological crisis. Heywood (2013: 50-51) sees green politics and ecologism as interchangeable; for the purpose of this chapter these concepts will be used interchangeably. As the ecological crisis grew in the 1980s, so did ecologism and green politics. The term 'green', in the political sense, was first coined in Germany by the Green Party (Giddens, 2009: 52). By the 1990s, Green political theory had been established to challenge the traditional outlooks of socialism and liberalism (Eckersley, 2004: 250).

“Nothing can be moral that is in conflict with the physical realities of our existence, or cannot be seen to fit within the natural laws of our environment” (Westra, 1994: 92). This comment represents the Greens' defining need to preserve environmental integrity and achieve sustainable development. Westra (1994: 92-93) defines green politics as engaged in the crucial relationship “between humankind and the natural world: humans are part of nature, not its masters”. Similarities of this notion can be found in the principles of planetary health (discussed in chapter 4). GT and ecologism are a response to the 'by-products' of day-to-day human activities. These by-products are “the stowaways of normal consumption” (Beck, 1992: 40). These everyday human activities result in increased greenhouse gas pollution and destruction of natural habitats. There are four pillars “defining what it means to be green in the new millennium” (Giddens, 2009: 52). Sustainability and respect for diversity were added as the fifth and sixth pillars later on (Giddens, 2009: 52). The original four pillars were:

1. Ecological responsibility;
2. Social justice;
3. Non-violence;
4. Participatory democracy.

These four pillars are the basis of the green rejection of other orthodox, traditional theories as their priorities lie in opposing corners. Green theorists expose rationalist theorists as merely approaching environmental problems with pre-existing theoretical frameworks (Eckersley, 2007: 248). GT is associated with the ideas of the Frankfurt School, also known as critical theory (Laferriere & Stoett, 2006: 86). It challenges the ecological blindness in the traditional IR discipline (Humphrey, 2001: 3). Positivist theories, including GT, reject the notion of a

hegemonic existence. Rather, they promote biodiversity as they explicitly acknowledge that humans and the state all form part of the same larger ecosystem (Eckersley, 2007: 259). These ideas have been adopted into the emerging field of planetary health, which will be explored in section 3 of this chapter. The focus is on humans and nature; specifically, the deep connections between human beings and the natural world as they live side-by-side (Dobson & Lucadie, 1993: 199).

This chapter explores the distinct nature of GT's approach to climate change. GT approaches to phenomena such as climate change are massively different from mainstream approaches of IR to the same phenomena. GT fully acknowledges climate change as a global issue and identifies ecological problems in all aspects of IR concern (Humphrey, 2001: 3). Greens suggest that responses to ecological crises must be directly dealt with through negotiations and honourable commitments among international actors.

Rachel Carson's bestseller *Silent Spring* (1962) was an influential book which influenced public opinion and awareness of the environmental consequences of day-to-day activities. "The road we have long been travelling is deceptively easy, a smooth superhighway on which we progress with great speed, but at its end lies disaster" (Carson, 1962). *Silent Spring* traces the history of chemicals to a look at modern-day insecticides (Isenberg, 2012: 21). *Silent Spring* captivated the global arena, exposing the effects of the unregulated use of insecticides, particularly dichlorodiphenyltrichloroethane (DDT). Carson exposed the harsh consequences of DDT on human health and the natural world. DDT had been used in Europe and the South Pacific during the course of the Second World War (WWII) as a means of controlling the insect vectors of dengue fever and malaria. After WWII DDT became a common domestic and agricultural pesticide in the USA (Dunn, 2012: 2). *Silent Spring* soon became the Bible of ecology in presenting the fear of the unknown regarding human-induced chemical technology (Travis, 2012: 84).

Moreover, *Silent Spring* motivated a pivotal shift in the US population's views of environmental progress and provided the blueprint in presenting what ecologically damaging means for harming human and planetary health (Dunn, 2012: 3; Mauch, 2012: 230). In an era of rapid industrialisation, new technology, increased use of electronic appliances and a global space race, Carson challenged the American post-WW2 "dream" culture. As a result of *Silent Spring's* increasing popularity, industries, government researchers, scientists, lobbyists, and

public servants worked hard to challenge, undermine, and discredit Carson (Travis, 2012: 85; Isenberg, 2012: 24). However, *Silent Spring* continued to generate challenging ideas as it launched the US citizens' campaign to ban the use of DDT. This campaign became so successful and widely recognised that it led to tighter regulation of all pesticides in the USA (which eventually rippled across the border to other countries), and was the main contributor to the formation of the US Environmental Protection Agency (EPA) in 1970 (Dunn, 2012: 4).

Greens critique the negative environmental implications of traditional, orthodox theories. They reject prioritising national interests and the exponential promotion of economic power. Greens have a huge mistrust of capitalism and markets, viewing big businesses and corporations with considerable hostility. They are not anti-science but can be considered to be anti-‘scientism’, because of their deep mistrust of the use of science and technology; science and technology should be rejected if they cause any harm to human beings or to the natural world (Giddens, 2009: 53). An example of this anti-scientism is greens having little trust in nations, governments, and businesses that have deliberately and willingly contributed to the staggering extent to which the world is currently experiencing climate change. The pace of rapid industrialization has reached its capacity and economic destruction is an indication that this continual growth and resource depletion is ultimately leading to lower quality of life globally and causing major damage to the biosphere.

3.2.2. Green Theory's Approach to Justice

With increases in industrialisation and developed countries' dependence on developing countries for resources to fuel growth, oppression and inequality have only increased over time (Laferriere & Stoett, 2006: 87). Green theorists expose global ecological injustices from the scars left by colonial rule. Theorists argue that an ‘ecological debt’ is owed by the developed world to the developing world because of developed countries' oppression of developing countries under colonial rule (Barry, 2014: 2; Humphrey, 2001: 4). Developing countries soon realised that replicating the magnitude of industrialisation processes in the North is far from automatic in the South (Clapp & Dauvergne, 2011: 47; Buell, 2014: 267). Consequently, several developing nations are left with the challenging decision to devote expenditure to economic growth rather than focusing on building social services such as healthcare and access to education.

Furthermore, this North-South conflict precipitates conflicting approaches to climate change negotiations between rationalist and positivist approaches of IR (Paterson, 1996). Climate change negotiations are dominated by Western ideologies and institutions. Western countries' concerns fail to consider issues beyond their own borders, as developing countries are left out of climate change negotiations as they are too busy playing "catch up" from the constraints of colonial rule. "Ecological debt" leaves developing countries without a seat at the negotiation table, as these developing countries often have issues of higher priority to take care of. These include poverty, malnutrition, corruption, and lack of infrastructure. This has led to the negotiations being dominated by Western ideas and ideologies, and arguably, as a result, the geopolitical leadership of the global order is unable to respond holistically to the prevailing global environmental threats (Elliot, 2004: 223). When one analyses the relationship between developed and developing countries development imperative is revealed. Developing countries have a right to develop economically to compensate for the colonial constraints of their past. However, this development in industry among these developing countries playing a "catch-up" game will inevitably lead to increased greenhouse gas emissions, which will in turn only aggravate concerns about climate change.

The issue of environmental consequences has been firmly inserted into the international political economy (IPE). IPE has largely been dominated by 'big' issues of trade, finance, and development. Now newer concerns with the 'softer' issues of environmental protection and social justice have emerged in the field over the last few decades (O'Neill, 2009: 160). Greens are heavily concerned with the social structures that function within modernisation and sustainable development (Eckersley, 2007: 258-260). GT challenges the structures of the existing international system, opposing the established institutions of dominant powers, shaped by both big business and governments (Giddens, 2009: 52). Rather, Greens offer alternative structures based on justice, ethics, and ecosystem harmony (O'Neill, 2009: 18). This introduces a much-needed focus on human identity in to the discourses of IPE.

Poverty is a major issue of justice in the discourse of GT. Giddens (2009: 64) suggests that poverty, particularly in developing countries, is directly linked to population growth. Arguably, population growth is one of the main causes of increased pressure on vulnerable resources. Over-development with total disregard for green alternatives is an injustice in itself. The economic growth of the affluent societies of the developed global North's increases rapidly, while the wider consequences felt by developing societies in the global

South also increase. Increases of greenhouse gases by non-green development methods only accelerate the detrimental consequences of climate change, leading to increases of forced migrations and displacements (Giddens, 2009: 67-68).

Furthermore, Greens use the term ‘polluter pays’. This is easily conceptualised; those who cause higher pollution levels (with the release of greenhouse gases as the main contributor) are the ones who should pay for the proportion of harm they cause. This is realised and implemented through climate change taxes. The term also refers to countries that have reaped major benefits from the release of greenhouse gases in the past (developed countries); they should be the ones to make the largest cuts to their emissions at present. Greens do admit that this is a difficult notion to quantify. The consequences of some actions may only be seen in a few years’ time and are therefore difficult to address over the short-term. Despite these limitations, the notion of polluter responsibility is able to bring climate change into the overarching sphere of global politics and policies. Developed countries and private corporations who reaped the rewards of a colonial past, have a moral duty to pay back their debts (Giddens, 2009: 68).

3.2.2.1. Injustice: Through the Eyes of Women

Green perspectives give voice to several narratives, as they stand proudly against the destructive effects of traditional theories’ exclusive focus on economic power and sovereignty. Race, class, and gender form these narratives. Different strands of ‘green’ scramble to make sense of these narratives, with the core ideal to uplift marginalised individuals in a globalising world. The concept of injustice tends to arise within the narratives of race, class, and gender. Women living in poverty are particularly susceptible to bearing the burdens of the consequences of climate change. Feminist strands of green explore the root causes of climate change by including of gender, colour, sexuality, and economic status into the conversation. Ecofeminism sees the disjunction between environmental sciences and environmental humanities. While the effects of climate change will be felt by people across the globe, they will be felt the most harshly by those with the least ability, whether in terms of gender or economics, to mitigate its impacts. “Around the world, women’s gender roles restrict women’s mobility” (Gaard, 2014: 6). Women in traditional and non-traditional communities are left to look after the sick, young, and elderly. Accelerated changes in climate only increase these demands on women as the physical and mental health consequences of extreme weather events and changes in disease vectors intensify. Women

move to the informal economy, resulting in economic losses as they are no longer contributing to the country's formal economy. When women have no other choice but to migrate, they often end up living in unplanned, temporary settlements. Here they become susceptible to being exposed to sexual assault, trafficking, mental health issues, communicable and non-communicable diseases, pregnancy complications, and physical strain. Changes in temperature and location leave women with heavier burdens, as it takes much longer to perform everyday activities because of the lack of space, resources and equipment, among other issues.

Furthermore, it is necessary to note that men are often the main family members to migrate from rural to urban areas in search of employment. In such cases women are often left with the roles of subsistence farming, fishing, and collecting water, on top of their tasks of cleaning, cooking, and raising children. The people of several developing nation lead a precarious economic existence as subsistence farmers or they are reliant on fishing (Ahmed et al., 2010: 218). They often have limited access to resources and healthcare services, and the informal nature of their living conditions leaves them with no chance of receiving adequate warnings ahead of extreme weather events. Even if these warnings are available, individuals have little ability to mitigate many of the adverse consequences to come. GT (particularly the feminist strand) exposes the inequalities and injustices, not only for people living in developing countries, but also for women in particular as they bear the heaviest burden. Inequalities exacerbate several factors, climate change exacerbates inequalities, and inequalities exacerbate the results of climate change.

An ecofeminist perspective confirms that these injustices are most severely felt by women because of disruptions of social roles, gender discrimination, increases in gender-based violence (GBV), and worsened poverty. In traditional homes, particularly in poorer communities, the needs of women are often overlooked. In times of distress, in the case of climate change for example, women's needs and rights are often left out of policies with no special reference to their specific needs. Gaard (2014: 9) sees a trend: as increases in climate change effects occur, the result is increases in early child marriages, sexual assaults, trafficking of women and children, deaths, and infant mortality.

3.2.2.2. *Green Theory's Approach to Security*

Historically, realists (from the rationalist school) have not considered ecological crises as a matter of national security. While they acknowledge that the consequences of ecological crises do fall under IR, they do not believe this to be of special significance in the national security discourse. Without the acknowledgement of ecological crises as an aspect of national security, rationalists will only minimise the importance of planetary health; they therefore need to change their understanding of what is regarded as national security for planetary health to be improved and protected. On the other hand, schools of thought such as neoliberalism acknowledge the existing ecological problems and offer advice on how to prevent and contain the impacts on climate change (Eckersley, 2004: 248). They do not, however, offer any new forms of direct interventions or policies from this perspective. GT goes one step further by exposing the core ideologies and cultural underpinnings that are leading to the rapid increase of climate change in the first place. Green theorists oppose modernisation; they indicate that rapid development and growth precipitate major side effects for the environment and speed up the negative outcomes of climate change. These theorists identify the negative impact that these implications will have on people's lives and social conditions, to the point when they become a national security risk impacting on a state's economic status.

GT's response to industrial, technological modernisation is to offer an alternative: "ecological modernisation". Ecological modernisation was first introduced in the 1980s and indicates a linking of the environment and economy with a central role played by both science and technology. While GT does not accept the principles of capitalism as modernisation does, it instead undermines the elements of a capitalist market and state (Mol & Sonnenfeld, 2000: 6-7; Eckersley, 2007: 254-255). The economic benefit of building a synergy between more efficient capitalist development and environmental preservation is what is essential to determine the government's role and interests in a changing social system. Achieving ecological modernisation is seen to be a framework for the promotion of sustainable development, as pledging commitment to the environment starts to include technological innovation, improvements in social welfare and services, and promoting social democracy. Ecological modernisation works to analyse how industrialised societies in a globalising world are able to deal with environmental crises (Mol & Sonnenfeld, 2000: 10; Eckersley, 2007: 255).

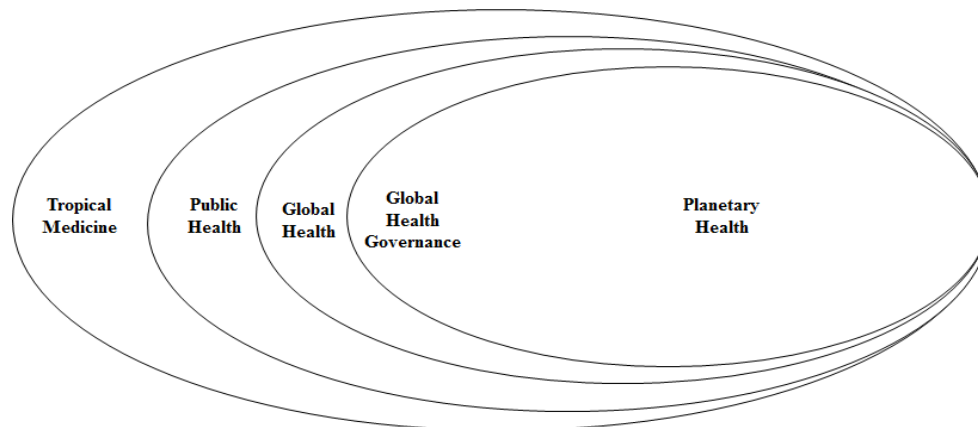
In the changing world of today, all countries continue to battle with the notion of national security, which continues to be a dominant point of discussion in the traditional political theory of realism. Traditional, orthodox theories dismiss the principles of GT as merely a second thought and do not see their place in the everyday political structure. GT undermines the elements of the state upon which rationalist theories embody. GT argues that if states continue on the trajectory of a focus on the pursuit of economic power and the protection of sovereignty, this will ultimately lead to the destruction of states own elements (Dobson & Lucardie, 1993: 195-196; Mol & Somerfield, 2000: 6). GT exposes this focus on the sovereignty of the state, where the government has absolute power, as the main contributing factor in the acceleration of the climate crisis. The only way GT sees positive environmental change taking place is by calling for full detachment from all elements of the traditional state system supported by rationalist approaches. The level of detachment called for by GT is exactly what has led to so much criticism of it; it disrupts the current global world order and years of historical thinking to push its own agenda (Feindt & Oels, 2005: 170-173). GT sees the power in collective decision-making and argue that states should rather work towards a common goal of climate change reduction before the point of no return has been reached (Dobson & Lucardie, 1993: 195-196; Eckersley, 2004: 203; Mol & Somerfield, 2000: 6). Across the globe, the climate crisis is reaching a tipping point. Orthodox, traditional theories from the rationalist school of thought underestimate the position of environmental issues in IR security. Not addressing climate change and its drastic implications only intensifies national security risks and advances the fostering of inequalities globally. Inequalities exist in the health sector of any country as the poorest populations tend to be the most affected by the physical and mental health consequences of a rapidly changing climate (Marshall, 2015: 2).

3.3. Global Health

By understanding the elements of planetary health, this paper seeks to define the underlying principles of GT and its genealogy. In order to provide a heuristic approach to understanding planetary health, the theoretical grounding of GH needs to be addressed. Similar to GT, GH issues have assumed a more prominent place on the political agenda in the global world order than seen in previous years, as environmental concerns are acknowledged as risks to national security. Rather than merely seeing the health of individuals as 'low politics', the detrimental effects of health are seen as having the potential to derail the economic, security, development, and stability status of a nation. For many, this shift has given a voice to the previously marginalised. This group includes, for example, members of the Global South, the

poor, women, and children. GHG regimes¹⁵ have assumed responsibility for targeting health concerns in developed and developing countries (Youde, 2012: 159).

Figure 3.2: Genealogy of Global Health Studies



Source: The author

Figure 3.2 presents the genealogy of Global Health studies. Each circle represents the genealogy of the theoretical background of GH studies, ultimately leading to the core of planetary health. The evolution of “tropical medicine” to “global health” is essential as it indicates growth towards the current response by scientists, policymakers, and researchers of global phenomena. The historical roots of GH can be traced back to the emergence of tropical medicine, public health, and international health. Planetary health principles are rooted in all the circles seen in Figure 3.2. Chapter 2 was able to provide a holistic historical view of the emergence of each of these fields. By seeing the genealogy laid out in Figure 3.2, a basis is created for understanding the complex nature of the existing issues discussed within the field of GH. The figure is able to show the major connection between GT and Global Health studies, which leads to the core of planetary health. Each individual circle starts from left to right in a historical timeline leading to planetary health. Tropical medicine, public health, global health governance (GHG), and planetary health are all streams of Global Health studies. This section will continue as follows:

¹⁵“The revolution in global health governance has increased the quantity and diversity of players. This development has intensified competition for leadership, influence, and resources. States, IGOs, and NGOs have long been involved in global health, but the participation of each type of player has changed. In addition, public-private partnerships (PPPs) emerged as new actors. Global health governance has truly gone ‘multipolar’ with many more players more deeply engaged than ever before” (Fidler, 2010: 9-10).

- Introduce GH and economic development, through examining the social injustices and existing inequalities of healthcare. The aggravation of these injustices by climate change will be referred to throughout;
- Examine the international political economy of health (IPEH) and the limitations placed on states' capabilities to provide effective health care as a result of factors such as corruption;
- Consider the debate on the securitisation of GH, as much fear is associated with terms such as bioterrorism and climate change, in an ever-globalising world. The place of migration within the securitisation of health will be explicitly discussed in section 3.2.3;
- Finally, global health governance will be assessed as a facilitator in addressing development, the economic status quo, and securitisation as issues under GH.

It must be noted that key overlaps exist throughout climate change and global health narratives, as one field tends to have positive and negative consequences for another. The narratives are not separate and act simultaneously. Underlying environmental, political, and economic factors can all exacerbate an already dire situation. Environmental stressors play a major role in consequences for the health of populations, specifically those in developing countries. A large number of complex, interconnected global challenges (such as climate change) are affecting the health of millions, and global governance capabilities are currently limited in their attempts to effectively respond to these issues. Climate change and health are integrally connected in several intricate ways, with each field having positive and negative consequences for the other. The interaction between GH and climate change has only further intensified conversations around security, inequality, and effective governance.

3.3.1. Global Health Inequalities and a Call for Social Justice

GH issues are diverse and there are varying degrees of interest in addressing the multitude of issues. Existing inequalities in the GH system are easily identifiable, but also incredibly complex. By challenging norms of traditional theories, health challenges have been catapulted to a central position in states' political, economic, security, and developmental considerations. Inequalities in health emerge and become exacerbated through a number of vectors. These include, but are not limited to, poor availability, overpriced pharmaceutical drugs, vaccines, the surge in the emergence and re-emergence of IDs, inadequate healthcare systems, increases in migration, corruption, lack of efficient leadership, and climate change

(changes in weather patterns, extreme weather events, forced displacement, and lack of food and water) (Cooper et al, 2007: 32).

“Of all forms of inequality, injustice in health care is the most shocking and inhumane” (Skolnik, 2012: xxi). This quote, taken from Martin Luther King, Jr., conveys the essence of poor populations’ plea in the fight for adequate healthcare and affordable medication. It represents the ethical dimension of trying to care for the health and well-being of others, whilst a ‘them’ versus ‘us’ ideology (or the ‘haves’ versus the ‘have-nots’) continues to thrive in the field of global health (Skolnik, 2012: xxviii). Developed countries have sought to contain potential threats to health at the border, keeping ‘us’ safe from ‘them’. The ‘them’ in this case refers to those poorer populations of the developing world who are perceived as the carriers of diseases, crossing borders in search of better services and economic prosperity. This image has been challenged by an increasingly globalised world, where diseases have become risks that cannot be contained at the border. These risks are no longer merely national, but have now become a high priority issue globally. Globalisation’s disruption of the ‘them’ versus ‘us’ perception has been added as an increasingly high risk to national security because of the ability of disease vectors to spread much further than before. These diseases encounter environments where public health governance and infrastructure are ill-equipped to respond to the disease effectively (Cooper et al., 2007: 47).

The human right to health has been long debated. Addressing this right at public, national, and global levels has been challenging for several countries. With the rise of globalisation, a new ‘cosmopolitan consciousness’ has become increasingly widespread. Cooper et al. (2007: 214) define ‘cosmopolitan consciousness’ as the universal norm which posits that people are all ‘fully’ human and are therefore entitled to human rights. “The recognition [is] that life is the most fundamental of human rights, and that life and health are the most precious assets” (McInnes & Lee, 2012: 66). This quote reflects the view that an expansion of global health no longer sees health as a simple matter of life or death; instead, it addresses a number of complex factors, including the notions of social justice (Brown & Moon, 2011: 14). The promotion and protection of human rights occasionally clash with several national foreign policy interests around the globe. An example of this is the mandatory quarantine and isolation measures put into place in certain situations to contain diseases at the border. Despite the increasing importance placed on human rights, populations in the Global South have little capability to exercise their basic human rights. This is largely due to governments’

limited capacity to protect and promote health and other social welfare services. The consequent limits to state sovereignty and the increased fragmentation of political authority of state actors increase the chances of a violation of the human right to health for its people (Rowson et al., 2012: 4).

“The poorest of the poor, around the world, have the worst health. Those at the bottom of the distribution of global and national wealth, those marginalized and excluded within countries themselves present an urgent moral and practical focus for action” (Brown & Moon, 2011: 14). It is often the case that the individuals and countries who contribute least to climate change are left to bear the most consequences. There are strong links between health, human development, labour productivity, and economic development (Skolnik, 2012: 12). Lack of state transparency and misuse of public funds promote poverty, which is detrimental for a population’s healthcare and services. The core function of the state is to provide physical security to everyone living within its borders (Kirton et al., 2014: 48). The state also aims to build and maintain legitimate political institutions, develop economic power, and provide social welfare to its population. Each essential function can be negatively affected by the ill-health of a population, and correspondingly, poor health can negatively affect government functioning. The weak economic status, legitimacy, and social infrastructure of a nation are contributing factors that exacerbate poverty. A number of causal paths include the following:

- When people are sick, they lose their ability to work effectively, thus limiting the economic growth of society;
- Social welfare institutions are ill-equipped and overcrowded as a result of the vast number of people in need of treatment and medication. This is especially true in developing countries, where healthcare systems already tend to be inadequate and over-utilized compared to developed nations;
- The cycle of poverty continues and expands as the economic burdens worsen;
- Women experience increased tension because of their traditional roles of housekeeping and caring for the ill;
- Increased tension among women results in raised child mortality rates as a result of malnutrition, pregnancy complications, lack of access to adequate healthcare, and increased exposure to heat and violence when migrating;

- People on the move in search of better living standards and health care systems can have negative economic and physical environmental impacts on states. This is because increased populations can result in unmanageable pressure on already fragile systems (Kirton et al., 2014: 48).

Strains on social welfare systems can have detrimental effects on the overall health of populations, and vice-versa. When addressing poorer populations with limited access to adequate and affordable medication, important insights emerge, for example, that international communities tend to prioritise certain GH issues over others. Despite technological advancements made in the medical world, such as the increasing ability of pharmaceutical drugs to treat what was previously untreatable (e.g. antibiotics), there is still a substantial gap between the rich and the poor in the availability and affordability of these medicines. The majority of global populations are unable to afford these pharmaceutical products and the cycle of poverty continues and is aggravated through unaffordable and inaccessible healthcare (Youde, 2012: 144-145). Large pharmaceutical companies' patent rights have been highly contested as a human rights violation for people living with chronic diseases, such as HIV/AIDS, because of the high costs. Chronic medication is a crucial means to prolong the lives of people who suffer from chronic diseases. Most people living with HIV/AIDS live in the world's poorest populations and already have limited ability to access ARVs, not to mention issues of affordability (Brown & Moon, 2012: 67).

The migration of health workers is another demanding concern at the core of the global inequalities of health. The concern is about the distribution of healthcare workers as the system seems to distribute them according to the wealth of populations rather than the health needs of populations. This leaves developing countries' populations stuck in a vicious cycle of poverty, as the sick get sicker, the healthy become sick, and the economy continues to decline due to a lack of healthy workers to stimulate the economy (Brown & Moon, 2012; 69).

3.3.2. Gender, Migration, and Health

There are complex causal relationships related to migration and health between the political, cultural, environmental, and structural domains. It is important to see these determinants of migration and health through a gendered lens. Health and migration are both highly gendered, massively affecting men, women, and sexual minorities differently. Climate change has

‘loaded the dice’ for already marginalised groups, particularly women, who bear the heaviest burdens of coping with a changing environment (Butler, 2016: 361). It is argued that women bear the heaviest burden in the causal links between migration and health. Women and children have an extraordinary vulnerability to violence, discrimination and sexual exploitation at all stages of migration. Moving as a result of extreme weather events and other human-accelerated environmental consequences can often lead women along irregular and dangerous routes. Once (or if) women and children reach a place of ‘safety’ (for example refugee camps), they are even more susceptible to discrimination and exploitation by humanitarian workers and other refugees. Increases in child marriage and human trafficking are reported with the increased movement of people (Abubakar et al., 2016: 2610).

A skewed media focus and fake news reports create a cycle of denial and deception. This cycle is reinforced as the poorest populations around the world continue to suffer the most. The LGBTQ+ community is by far the most neglected and at-risk population in circumstances of climate change-induced migration. The stigma attached to these individuals leaves them silent, facing invisible issues and struggles. Little academic research, political policy focus, and humanitarian aid training increases the susceptibility of vulnerable members of the LGBTQ+ community. This results in these individuals suffering in silence with no potential hope in sight (Abubakar et al., 2016: 2610).

3.3.3. Global Political Economy of Health

Despite international efforts on a massive scale, a ‘health gap’ still remains. When searching for answers, the relationship between the economy of a state and existing health inequalities has negative connotations. Increased funding by state and non-state actors has not meant an improvement in delivery, affordability, and availability of healthcare services for people across the world. This is largely a consequence of ineffective leadership and high levels of corruption. Many people associate healthcare failures to lack of funding. However, health spending has become an increasingly large component of total government expenditure on a global scale. The end of the IMF’s structural adjustment programmes (SAPs)¹⁶ has given developing countries the chance to be more than passive recipients of global generosity and

¹⁶ SAPs are administered by the International Monetary Fund (IMF) and are defined as one particularly controversial dimension of globalisation. The IMF provides loans on condition that reforms are implemented (known as the SAPs). The programme’s market-orientated policies are highly controversial and it is argued they have a detrimental impact on health (Forster et al., 2019: 1-2).

sympathy, and to become active agents in developing their own healthcare services and infrastructure expenditure. Therefore, it is not that adequate funding is not available to improve healthcare systems; it is rather the inability to make effective use of the funding provided that becomes problematic. Several factors, including corruption, civil war, and few adaptive capabilities to climate change, have meant that the developing world continues to experience high volumes of communicable diseases and mortality rates, and forced migration (Kirton et al., 2014: 61-62).

Despite improvements recently seen in social welfare systems, poverty and inequality continue to be felt soonest, and most severely, by the world's poorest populations. "Inequalities in health are not, from this perspective, limited to inequalities in the distribution of wealth but are related to inequitable access to a myriad of environmental, economic, political, and social resources" (Brown & Moon, 2011: 14). Climate change led inequity is a major contributor to health inequalities, as it tends to exacerbate the fact that rich countries continue to drive the acceleration of climate change the most, yet bear the consequences the least. Populations' vulnerabilities may vary for a number of reasons. Individuals' location is a major contributor to the extent of their exposure to extreme weather events and the availability of resources to mitigate this exposure. Areas prone to experience the biggest health-related burdens resulting from climate change include exposed areas, slums, and informal housing in areas prone to natural diseases. Another contributing factor is the limited access to adequate infrastructure and social welfare services. Therefore, social inequalities act as a double burden on an already vicious poverty cycle. Progress to achieve the SDGs is highly unlikely as countries' healthcare systems are heavily disrupted, overcrowded, and inadequate (Kirton et al., 2014: 196-197).

3.3.4. Global Health and Security

3.3.4.1. Health and Security

Once the Cold War ended, critics of traditional ideologies emerged and traditional views of national security were disrupted. The new security realm includes issues of environmentalism, gender, and health. As the security realm expands, ethical considerations in dealing with everyday civilians have become even more important than before. Globalisation has meant that issues of national security are no longer confined to a state's borders, but rather extend beyond those borders, easily becoming global security risks.

Security is no longer considered as merely a military matter that needs to be addressed with military power. Instead, security is viewed as covering issues which can extend beyond all political realms, affecting every aspect of a state's well-being (including healthcare, education, and environmental concerns). A general global consensus confirms the universal nature of health problems, thereby calling for collective governance to target these health issues at their core. Funding has increased and knowledge is becoming more readily accessible. However, not all countries on the global periphery have been able to benefit from this information as globalisation exacerbates existing issues of poverty, marginalisation, and historically-defined and -based underdevelopment. Developing nations' attempts at playing 'catch-up' by addressing their colonial scars of the past leave them with little space and few resources to harness the newer advantages of technology, the increased flow of information, advances in medicine, and the increasingly important role of the private sector in a globalising world (Youde, 2012: 137-140).

The securitisation of health provides an incentive for state and non-state actors to devote greater attention and allocate more resources to various issues which have previously been overlooked. This is not all positive, as focusing on one issue (for example Avian flu or HIV/AIDS) may divert crucial attention away from other pressing matters of public interest. In more cases than one, the focus is on the concerns of developed countries' populations when policymakers focus on communicable diseases that threaten to enter into their own borders (Youde, 2012: 144). The existing global order allows this to happen, as priority is given to what developed countries have placed at the top of their own national security risks.

Food security is a major risk to population health as its effects continue to spill over borders (Cooper et al., 2007: 77). Inadequate access to appropriate nutrition can have detrimental outcomes for a population. Malnutrition, infant and child mortality, pregnancy complications, communicable and non-communicable diseases are all examples of such consequences. Through the securitisation of food, several state and non-state actors widely accept the need to address food security as part of integrative strategies to target GH issues. Climate change threatens food and agricultural systems as a result of the changing weather patterns and extreme weather events. These all have detrimental consequences for human health, particularly in poorer countries and communities. Increases in malnutrition and infant mortality, and decreases in economic wealth are detrimental to populations, as several populations rely on local ecosystems as their source of staple food (Kirton et al., 2014: 198-

199). Disruptions to agricultural patterns and overfishing leaves populations reliant on subsistence farming with little access to adequate food sources, and often the affected individuals are forced to migrate. People on the move are even further susceptible to lack of food, water, and adequate housing. Thus, their health risks continue to rise.

3.3.4.2. Securitization of Diseases

The topic of the relationship between security and disease is not new. Until the developmental boom of the first and second industrial revolutions, epidemic outbreaks were in general isolated and targeted with the use of quarantining of people, animals, or goods infected (Kirton et al., 2014: 41-42). There are several benefits, although alarmingly high costs, to securitising diseases (both communicable and non-communicable). If not effectively addressed, communicable and non-communicable diseases pose a serious threat to humans' well-being and sustainable development. Developing countries are facing a 'double jeopardy' in terms of morbidity and mortality, given the disease burdens of their populations. Giving health issues a high priority in security policies has meant that state and non-state actors devote much greater attention, finances, and resources to issues that may have otherwise been largely overlooked. The securitisation of certain IDs may direct the attention away from other pressing health matters which require equal attention (Youde, 2012: 140). Media sensationalism identifies certain diseases as top security priorities for nations, seeing them as requiring immediate attention. However, these diseases are less likely to be the greatest risks for entire populations, as issues affecting the richer demographic seem to be given a higher priority by media outlets compared to those risks faced by a country's poorest populations. It has been determined that the health of one person increasingly depends on the health of another. The outbreaks of diseases, such as HIV/AIDs, cholera, severe acute respiratory syndrome (SARS), and measles have had destabilizing impacts on several countries. This is because of the risks that these diseases hold for the global security of a country as they threaten individuals' abilities to engage freely in economic activities (Skolnik, 2012: xxviii).

“Global health refers to the scope of the problems, not their location” (Rowson et al., 2012: 3). Globalised climate-related health issues have led to state and non-state actors targeting those issues that transcend borders. The fight against climate change has been called a 'war on terror'. Its consequences for global health issues have led to an improvement in bioterrorism preparedness and countries' response capabilities (Brown & Moon, 2012: 15). Biological warfare is the premise of bioterrorism and can be defined as “the international use

of living organisms, such as bacteria, viruses, and fungi, with the intent to cause disease, death, or environmental damage” (Rossodivita et al., 2019: 52). The influence of bioterrorism on the security agenda of countries is increasing in parallel with the rapidly increasing impacts of climate change. The use of bioweapons is represented as a national, international, and global threat to public health (Rossodivita et al., 2019: 52). Climate change, as with terrorism, cannot be addressed by single nations acting alone, but rather industrialised countries (in line with the ‘polluters pay’ principle) must come up with an effective international effort to decrease the amount of greenhouse gases they release into the atmosphere (and thereby contribute to slowing the growth of bioterrorism) (The Lancet, 2001: 1657).

The increasing use of pathogens for bioterrorism is far greater than the resources held by any nation to tackle them individually (Turner et al., 2019: 180). Different bioweapons will have different public health impacts, and these impacts can have both immediate and long-lasting social and economic costs for entire populations. The economic costs of mitigating and responding to bioterrorism may be much higher than the projected capabilities of bioterrorism (Turner et al., 2019: 180). Public opinion is incredibly important when targeting bioterrorism at a social level, because of the fear instilled by the concept of bioweapons, the use of which can result in long-lasting mental health issues for entire populations.

3.3.4.3. Migration, Health, and Security

Migration, health, and climate change are all increasingly significant issues that need to be addressed within a security framework. These issues all form part of a much larger global reality. The definitions of migrants and people on the move will be further explored in Chapter 4. Migration, health, and security represent a selection of diverse topics with extensive associated literature and it is not possible to cover all aspects of each of these wide-ranging topics in this chapter. It is through the growing genealogy of health and the emergence of planetary health, issues of sovereignty, policing, environment, and other complex matters have been included into the realm of health (Smith & Daynes, 2016: 85). Potential health risks occur at all levels of the process of migration. This is because the number of resources and services available is very limited, and there is a potentially increased risk of pathogenic or environmental exposure along the route and on arrival (Abubakar et al., 2018: 2609).

The role of human-induced accelerating environmental change in driving displacement or conflict is not fully understood. The total number of individuals on the move because of the impact of a rapidly changing environment, being forced to move in search of better economic opportunities, inadequate sanitation, poor access to adequate social welfare services, food, and water, is uncertain. However, what is certain are the health consequences felt by displaced individuals as they are vulnerable to increased malnutrition, pathogens for ID, sexual exploitation, psychological trauma, and physical harm (Myers, 2017: 2863-2864). People on the move are severely exposed to the increased (re-)emergence of IDs as changes in weather patterns result in changes in disease vectors. The IPCC has alerted the world that it is at a point of no return as the health consequences of climate change are only accelerating. People on the move for climate-related reasons suffer cumulative vulnerabilities as they are exposed to several negative impacts simultaneously. People on the move endure heightened exposure to disease pathogens, psychological trauma, stress, violence, discrimination, stigma, marginalisation, and lack of access to basic needs.

The *Lancet Commission* exposed the response to increases in migration to America and several nations of the European Union (EU) as entailing further policing of their borders in an attempt to regulate the entry of migrants considered not to be ‘economically valuable’, or who may place further stress on state facilities. People on the move are left with even further complications as their health risks and security risk ‘status’ increase simultaneously (Smith & Daynes, 2016: 85). These heightened security policies requiring increased policing of individuals crossing borders have catastrophic effects on their emotional, physical, and mental well-being. The basic human rights of climate-displaced individuals are being violated. In 2015 the *Lancet Commission* on health and climate change published an article exploring the implications of climate-related displacement (based on both natural changes and human-induced acceleration). The Commission came to the conclusion that conflicts, environmental flow, and climate change lead to major health consequences influencing migration and individuals at all stages of their movement (Lancet, 2015: 1013).

3.3.6. Global Health Governance

“Growing complexity requires more sophisticated forms of governance” (Kirton et al., 2014: 42). Globalisation has set the pace and exposes a need for a new, integrative approach to governing global health as issues have become increasingly borderless. Existing global governance systems have had little success in effectively addressing the constantly changing

contemporary health issues experienced across the globe. This is particularly true when looking at the complex causal relationships between health, climate change, and migration. Greenhouse gases have become a large part of the broader mitigating attempts to address the complicated consequences of climate change. The challenges of a globally changing environment and its implications for the health of millions of individuals have meant that issues are no longer accepted as limited solely to one nation or population. This global issue calls for a collective, solidarity-based global response (Kickbusch & Cassels, 2019: 1). GHG is the appropriate global response and can be defined as a “series of rules, norms, and principles, some formal others less so, which are generally accepted by the key actors involved” (McInnes & Lee, 2012: 101). Global health development and governance emerged in an era of globalisation with international, transnational, and intersectional linkages in order to promote improvements in Global Health and its mutual relationship with the environment (Rucket et al., 2016: 61). Since the late 1990s, GHG has grown into a multidisciplinary study, working for the protection and promotion of human health on public and international levels. The increasingly alarming disease burdens created through the link between climate change and health can only be addressed through the cooperation of various actors in GHG (Skolnik, 2012: 13).

Modern GHG regimes differ largely from those that existed in the 1960s and 1970s, and they continue to evolve in an ever-changing global order. As a result of globalisation and the undeniable threat of the climate crisis, it has become increasingly apparent that a new governmental body is needed in order to address the relationship between health and the environment. In order to deal appropriately with the complex issues of health and the environment, a World Environmental Organisation (WEO), similar to the WHO, is highly desirable (Cooper et al., 2007: 234). But it is important to note that for any form of GHG to be effective, any such organisation must embody three key attributes:

1. Globalisation largely influences the plan of action for GHG, which implies that these organisations must focus fully on the factors that transcend geographical boundaries (for example IDs);
2. Interventions cannot be made successfully by singular approaches; instead, a number of multidisciplinary approaches adopted by collective actors must be crafted as effective responses to complex issues; and

3. GHG bodies need to be transparent and accountable, as corruption will undermine their efficiency and timeliness, and their effective operation will only increase the number of individuals in dire need of intervention who can be reached (Youde, 2012: 12).

There is much debate on what the focus of GHG should be early in the 21st century. There seems to be a disjunction between the issues that are focused on and those that the recipients prioritise. Not all health issues are targeted with the same level of interest and prioritisation. Those seen as threats to the developed world (who are often the donors and hold high positions in several GHG bodies) are ranked as having a higher priority than the ones that affect whole populations in the developing world and have the highest mortality rates on ground level (Youde, 2012: 132). The US withholding funds from the WHO will have dire implications globally for individuals who need to access effective healthcare. President Trump sees the WHO as not having the guts to stand -up to China in the midst of the COVID-19 pandemic. Globalisation implies fluid borders, accelerating the spread of COVID-19 and Trump no longer sees the organisation as effective in monitoring and effectively preventing the rapid spread of the virus (Joseph & Branswell, 2020: 2).

3.4. Conclusion

This chapter presented the genealogy of ecological and global health studies. It described the 4 pillars of what it is defined as “green” in the new millennium. These include:

1. Ecological responsibility involving both human and planetary health and wellbeing;
2. A call for social justice targeting the historical scars of the past as inequalities continue to exist;
3. Acting in a non-violent manner while analysing security risks such as climate change and migration;
4. Promoting participatory democracy, rejecting corruption and inefficient leadership.

Global health theory provides a very similar framework for its own core pillars as it calls for social justice and the security risks of changing disease vectors to be addressed. The social injustice and inequalities in both spheres see the poorest of nations and peoples bearing the brunt of the growing problems and experiencing the worst of the adverse outcomes. Through Figure 3.1 of the ecological studies genealogy and Figure 3.2 of global health studies

genealogy, both led a path for the emergence of planetary health. Chapter 4 will explain what exactly the nature of this new kid on the block, Planetary Health. It will also go a step further by proposing a conceptual framework aimed at identifying a planetary health agenda relevant to issues of modern migration.

4. Theoretical Offspring: the Emergence of Planetary Health

4.1. Introduction to Planetary Health

This chapter proposes a planetary health agenda to address modern, climate-related migration by clustering the overlaps found in what is being understood, explored, and explained in climate change and global health in Chapters 2 and 3. These may be easily identified or there may be little overlap. This chapter will present a heuristic framework as part of the emerging field of planetary health. The genealogies of GT and global health theories presented in Chapter 3 serve to identify the existing overlapping variables indicated in the conceptual framework, creating a foundation for this chapter.

Two key questions are posed in this chapter.

1. Are Green Theories present in the GH agenda? (Revealing GT goals in narratives on the GH agenda creates the ability to effectively show the link between climate change and human health).
2. If so, are these Green Theories predominantly referring to the link between climate change and human health as planetary health in recent years?

Planetary health is illustrated as an emerging school of thought in the genealogies of both ecological studies and GH studies. Figures 2 and 3 in Chapter 3 illustrate the importance of the theoretical underpinnings of ecological and GH studies in planetary health. Planetary health has contributed massively to the research and knowledge generated to explain the human-induced impact of climate change on the Earth's biosphere. This has also led to a large number of questions being asked and the manifestation of some uncertainties. Opinion pieces, Twitter and the *Lancet Commission* are three important contributors of the conversation on planetary health. As GH, GT, and GHG have evolved, the need for a discipline to address the gaps within, as well as the relationships between, the fields have laid the foundations for the development of planetary health thinking. Theorists have suggested that all single extreme weather events can be considered as connected to climate change (Butler, 2016: 361). "Emerging movement", "discipline", "something to achieve" and "concept" are all words used by scholars, Twitter users, clinicians, and politicians when explaining and discussing the notion of planetary health. Planetary health in itself requires collective cohesion at the core of its principles, yet the current lack of cohesion in its

grounding could be fatal to the cause. This section will identify the key principles of planetary health by asking two key questions:

- What is planetary health?
- Does planetary health offer response in resolving the challenges of migration?

Through the findings, it becomes apparent that planetary health as a “discipline” provides a foundation to facilitate narratives on how humans are rapidly damaging the Earth’s biosphere to such an extent that it is reaching a tipping point beyond which is reversible. This chapter proposes a new conceptual framework for planetary health to better understand the nexus of climate change, human health, and migration. The chapter is divided into the following sections:

4.2. What is planetary health?

4.3. The foundations of planetary health;

4.4. Meaningful action for planetary health;

4.5. Planetary health education and principles;

4.6. Planetary health and the United Nations SDGs;

4.7. Planetary health and leadership;

4.8. Does planetary health offer an agenda for or merely facilitate a conversation about climate change and health?

4.9. Definition of a conceptual framework; and

4.10. A proposed conceptual framework: planetary health.

4.2. What is Planetary Health?

The current era of human life is known as the anthropogenic period, as human activity is a dominant influence in every aspect of the climate and environment (Ryan et al., 2019: 1). Insufficient or non-existent responses to climate change and the rapid increase in pollution are jeopardising the survival of the human race (Sula et al., 2019: 12). The first meeting to address planetary health was held in Bellagio, Italy, in June 2014. It was chaired by Sir Andrew Haines and included experts from a range of fields: environmental health, medicine, ecology, biodiversity (Hill-Cawthorne, 2019: 14). Sir Andrew Haines was director of the London School of Hygiene and Tropical Medicine for 10 years from 2001 to 2010. His publications have particularly focused on the effects of global environmental change on health and the policies created to address them. In 2015, the Rockefeller Foundation

established the first *Lancet Commission* on planetary health, giving it a place on the global agenda. Despite the increasing popularity of the notion of planetary health in the academic arena, the question remains: If the fields of Public Health and Global Health already exist, what is the need for the emergence of the concept of Planetary Health?

Public health and GH, as predecessors of what is now established as planetary health, raise the question of what gaps there were, or where the tipping point was, for a newly emerging field to be established in a predominately human health-related field. The focus of Public health was on health promotion within health systems restricted to certain areas. The focus of GH focus is on how to improve the health of entire populations globally. However, planetary health identifies the need to broaden this discussion by including the societies, civilizations, and ecosystems on which the health of the population and planet depend (Cemma, 2017). During the Anthropocene, and the dire sense of planetary extinction, a shift in health thinking has occurred. Healthcare at the present moment is not the only thing at stake, as predictions of the future of health is dire (Farman & Rottenburg, 2019: 3-4; Ryan et al., 2019: 3-4).

“We need planetary health. We need it because our house is on fire. We face urgent threats to our survival, to the health of human civilization, and to the natural systems on which we depend. Planetary health is a radically innovative step forward” (Seltenrich, 2018: 2). This comment suggests that planetary health accepts the proposition that it is not just the fate of entire populations that is in jeopardy, but the fate of all life on Earth itself is at risk. The fate of one determines the fate of the other (Ryan et al., 2019: 1-2). The climate crisis has reached a tipping point at which the very existence of human beings has become threatened. Planetary health is needed as an urgent response, with the sole focus of finding a solution to the quandary of a rapidly changing environment. ‘Global’ and ‘planet’ are used as interchangeable terms in this academic debate. The difference between the two lies in the connotations given to each word, as ‘planetary’ in planetary health probes the complex relationship between the environment and health, whereas the ‘global’ in GH merely identifies medicine as the foundation of health. Thus planetary health is a wide-ranging concept easily adopted by people, communities, and public health administrations (Horton, 2016: 1602). Planetary health differs from its counterparts as the emerging concept includes examining past civilisations in order to fully understand how individuals are culturally aligned, act, and assemble themselves today (Butler, 2016: 366). It is important to note that planetary health has not emerged in opposition to the interests of Public Health or GH, but

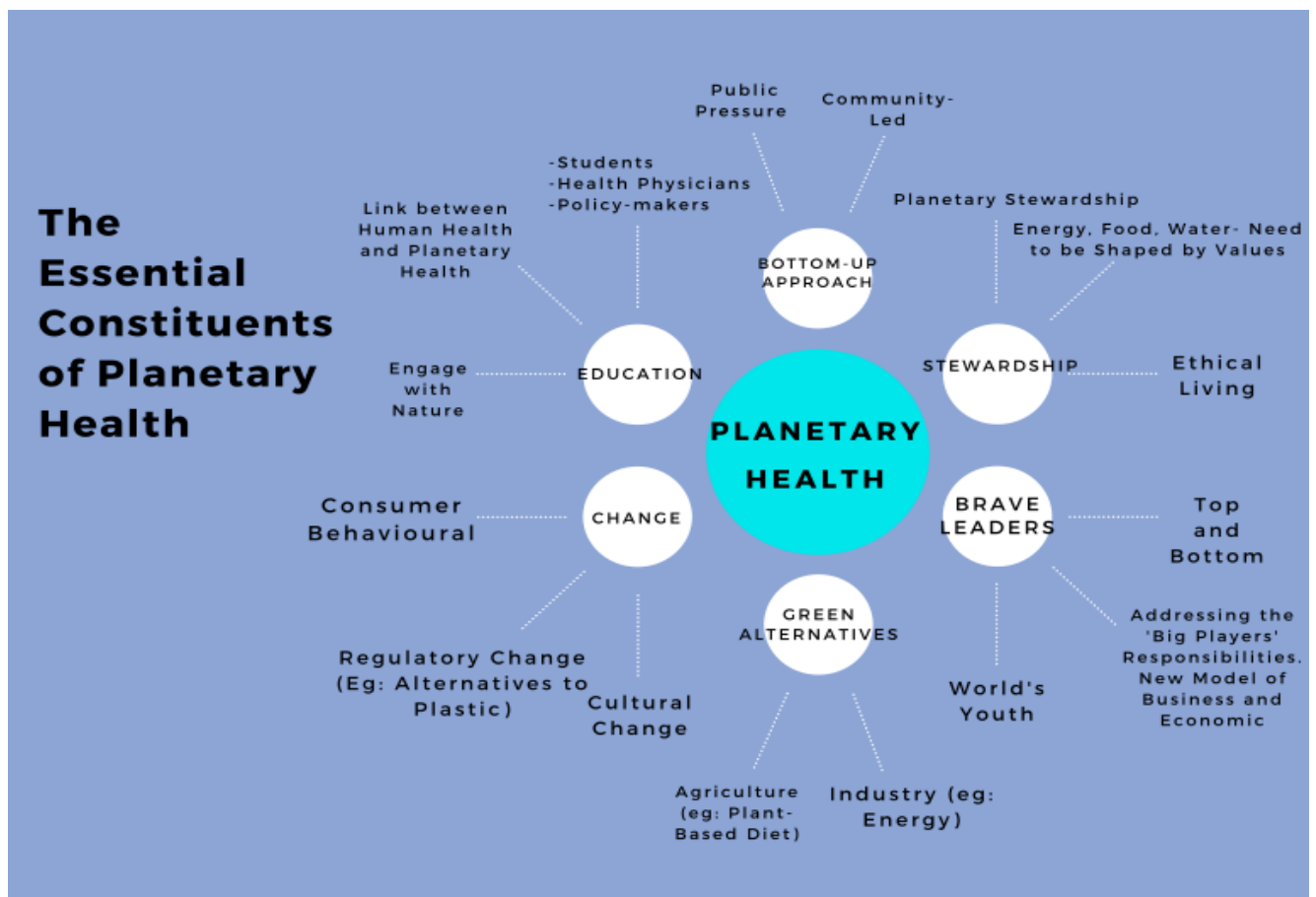
rather planetary health intends to take the research and understanding of these several disciplines and place them within a wider context, where the ‘planet’ and ‘people’ are considered to live in ecological equilibrium, with the health of both equally at the core of existence (Horton, 2016: 1602).

There is significant overlap between planetary health and its traditional historical predecessors as all work to examine the complex interrelationship between human health and exposures to the human body (for example, the release of human-induced GHG). “Planetary health is not a new discipline, but a well-funded version of older sub-disciplines with a new (albeit recycled) name” (Interview, Butler, 2/08/2020). If the historical foundation that planetary health was built upon is not fully acknowledged, it is often misidentified as an “original idea” or a “new discipline”. This mistake can undermine the goals of the emerging theory and only further marginalise the voices of indigenous healers and associated movements, who have been advocates of the basic underlying principles of the emerging concept for centuries (Prescott & Logan, 2019: 102).

However, planetary health’s increasing popularity since the 2015 release of the *Lancet Commission report on planetary health* has allowed for a “very rapid penetration and adaption of this framework, I think because it has been compelling to people” (Seltenrich, 2018: 5). The framework Seltenrich is referring to is the idea that people live in harmony with the natural world. The human race works with nature to reverse negative consequences created through humans’ perceived ‘ownership’ of the Earth. Planetary health sees the vulnerability of people, animals, and the Earth’s biosphere as a gift to be preserved in a strange and uncertain universe. It is this understanding that will provide the cultural backing for the new approach to stewardship that lies at the core of planetary health principles. The emerging concept goes beyond being merely concerned with the prevention and containment of communicable and non-communicable diseases. It demonstrates the mutuality of our human health and the health of the biosphere. An interesting, diverse group of individuals is formulating the growing body of knowledge about planetary health across multiple disciplines, calling for any contributions to be added to the field. These individuals extend the knowledge about planetary health for unselfish purposes as they work to “save humankind” through questioning how humankind has been living up to this point and the limits to existence that have resulted (Butler, 2016: 367; Landines et al., 2018: 1; Demaio & Rockstrom, 2015: 1).

Planetary health calls for a world that is increasingly healthy and facilitates the creation of a sustainable home for future generations (of humans and other animals) (Kemple, 2019: 536). Planetary health posits that individuals are able to experience “ecological grief” (Cunsolo & Ellis, 2018: 276; Cunsolo et al., 2020: 261). Ecological grief suggests that the climate crisis is causing unprecedented levels of anxiety and stress about human behaviour on the planet. Individuals feel increasingly vulnerable as the link between the climate crisis, mental health, and physical health is presented as the world’s major global issue (McDougall, 2019). Planetary health identifies the urgency of integrating social, economic, environmental, and health knowledge (Hill-Cawthorne et al., 2019: 1). But the failure to translate this knowledge into action is what planetary health is often criticised for. This is largely due to its ‘new kid on the block’ status, and limited capacity to offer a framework to address major challenges on the ecological agenda. Much is described, contributed, and researched in the *Lancet* collaborations, yet few of the challenges materialise into effective action (Horton, 2016: 2462).

Figure 4.1: Mind Map of Planetary Health Core Principles



Source: The author

The mind map presented in Figure 4.1 shows the essential constituents of planetary health. It indicates several important principles that make up planetary health. A bottom-up approach, stewardship, brave leaders, green alternatives, change, and education are leading elements in the field. Bottom-up approaches illustrate the importance of public pressure and community-led engagements when it comes to introducing effective policy changes to tackle the climate emergency. Stewardship is an important element of planetary health. The planet is facing the degradation of its own ecosystem and a drastic decrease in its capabilities to absorb ever-increasing quantities of manmade waste (Steffen et al., 2011: 739). Planetary stewardship has become an important asset in the anthropogenic era. Planetary stewardship means facilitating a good life for all the species living alongside and in relationship with one another. The empowerment of people stuck in poverty is seen as a crucial element in resolving the problems associated with climate change. By providing people with effective education, people can make connections between their own local actions and their global consequences. Therefore, planetary health facilitates dignity for all, and effective planetary stewardship creates a foundation for effective global governance (Holland, 2018: 6-7).

Brave leaders at the top and on ground level are urgently needed to address the climate emergency. The world's youth are an important aspect of the social movement in the fight against the climate emergency. We also need brave politicians at the forefront to hold the 'big players' accountable for their CO₂ emissions. In order to achieve Planetary Health, green alternatives to technologically-driven industry and agriculture need to be introduced, honed, and effectively monitored. Regulatory change is needed in order to effectively introduce alternatives to plastic packaging and transport methods. Consumer behavioural change is a necessity for planetary health; populations need to alter their consumption patterns in order to practise responsible planetary stewardship. Without effective education on the link between human health and planetary health, as well as on the importance of planetary stewardship, the climate emergency cannot be adequately addressed. Students, health physicians, and policymakers should be at the forefront of planetary education as they become planetary healers (Farman & Rottenburg, 2019: 3-6; Holland, 2018: 5-6).

4.3. The Foundations of Planetary Health

Planetary health as an emerging concept is debated by citizens, politicians, and scholars across the globe. Although planetary health has its roots in the environmental and holistic health movements of the 1970s and 1980s, it is emerging strongly now as understanding of, and support for, it is growing by the year. This historical overview is not presented as a trivial incidental detail; rather it is pivotal in analysing the effectiveness of the role planetary health plays in addressing modern-day challenges. An organisation called *Friends of Earth* founded during the 1980s saw the connection between personal health and the planet's health. This advocacy group even called for a plant-based diet, understanding the detrimental impact the meat industry has on the wellbeing of people and the environment (Rose, 2018: 374). These principles largely promote the modern-day concept of planetary health in showing that the underlying principles of planetary health are based on the work of these previous movements. This undermines the notion of planetary health as a purely new discipline.

Between 1960 to 1970, the term *planetary health* was used frequently by holistically-minded individuals, researchers, clinicians, and movement groups with little reference in mainstream health regimes and research (Prescott & Logan, 2019: 98). Furthermore, traditional approaches to leadership are poorly matched to the magnitude of the problems being faced in a globalising world. Planetary health approach to leadership paves the way for human stewardship and harmony. If there is a way out of the problem the human race has created for itself, the unifying concept of planetary health may be it. To fully grasp the opportunities available, humankind needs to acknowledge that the Earth's biosphere and human health are inseparable (Salk, 2019: 6).

4.4. Meaningful Action for Planetary Health

Increases in extreme weather events, disease vectors, and other rapidly changing incidences of climate patterns have called for greater understanding of the consequences of human-driven actions for the planet (Ryan, 2019: 1). Planetary health discussions on complex issues are not explicitly illustrated and lack multiple clear frameworks. The knowledge offered by planetary health has the ability to disrupt the existing norms between business, society, and nature. Planetary health offers a new way of thinking for the public health sector to effectively work for the benefit of people and the planet simultaneously (Tait, 2018: 1).

Planetary health functions hand-in-hand with concepts such as bio-sensitivity, OneHealth,¹⁷ and EcoHealth. Bio-sensitivity refers to the notion that we need to live our lives respectfully in line with the principles of nature. It can be acknowledged that our current consumption-based culture is at odds with nature. Planetary health (as well as the concepts implicit in bio-sensitivity, OneHealth, and EcoHealth) calls for a restructuring of these traditional cultural norms and recognition of the complex relationships between nature and humans are two sides of the same coin (Almada et al., 2017: 1; Tait, 2018: 1).

The importance of social media, social outlets, and online chat rooms has become increasingly undeniable in an ever-globalising world. Twitter links are re-tweeted, trending, and spreading debates at a faster rate than we could have ever imagined possible even a few decades ago. This is particularly true for issues of planetary health. Since the release of the *Lancet Commission* report on planetary health in 2015, “planetary health” has been cited 69,000 times on Google Scholar (as of 2 September 2020). Google Scholar is able to bring to light within seconds the existing knowledge of humans’ disruptions to the functioning of the Earth. Growing concerns about environmental degradation causing irreversible damage to the natural systems which underpin humans’ very existence lead to calls for urgent intervention from a variety of avenues (Pattanayak & Haines, 2017: 255). Twitter accounts and hash tags (not limited to the examples listed below) continue to share information on planetary health, adding to the theory and principles on a daily basis:

- @ph_alliance
- @TheLancetPlanet
- @LSHIM_Planet
- @inVIVO_Planet
- @ucghi_phcoe
- #PlanetaryHealth
- #PlanetaryHealthChallenge

Planetary health, by definition, goes one step further than its predecessors, as it quantifies the negative consequences of climate change and health. The Rockefeller-*Lancet Commission* on planetary health released a report in mid-2015 called *Safeguarding Human Health in the*

¹⁷ OneHealth is a public health approach (used by WHO) that works towards optimal health for the planet including its people, animals, and the environment (Hill-Cawthorne, 2019: 10).

Anthropogenic Epoch. This chapter calls for planetary health to take its place as a new scientific discipline designed to work in partnership with multiple fields on a local, international, and global scale. This is in order to tackle complex questions and be better equipped for surprises in a globalising world (Almada et al., 2017: 3). Planetary health has been praised for its clear recognition of the urgency of GH as a priority for the survival of peoples and planet. It calls for a deep understanding between the natural system and humanity (Hill-Cawthorne, 2019: 13).

“Planetary health is the health of human civilisation and the state of the natural systems on which it depends” (Hill-Cawthorne, 2019: 14). In a globalising world, the ease with which communicable and non-communicable diseases can spread is highly significant; the planetary health framework addresses this by prioritising the health of both human and the natural environmental systems. It does this by playing a pivotal role in strengthening and integrating research and interventions (Hill-Cawthorne, 2019: 11). Planetary health wishes to situate human health within two dimensions:

1. In the cultural realm, as the risks to human health are a result of the instilled cultural system promoted by capitalist thinking;
2. Planetary health works to quantify the urgency of the climate crisis as irreversible damages to natural systems are occurring at an unpredicted rate never seen before. Planetary health works to quantify these effects on human health by identifying, exposing, addressing, and then quantifying the adverse outcomes of human activities (Horton & Lo, 2015: 1921).

A dominating threat facing humankind today is the consequences of instilled cultural values. The only hope that planetary health sees in avoiding the tipping point of damaging climate change is a radical alternation of humanity’s way of thinking and culture. This is known as the “planetary health psyche”. Planetary health calls for an increased human stewardship (Horton & Lo, 2015: 1921; Prescott & Logan, 2019: 101). Therefore, an important aspect of putting the planetary health framework to the test is to gauge the extent to which it can counter the corporate and commercial interests that have been at the forefront of the norm of global order for centuries. In the current global and economic model, corporate power and economic prosperity are placed at the heart of human interests. The increasing interest of

corporate lobbies and big business in public affairs can be considered one of the greatest contributors to the analogy of human beings identifying themselves as ‘owners’ of the Earth. Fundamental conflicts between the interests of planetary health and corporate goals exist, because the principles of planetary health challenge the profit-maximising emphasis of corporations. The call by planetary health for the urgent need to decarbonise the economic and commercial sectors (through, for example, the greening of the energy, transport, and manufacturing sectors) would ultimately result in positive impacts for the environment and human health (Sula, 2019: 13).

Furthermore, social movements growing out of the principles of planetary health have been an important element in promoting meaningful action in the light of the theories of the emerging planetary health agenda. *Extinction Rebellion* and the *School Strike for Climate* are two social movements that have gained momentum and attract attention to the urgency of addressing climate change (Kemple, 2019: 536; Farman & Rottenburg, 2019: 1-2). In addition, formal discussions have placed planetary health in the global world order. The annual planetary health meeting sponsored by the Planetary Health Alliance, the Rockefeller Foundation, and Wellcome, is a seminal convening of leading researchers and policymakers in the emerging and fairly new space of planetary health. As the only conference held by the Planetary Health Alliance network, including over 150 institutions from over 35 countries, individuals gather in order to present new, ground-breaking insights to aid the advancement of planetary health globally and through privately-owned institutions. Most recently, the planetary health annual meeting was held at Stanford University on 4 September 2019. The annual planetary health meeting is highly important to inspire, equip participants, and advance the principles of planetary health in order to grapple with the challenges faced, and to assess their stated goals from previous meetings (Stanford Earth, 2019). The agendas of these meetings allow for new, emerging, and urgent questions to be posed, as well as for discussions, and more importantly, solutions to be facilitated. Seven useful agenda examples from over the three days of the 2019 Stanford meeting include:

1. Education as a key player for the planetary health agenda;
2. Emphasis on regional collaborations in an attempt to present conditions on ground-level whilst sharing these conditions with the broader global community;
3. Have a focus on the benefits and threats of cities and urbanisations on planetary and human health;

4. The mental health impacts of climate change;
5. Placing women at the frontlines of identifying planetary health solutions. This is because women tend to bear the brunt of many of the impacts discussed;
6. Focus on community-driven involvement for planetary health injustices. This also included working with policymakers across all scales of governance to advance the planetary health agenda. Policymakers need to hear the grievances of ordinary people in order to successfully implement effective measures and solutions;
7. Understanding the importance of listening to and engaging with the world's youth as they continue to stand at the forefront of the fight for planetary health. Greta Thunberg is a prime example of a young person calling out policymakers, industries, and the general public on their clear disregard for the urgency of climate change (Stanford Earth, 2019).

Since 2015, the planetary health movement has attracted enormous enthusiasm and increasing financial support. Several years since then, the test ahead is whether this enthusiasm and financial momentum of planetary health can be sustained. The annual planetary health meeting helps to create a compelling case to politicians, economists, and decision makers to continue support and action directed towards sustaining planetary health. Discussions are needed in order to have a chance to achieve tangible on-the-ground solutions (Cemma, 2017). The 2020 annual meeting is highly anticipated in the aftermath of the unprecedented COVID-19 pandemic in 2019 and 2020.

4.5. Planetary Health Education and Principles

Planetary health-directed education has become a major topic of conversation. This is because people are trying to turn the principles and objectives of this emerging concept into an everyday reality. The advancement of planetary health education will add to an “understanding of a better natural environment [which] will improve the quality of life of all living things” (Interview, Harkhu, 2/9/2020). This understanding will help equip the next generation to follow and build on the principles of the emerging field (Stone et al., 2018: 1). The Planetary Health Alliance is the first body to set out a list of principles that constitute planetary health. These principles set out by the Alliance for planetary health research are an important starting point as a way to unify the objectives of the emerging field across multiple disciplines. Table 4.1 illustrates the 7 core principles of planetary health, as adopted from

multiple sources (Foster, 2019: 3-5; Prescott & Logan, 2019: 102; Myers & Frumkin, 2020: 3-4; Moyers & Soares, 2019: 29; Cole, 2019: 1-29).

Table 4.1: Core ideas of Planetary Health

1. Looking through a planetary health lens	By understanding and highlighting the core message of planetary health, one can see the crucial link between human health and human-induced environmental change. Human stewardship of living in harmony with the environment is the only avenue that will allow human health and wellbeing to prosper (Myers & Frumkin, 2020: 3-4).
2. The urgency and magnitude of change being experienced	Addressing the ever-accelerating environmental change that is having exponential detrimental effects on human and planetary health (Moyses & Soares, 2019: 29).
3. Quantifying human-induced environmental change	Planetary health quantifies the effects of environmental change on human health in the anthropogenic age. This makes it easier for policy intervention as planetary health allows for the nature of the challenges to be more easily communicated to policymakers and everyday citizens alike.
4. The power of everyday people	Planetary health is very focused on a bottom-up approach as people power is at the core of its means to address the challenges. Hope for change lies in the mindful, cultural, and economic shifts of individuals at multiple levels. Behavioural changes need to begin at individual levels to have an effective impact.
5. Values and purpose across all levels	Planetary health includes disciplines across the individual, community, societal, and global levels. It works to demonstrate that human vitality is largely dependent on planetary vitality in all spheres of life (Cole, 2019: 2).
6. Planetary consciousness	Planetary health focus is on self-awareness, boosting a reawakening of the balance between humans and nature. Critical consciousness is crucial in targeting the challenges of existing inequalities in the social, economic, and political spheres of life. This can all be achieved through the use of meaningful community engagement (Cole, 2019: 1).
7. Ready for surprises	Planetary health provides a foundation to address surprises in an effective manner by making use of a functional governmental body with planetary health-focused education at its core. In order to be ready for any unexpected surprises (as these are common in globalisation, extreme weather events,

	and climate change), the historical underpinnings and milestones leading to the emergence of the field must always be actively addressed, revisited and acknowledged.
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Table 4.1 presents the core ideas of planetary health in the 21st century and provides an indication of what planetary health activists and academics see as relevant when identifying the existing overlaps between climate change and human health. Planetary health sees the need for changing the ways we have been interacting with nature; instead of seeing ourselves as the possessors of the Earth, we should acknowledge that we live in partnership with the earth. When we invest in the health of nature, we invest in our own health. Planetary health calls for a bottom-up approach in order to effectively respond to the mental and physical challenges faced by individuals every day.

A major element of planetary health education includes educating the general population, policymakers, and healthcare physicians on the importance of a reduction in meat consumption for both planetary health and human health. However, despite the increasing scientific evidence of the detrimental effects of the consumption of animal-based products on planetary health, global populations continue to choose a meat-rich diet. This is highlighted by planetary health's call for a plant-based diet, as it establishes that at the core of all current problems, as they exist at the centre of the anthropogenic era (Marinova & Bogueva, 2019: 2-4). The natural systems that maintain planetary health are complex, poorly articulated, and misunderstood as human activity continues to accelerate disruptions to the very system all life depends on (Kemple, 2019: 536).

Healthcare workers can teach patients the importance of transitioning to a more sustainable, predominately plant-based diet. If patients learn the necessary skills needed to understand green spaces, to have a spiritual relationship with nature, and acknowledge the importance of low-carbon energy systems, individuals can begin to make changes at ground level. By identifying the importance of health workers, the health of present and future generations will be optimized (Webb & Howard, 2019). Pollution from healthcare systems also remains a major issue (for example, single-use medical waste). Formal medical structures have been slow to negligent in their responses to mitigating medical pollution. Planetary health suggests

tackling climate change as a health issue will provide the motivation for increasing action (Vogel, 2019: 375-376).

“We need to establish collaborative efforts to learn from nature, which can provide many answers to problems in modern society. Collaborative research teams should include medical doctors, veterinarians, zoologists, ecologists, biologists, and environmental researchers,” (Interview, Stenvinkel, 10/08/2020). Planetary health identifies a major gap in education and as a result prioritises schools, universities, civil services, and physicians in addressing the major impacts. Planetary health sees the need to train a new generation of professionals, with planetary health principles at the core of this training, in the hope of mitigating and targeting the contributing factors that are accelerating climate change (McDougall, 2019; Interview, Harkhu, 2/09/2020). A major threat to the goals of planetary health can be identified as the lack of awareness and even of confidence among doctors regarding their own roles in addressing the urgency of the situation at ground level. However, physicians do often recognise the health threats posed by climate change, as their patients are increasingly affected by floods, droughts, heat waves, IDs, air pollution, and disruptions to water and food supplies. Several physicians see the problem as a burden that cannot be addressed by individuals, because of the enormous power of several seemingly ‘untouchable’ corporations in contributing to the state of the current crisis (Vogel, 2019: 376). The complexity of the problem for busy doctors and nurses seems daunting as the most seriously affected areas are often poorer communities who lack effective healthcare systems, and physicians are often already overworked and underpaid (Webb & Howard, 2019).

4.6. Planetary Health and the Sustainable Development Goals

The Sustainable Development Goals (SDGs) are the universal tribute to “end poverty, protect the planet from climate change, and ensure that people enjoy peace and prosperity” (Maini et al., 2017: 1). Chapter 2 explored the importance of SDGs for GH and Chapter 3 revealed the principles needed for GHG to achieve the SDGs. Although planetary health works towards addressing and achieving SDGs, it is important to acknowledge that the field has come to accept the idea of ‘trade-offs’ between goals. Trade-offs in this case mean that in order to fully achieve one or multiple goals, this may happen at the expense of the achievement of one or multiple other goals. Planetary health plays a vital role in the way people regard consumption and the detrimental effects of the current food system. In order to illustrate these

trade-offs acknowledged by planetary health activists, SDG 3, SDG 12, and SDG 15 will be used as examples for this study (Pradyumna, 2018: 417):

- SDG 3: Ensure healthy lives and well-being at all ages;
- SDG 12: Ensure sustainable consumption and production patterns;
- SDG 15: Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably managed forests, combat desertification, halt and reverse land degradation, and halt biodiversity loss.

SDG 12 has multiple trade-offs with other SDG goals, the most obvious one in a planetary health context being with SDG 3. Past increases in consumption and accelerated production, in more cases than one, have led to improvements in human health. However, the earth has reached a tipping point where increases in unsustainable consumption and the greed driving rapid production are leading to detrimental effects on human health. Health improvements in high-income countries come as a result of shifting polluting tasks and operations to lower-income countries, these countries then experiencing the brunt of adverse consumption outcomes. The *Lancet Commission* report on planetary health identifies health gains in the past as having come at a detrimental cost for the health of future generations (Lancet, 2015: 1795). Food systems connect all three SDGs (SDG 3, 12, and 15) as food security is an essential part of achieving stated goals and an interest for the *Lancet Commission* report on planetary health. Development and health need to grow side-by-side as it is important for developing countries not to deprioritise health in order to play ‘catch-up’ in reaching economic goals (Foster, 2019: 3; Pradyumna, 2018: 417; Marinova & Bogueva, 2019 1-2). Planetary health calls on us to look further than just short-term expenditure and economic focus, and instead seek meaningful scientific knowledge. Planetary health research mobilises far-reaching economic, social, and political issues as part of the discourse, including the views of individuals from across multiple disciplines that may have previously been excluded.

4.7. Planetary Health and Leadership

The growing preoccupation with GHG is emerging as a result of challenges created by climate change. Planetary health is working to provide a framework for the necessary skills for leaders to understand and navigate unexpected and complex challenges. Planetary health calls for a shift away from current beliefs in innovation and consumer culture. This can only

be achieved through an organised community of leaders at all levels of society who cross multidisciplinary boundaries from racial barriers to national borders. Leaders and organisational bodies need to engage in meaningful debates with a planetary health mind-set. A collective, organised planetary health leadership structure would generate power in networks at all levels of society facilitating much needed change. Planetary health challenges capitalist power structures, leaning towards a more unifying focus on individual behaviour and ‘psyche’. The catchphrase “thinking locally, advocating globally” (Prescott & Logan, 2019: 103) comes to mind when thinking about leadership’s role in the expansion and implementation of planetary health.

Climate change amplifies existing health inequalities. “Many have preferred to turn their heads away from injustices” (Schultz, 2018: 634), but planetary health seeks to address these inequalities head-on by identifying environmental injustices on a global scale. Academics, clinicians, and scholars have concluded that highly industrialized countries hold the fate of emerging countries (particularly SIDs) in their hands (Shultz et al., 2018: 370; Prescott & Logan, 2019: 100). Despite major GH gains, the future of GH for many is disproportionately under threat as the poor, elderly, and future generations are at higher risk. Planetary health is consolidating a platform for globally-focused action by making use of people power (Veidus et al., 2019: 2021). Therefore, planetary health must search for a system-based approach to address injustice, which will be founded upon the uplifting thoughts of the collective wisdom of all individuals to ensure the vitality of people, place, and the planet (Schultz, 2018: 634).

4.8. Does planetary health offer an agenda for or facilitate a conversation about climate change and health?

“The greatest success of humankind could be keeping the planet in good health” (Kemple, 2019: 537). Planetary health focuses on the vital role of individuals, although based on the relationship between human and planetary existence as a whole. Planetary health urges all individuals to do their own planetary health impact assessments in order to evaluate how their everyday lifestyles may aggravate environmental changes that will ultimately affect the long-term health of themselves, future generations, and of the planet’s natural systems (Kemple, 2019: 537). Without individuals addressing how their everyday lifestyles may aggravate environmental changes, the rate and complexities of climate migration will only increase.

Migration is a complex subject, with multiple variables affecting the outcomes. The secondary research question requires identifying whether planetary health offers a concrete agenda for the complex challenges of modern migration in the anthropogenic era. Through researching and trying to analyse the existing accumulated data from multiple mainstream channels in Chapters 2 and 3, this chapter will conclude that planetary health is still emerging as a concept, with its basic unifying principles at the forefront of the conversation. Planetary health is merely seen as an answer to a question in a time of climatic conflict. The logistics and agendas set out in the field by addressing the acknowledged challenges are still unclear and require more development and clarification.

Planetary health offers little concrete grounding as an agenda for dealing with the complex challenges, such as climate-induced migration. However, it cannot be simply disregarded as it is emerging into a unifying discipline that provides a sense of hope in a time of darkness. Planetary health works to transform societal structures, expose inequalities, and ultimately aims to provide effective agendas to eradicate targeted inequalities at local and global levels (Gabrysch, 2018: 373). It recognises the disruptions that human greed and the selfish exploitation of people, places, and animals can have on human and environmental systems. Often the existing cultural balance and structures of greed exploit migrants/people on the move even more than the already existing impacts they have to deal with. Therefore, there is a call for thinkers, activists, social activists, world leaders, and clinicians to act locally and think globally. This is where the concerns of planetary health and migration meet.

Planetary health encounters a number of key challenges in implementing sustainable, long-lasting solutions to complex challenges (for example, migration), whilst trying to stay within planetary boundaries.¹⁸ Planetary health asserts that there are at least 6 dimensions of biological change that are detrimental to the planet, people on the move, and their health. These include:

1. A complete disruption of the global climate system is occurring as human activity has altered the functioning of the climate system. This is resulting in detrimental effects

¹⁸ “The planetary boundaries approach is based on a set of human-perturbed, interlinked biophysical boundaries that mark out a ‘safe operating space’ at planetary scale, in which social and economic development can take place while maintaining the resilience of the Earth system as a whole” (Häyhä et al., 2016: 60).

on places, homes, agriculture, habitats, weather patterns, health and the adaptive abilities of individuals;

2. Resource scarcity is on the rise and as a result people and animals are forced to migrate to meet their basic needs such as food, freshwater, energy, and adequate sanitation;
3. Widespread pollution in air, soil, and water results in major detrimental health impacts and the movement of people in search of healthcare and better living conditions (Myers, 2017: 2860);
4. Lack of effective leadership and the dominating presence of corruption are detrimental to the goals of planetary health. Ineffective leadership and corruption in the anthropogenic period cause the welfare of people and the planet to have a low priority and to become even more susceptible to exploitation. The planet is seen as an inanimate object that is exploited for the personal gains of politicians and big corporations. Planetary health is a call to reject this and instead sees the critical need for the human race to cultivate a sense of appreciation and 'awe' for the fundamental workings of the natural biosphere. People are compelled to move as a result of inefficient allocation of resources by corrupt leaders. Corruption and inefficient leadership only worsen insufficient services at a time of accelerating climatic changes. This leaves migrants with no access to social welfare services and only facing more vulnerability in times of slow-onset changes and extreme weather events (Myers, 2017: 2866);
5. Lack of funding in planetary health science is limiting the growth of the concept of planetary health into a force to be reckoned with;
6. A lack of understanding of the complex association between climate change, migration, and health continues to prevail in all fields, with only a handful of thinkers and clinicians seeing this tripartite nexus for what it really is. The problem runs even deeper when the link between human health and environmental health beyond just climate change is made evident. This is a nexus rarely cited within the planetary health arena (Schütte et al., 2018: 2).

Planetary health as a concept provides the basis to address these 6 detrimental biological changes as well as multiple others mentioned throughout the course of this chapter. It is an emerging concept which seriously tries to address these issues as it demands a unified coalition of multiple disciplines to address this complex nexus of factors. It shows that

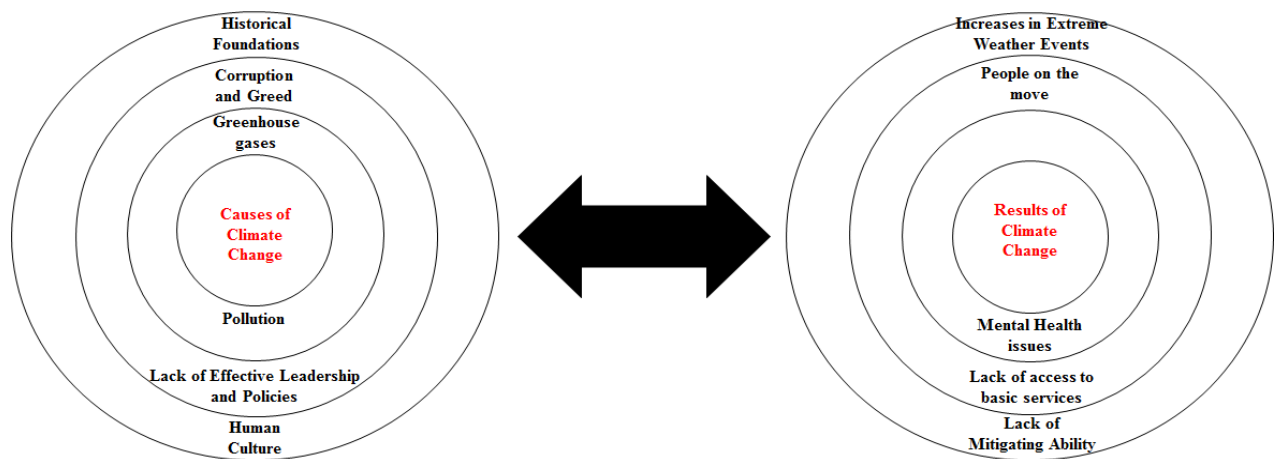
climate change, health, and people on the move need to be addressed together and not one by one. The principles of planetary health and the emerging features of the concept may prove to be a very useful instrument to build a fundamental agenda. A structured agenda will be easily accessible and communicated to not only policymakers, but everyday individuals on the ground. The agenda is able to provide appropriate knowledge to make effective decisions addressing all three elements of the nexus in the same discourse. Therefore, this chapter will now address an identified gap within the planetary health arena by providing the proposed conceptual framework for the nexus between climate change, migration, and human health. This will demonstrate the positive impact planetary health is able to have for climate migration and the climate change crisis as a whole.

4.9. The Proposed Conceptual framework: Planetary Health

This chapter provides a holistic overview of the principles, objectives, and meaning of planetary health. Planetary health is a blend of ecological and global health studies, working selflessly towards creating a better planet for humans, animals and the natural environment. The proposed conceptual framework analyses the factors contributing to the negative consequences for migrant's health with the underlying force of climate change. The framework demonstrates the challenges that will be faced and the opportunities that will come from understanding the complexities of the nexus between climate change, human health, and people on the move. Conceptual frameworks for understanding climate change and health already exist but, to the author's knowledge, conceptual frameworks understood through a planetary health lens on climate change, health, and people on the move are few and far between. When talking about the 'planetary health lens', the proposed conceptual framework refers to the defining principle of human stewardship and the relevance of planetary health in achieving harmony between humankind and the environment on the basis of this principle. This novel framework aims to show the gaps and opportunities in offering a response to the challenges of modern migration through a planetary health lens.

Figure 4.2 illustrates the relationship between the causes of climate change and the results of climate change. On the left and right of Figure 4.2 are overlapping circles depicting the causes of climate change. The overlapping circles present the non-linear nature of these causes in an ever-globalising world. The figure does not include all causes, as climate change is a complex phenomenon and a deeper analysis of the causes can be found in Chapter 2.

Figure 4.2: Linking the Causes and the Outcomes of Climate Change



Source: The author

Figure 4.2 does, however, show the intricate, everyday factors that result in environmental change. These include:

- Historical foundations suggesting the historical scars of colonialism and the first and second Industrial Revolutions. Both had detrimental effects on the environment, places, people, and stimulated the desire or forced the need for people to migrate;
- Human culture is a defining factor in the causes of climate change as humankind holds an instilled sense of possession in their relationship with the environment and its resources. This sense of possession of the earth is something planetary health suggests as the tipping point of civilisation as humans continue to overexploit the environment;
- Corruption and greed are two leading factors in aggravating climate change and are linked to instilled capitalist human culture. Big corporations exploit resources and mismanage waste with little repercussions from governments because of, for example, corrupt ‘side deals’ in several countries;
- The release of GHG into the ozone is the number one leading contribution by humans in accelerating environmental change.

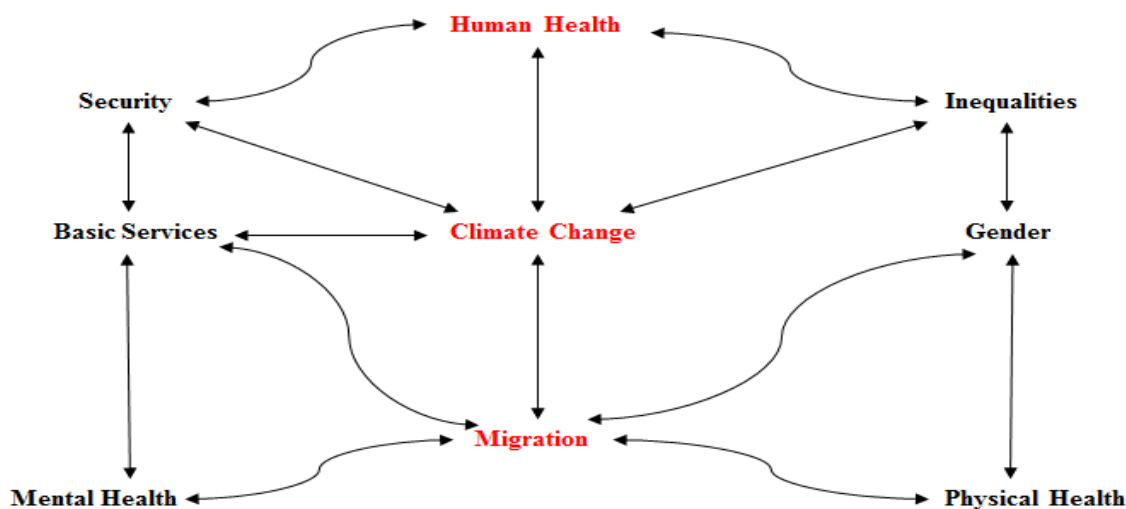
The two-way arrow between the causes of climate change and the results of climate change in Figure 4.2 indicates the magnitude and exacerbating influence of all factors that affect each other irreversibly. As the causes increase, the negative consequences increase, which in

return have an accelerating role in further contributing to the causes. A number of results of climate change illustrated in Figure 4.2 include:

- Increases in extreme weather events as weather patterns are changing. Many countries (particularly developing and SIDs) do not have the leadership, economic, or infrastructural capacities to mitigate the adverse outcomes of climate change;
- As a result, people are being displaced, forcibly or by choice, to migrate in search of better healthcare, sanitation, housing, food, water, and economic gains. Climate-related migration is not mono-causal but multiple variables have contributed to its existence;
- Detrimental physical and mental health effects are the leading outcomes of climate change. Physical consequences can range from outcomes of direct exposure to outcomes of indirect exposure. The changing of disease vector patterns can have a major influence on the accelerated spread of IDs. Increases in communicable diseases are associated with disrupted food patterns and poor air quality caused by climate change.

Figure 4.2 offers an illustration of the causes and effects of climate change; however, this chapter calls for this information to be taken one step further by looking more intensely at the health outcomes, particularly for people on the move. If humans do not live in harmony with the planet, these negative outcomes will lead to the tipping point of the climate crisis, which will impact significantly on planetary health and human wellbeing. Figure 4.3 is a stepping stone towards introducing the conceptual framework as a means to fully grasp the complex nexus between climate change, human health, and people on the move.

Figure 4.3: Complex Relationship between Human Health, Climate Change, and Migration



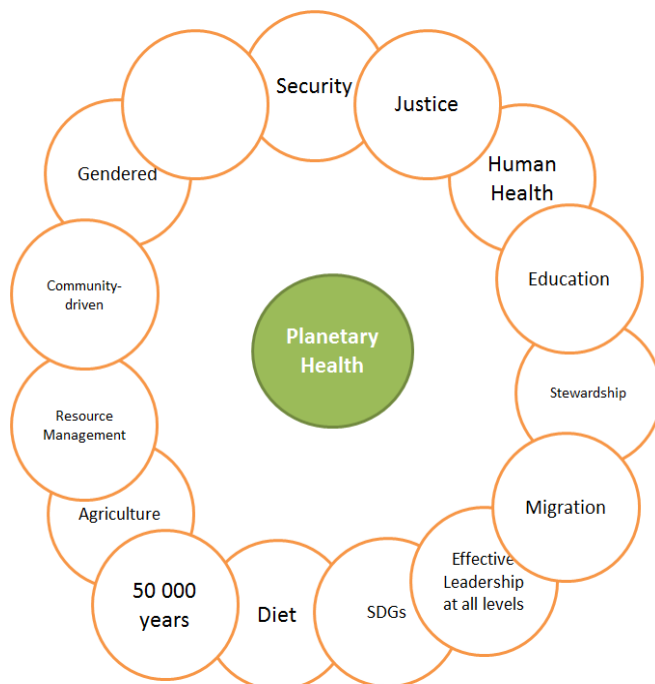
Source: The author

Climate-related migration cannot be explained merely by looking at the causes and results of climate change-related inequalities and issues. This chapter cannot stress enough that the climate change-migration nexus is not mono-causal and is affected by multiple vectors. People are being forced to migrate and displaced as a result of extreme weather events, or have to choose to migrate in search of better sanitation, water, food, and services. This section acknowledges that climate-induced migration is not mono-causal and instead, climate change must be treated as one variable in a much larger picture. Figure 4.3 illustrates the complex array of variables that all mutually influence one another within the broader phenomenon of human health, climate change, and migration. Inequalities and security risks are two major realms influencing the narratives of climate-related migration. Climate change has become a dominant security risk to nations and displaced people alike. Inequalities are exacerbated through climate change, as people on the move are more vulnerable. This is because health inequalities are heightened and are particularly felt by the poor and marginalised, particularly women. Although Figure 4.3 provides a better understanding of the three variables at hand, in order to adequately address the research problem and questions, this chapter requires Figure 4.3 to be placed within a broader conceptual framework. The research problem and questions presented in chapter 1 are as follows:

1. Primary research question: Does planetary health suggest an agenda for the relationship of climate change and global health in IR?
2. Secondary research question: What are the implications of implementing the principles of planetary health as a response in resolving the challenges of migration?

The proposed conceptual framework offers a guideline through a planetary health lens to understand the implications of climate change on the health of people on the move. The framework is an attempt to fully illustrate the nexus of climate change, migration, and human health. It provides a platform for planetary health to successfully offer a concrete response for modern climate migration. Human-induced Environmental changes largely impact planetary health and human well-being. Planetary health as a concept quantifies these consequences and creates a more understandable framework for understanding the negative outcomes. The proposed conceptual framework does just this; it facilitates an agenda to present the negative outcomes to health and degree at which people move or are displaced. The proposed conceptual framework makes challenges easily understandable and identifiable for policymakers, academics, scholars, and clinicians to address them and, more importantly, to see opportunities for the future of humanity's wellbeing and planetary health.

Figure 4.4: Proposed Conceptual Framework for Planetary Health



Source: The author

Figure 4.4 presents the proposed conceptual framework. The framework for planetary health is a typology which shows the key principles of planetary health in a way most effective for policy intervention. Multiple circles have been placed around the middle circle of “planetary health”. The conceptual framework has been designed this way as a means to illustrate the *interdisciplinary* nature of planetary health and the importance of working across multiple disciplines. The proposed conceptual framework marks planetary health as a discipline that focuses on protecting the human race and all species that live alongside and in relationship with it within the Earth’s natural biosphere. The 16 circles in the framework are linked concepts that work together as an analytical tool to promote the understanding of the interrelationship between human health and climate change. The framework goes one step further by illustrating the position of migration in the complex relationship between human health and climate change.

The circles serve as a conceptual framework for issues to be considered whenever planetary health comes into play. Each circle forming the framework for planetary health was carefully selected to represent the conceptual overlap between the discourses on human health and the discourses on climate change. The circles have been placed in a specific order to allow the proposed conceptual framework to present the interdisciplinary issues implicit in planetary health. It is important to note that because of the interdisciplinary nature of planetary health, each circle is able to influence any other circle at any given time. The following interrelationships are the most prominently revealed when looking at the discourses on climate change and human health.

1. Security has been placed before justice as it suggests the tension between the two variables is dominant in the planetary health conversation. Security has begun to include unorthodox forms of “traditional” security risks, such as Greens’ acknowledging the risk that environmental consequences can hold for national security. As a result, climate change is an increasing risk to the health, safety, and the national security of individuals and nations. Particularly marginalised individuals see these risks the most starkly at the physical, social, and psychological levels of their wellbeing.
2. The relationship between human health and planetary health is arguably one of the most important variables in planetary health (for example, communicable and non-

communicable diseases). Without a healthy, harmonious planet, human health is severely affected. Human health has been placed after justice because of their distinctive relationship. Justice is often a determinant of what access an individual has to effective healthcare systems, sanitation, and housing. Marginalised individuals in particular have limited access to private medical care, effective treatments, and adequate water and food supplies, which negatively impacts on their life expectancy, mental health, and child and infant mortality.

3. For planetary health, education is of the utmost importance to achieve optimal human and planetary health. Planetary health addresses the value of the engagement of local communities in targeting issues on a global scale. Without effective education and understanding, effective responses in the anthropogenic era are not possible.
4. The importance of stewardship for planetary health is undeniable. “Globally we need to stop focusing on constant growth [of] economies and populations. Governments and developers can look to bring nature into cities and urban areas so that people get to see the beauty of nature every day” (Interview, Pascoe, 3/09/2020). Stewardship allows for an effective difference in achieving harmony in the communities we live in and our planet as a whole. By engaging and portraying a sense of ‘awe’ with the nature around us, humans may not see themselves as the possessors of the Earth.
5. Migration is considered one of the most important consequences to focus on from the perspective of impacts of climate change as people are forced to leave their homes because of slow-onset impacts or extreme weather events. Without considering migration at a planetary health level, there will always be a gap in the understanding of and ability to successfully address impacts in the anthropogenic era.
6. Effective leaders and their role in achieving planetary health targets are extremely important. When referring to the variable effective leaders, top-level and ground-level positions are included. Levels of corruption (particularly in developing countries) are detrimental to successfully achieving the goals of planetary health.
7. Planetary health suggests a planetary health-oriented diet, as this indicates the importance for planetary and human health to move towards a plant-based diet. Reducing consumption of animal products will help to reduce mass CO₂ emissions and ultimately save the earth and people from a dire outcome in the anthropogenic era.

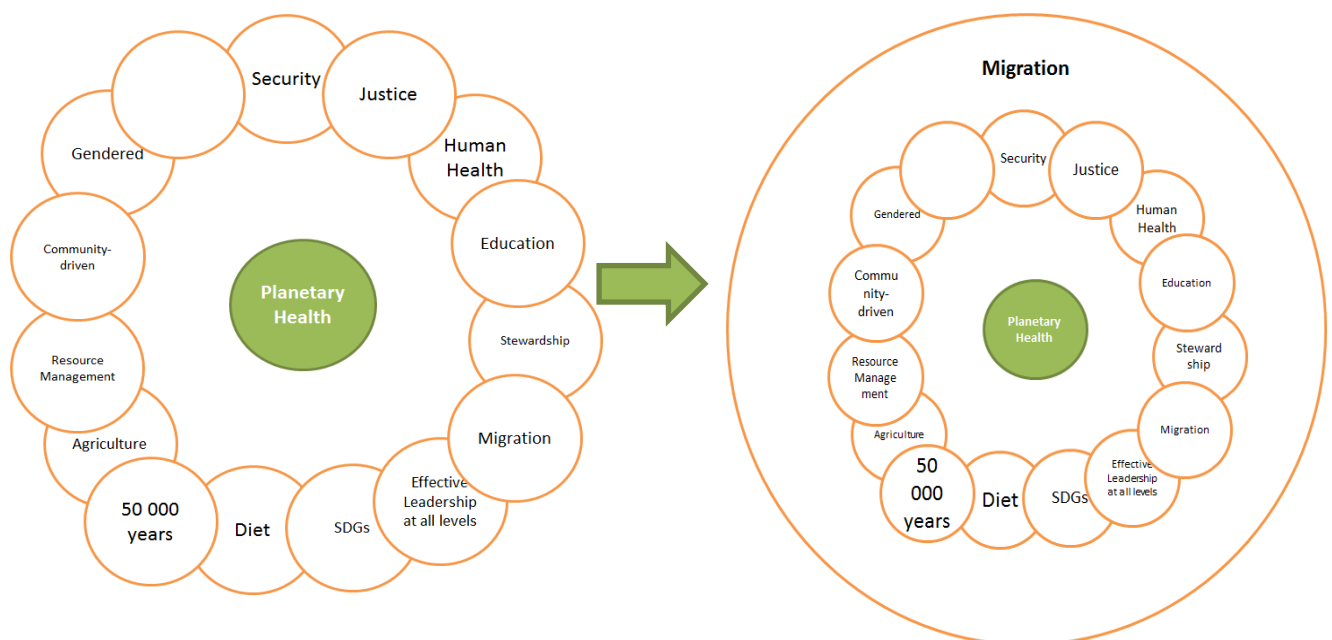
8. Agricultural practices are one of the major contributors to CO₂ emissions. Planetary health calls for a sense of understanding and appreciation of all living beings on the planet.
9. Achieving the SDGs results in achieving planetary health goals for many planetary health advocates, policymakers and academics. The SDGs are a starting point in applying the principles of planetary health for the benefit of the planet and its inhabitants.
10. Sustainability is the only way forward for many green activists as industries and corporations (big and small) are urged to look for ‘green’ alternatives to preserve the planet for many generations to come.
11. Resource management plays a vital role, as through a planetary health lens resource scarcity leads to the disruption of entire populations, basic need structures, and communicable and non-communicable diseases patterns. National corruption needs to be targeted on a global scale in order to effectively manage natural resources.
12. Planetary health addresses different timelines. Planetary health sees the importance of protecting the planet for thousands of years to come. Planetary healers look for practical solutions for 50 000 years or more to come, whereas important environmental meetings, such as COP21 Agenda, focus on a mere 50 years into the future.
13. Community is important as planetary health emphasises that the decision-making process must include individuals from all spheres of life, with the motto of “thinking locally, acting globally” at the heart of its principles. It includes a bottom-up approach with people power regarded as its core value.
14. Gender is an important aspect to include as planetary health acknowledges the importance of women at the forefront of the fight to achieve planetary harmony. Gender is placed last before the open circle because of the role that gender plays in determining and influencing each circle making up the proposed conceptual framework. Women’s and children’s experiences at all levels of society are massively differentiated from the experiences of their male counterparts.
15. A circle has been deliberately left open to ensure an understanding of the openness of the planetary health principles. Planetary health is a relatively new concept that is still trying to establish itself in the rapidly changing anthropogenic era. The proposed conceptual framework for planetary health resembles an “incomplete” system – not in a negative sense, but rather intentionally as an open-ended representation of the

community-driven conversation planetary health prides itself to be a part of. Planetary health has created uncertainty and vagueness until now and the proposed conceptual framework brings a degree of clarity and foundational principles to the ever-developing field of planetary health. This ‘empty’ circle is not empty but rather represents the fact that there is just so much more to learn beyond what is already spoken about and how important it is to include every individual who is willing to be a part of the conversation well into the future.

Each relationship spelled out in the proposed conceptual framework for planetary health suggests a way to understand and explain reality. The proposed framework has been developed as a means to identify and effectively convey the issues in the discourses of planetary health. It allows phenomena within the nexus of human health, climate change, and migration to be effectively analysed and addressed. It provides a map to follow in shifting and sorting through the literature in a manner easily transferable to understand climate change and health issues coinciding on ground level.

The unprecedented rise of COVID-19 in 2019/20 has crippled entire countries' economies and has limited the movements of entire populations. In a globalising world, spaces of discussions need to be left open for new interpretations and solutions to be successfully implemented (Brown & Horton, 2020: 1099).

Figure 4.5: Zooming in on Migration within the Proposed Conceptual Framework



Source: The author

Figure 4.5 presents the migration circle zoomed in from the proposed conceptual framework for planetary health represented in Figure 4.4. Figure 4.5 will be used as the basis of the next chapter to address the research question by making use of a migration case study. This migration circle represents the interdisciplinary nature of the proposed conceptual framework and represents not only migration, but also every other circle represented.

4.10. Conclusion

This chapter used the foundations of climate change and global health discussed in Chapters 2 and 3; and has provided a heuristic model in the form of the proposed conceptual framework as a way to extend the emerging knowledge of planetary health. It provides a planetary health framework to reveal the nexus between climate change, human health, and people on the move.

The 17 circles that constitute the proposed conceptual framework for Planetary Health illustrate the key principles of the newly emerging field in an accessible manner. Planetary health strives towards cohesion and unity in representing several spheres of influence.

The *Lancet Commission* calls for collaborations in addressing climate change, human health, and migration. The race against overcoming the climate crisis is one we can and must win. Planetary health is able to provide an adequate framework to address the tripartite nexus for these complex issues. Planetary health represents an urgent call to address the tipping point of the climate crisis. Planetary health is often praised for acknowledging the need to address the health of people, place, and planet simultaneously in order to achieve optimal harmony for all three.

It is, however, criticized for its inability to translate these principles into fully fledged agendas as it has yet to establish itself firmly as a discipline. The proposed conceptual framework is presented in this chapter to facilitate a planetary health response to address the vulnerabilities of those people on the move during modern climate migrations. It is a representation of the main narratives taking place in the planetary health agenda. The interdisciplinary nature of the circles is represented as all influencing one another to indicate

the inherently connected conversations in the field of planetary health. They allow for a readily accessible view of the complex emerging field. Each circle tells its own story and facilitates a further understanding of the tensions facing planetary health. The final circle being empty is a representation of their being so much more to learn within this field.

5. The Proposed Conceptual Framework in Action: The case study of Bangladesh Migration

5.1. Introduction

Chapters 2 and 3 provided the history and theoretical antecedents of climate change and GH. Chapter 4 examined the emerging field of planetary health extensively. The chapter outlines the principles and core values of planetary health, focusing on the primary research question: “Does planetary health suggest an agenda for addressing the relationship of climate change and global health in International Relations?” Chapter 4 presented the proposed conceptual framework of planetary health (see Figures 4.4 and 4.5) which lays the foundation for the second research question: “What are the implications of implementing the principles of planetary health as a response in resolving the challenges of migration?” The proposed conceptual framework goes beyond merely listing a series of factors involved in the relationship between climate change and human health. It presents an analytical tool to provide clarity on planetary health and carefully identify the main issues on the ground. Until now, the notion of planetary health has been associated only with uncertainty and vagueness, and so the conceptual framework acts as a heuristic tool that brings much needed clarity to the ever-developing field of planetary health. This clarity is critical in order to identify real elements that inform the relationship between health and climate change, and the implications for migration. This issue will be explored in this chapter by using Bangladesh as a case study.

“Listen to the cry of the earth and the cry of the poor who suffer most” (Marshall, 2015: 3). This quote is taken from Pope St Francis and exposes the harsh realities that come with humans living beyond their planetary boundaries. Humans have migrated since the beginning of their existence. This chapter provides a historical overview of the central ways in which humans have moved across the globe throughout time and a brief look at the basic scientific principles behind the transformation of this migratory movement. This chapter will show that while the impact of a changing climate on migration is not a new phenomenon, it is currently not the same as it has been in the past. Climate change exacerbates migration issues and places people at a much higher risk than at any previous time in history (Marshall, 2015: 3-9). Three aspects of contemporary climate change in leading to human movement in new, unexpected ways are:

1. The climate crisis is leading to increased regulations on mobility, because of the changes within the state and concerns about the security of its sovereign borders. These regulations restrict the use of migration as an adaptation strategy, a purpose it has served historically, because migrants are seen as security risks that need to be contained at borders;
2. Several human-induced influences on climate change are leading to a tipping point for the planet. These influences increase the number of people on the move as a result of the climate crisis;
3. Climate change is increasing the inequalities and injustices felt globally as people are left in dire conditions.

Bangladesh has been selected as the case study because of its ever-changing, dire relationship with climate change and the influence of these changes on the health of its population. The Bangladesh case study will indicate how useful the proposed conceptual framework can be in offering an agenda for dealing with migration issues and implementing necessary changes that are needed worldwide. The case study will act as an example of a planetary health response to modern-day migration in the anthropogenic era. This chapter provides an overview of the studies of migration and to consolidate the different migration theories.

This chapter will be structured as follows:

- 5.2. What is Migration?
- 5.3. A Short History of Migration in the 20th Century
- 5.4. Migration Case Study through a planetary health lens: Bangladesh
- 5.5. The Proposed Conceptual Framework: an Analytical Tool for Bangladesh
- 5.5. Conclusion

It is important to note the difference between *climate change* and *climate variability*. Climate variability refers to variations of weather on a smaller scale and shorter time period. Climate change refers to a rapidly changing environment (increased by human involvement) in the anthropogenic era, causing changes in average temperatures and shifts in rainfall patterns. Both climate change and climate variability influence the movement of, and impacts felt by, migrants (Lilleør & Van der Broel, 2011: 573).

The terminology of climate change-induced migration is important in this discussion, although it is not central to the primary research question. A number of different terms are used by a range of academics for defining the influence of climate change on people on the move, including:

- Environmental refugee;
- Climate migrant;
- Climate victims;
- Climate refugee.

Linking climate change and migration with the terms listed above has been heavily criticized by several scholars as not successfully representing the complex number of stressors that accumulate and lead to eventual forced or voluntary migration (Bettini et al., 2017: 352). Bank et al. (2017: 2) suggest not using these terms as a way to avoid the positive and negative connotations that can be instinctively linked to them. “Climate-induced migration” and “climate-related migrant” are the terms used in this chapter. These terms encompass voluntary or forced, planned or unplanned, and short-term or permanent migration in the anthropogenic period.

5.2. What is Migration?

Migration involves a number of different causal paths. Despite the presence of the “push and pull theory” explaining why people choose to migrate, a look at modern migration takes a different path as it examines multiple webs of situations and determinants as part of individuals’ decision-making process to migrate (Crumley, 2012: 25-26). Modern migration is a complex phenomenon which encompasses the influence of climate change at interpersonal, intergroup, and international levels. Climate change influences might occur before, during, or well after the migration has already occurred (Burrows & Kinney, 2016: 2). For example, sea-level rise may make accessible drinking water too saline and disrupt agricultural growth, and extreme weather events may destroy infrastructure, food supply, and limit access to adequate health care. The huge uncertainties around the causal impacts of climate change on migration leads to mismatched migration policies. Five main drivers of migration include:

1. Political/Security drivers: Corruption, conflict, and policy incentives;

2. Demographic drivers: Population size and population structure;
3. Economic drivers: Employment opportunities, producer and consumer prices, and economic means to mitigate and adapt to extreme weather events;
4. Social drivers: Education, family obligations, and availability of social welfare services; and
5. Environmental drivers: Land productivity, food/energy/water security, and rainfall patterns.

Migration is multi-causal and 5 drivers are inter-linked and any one affects all the others. All 5 drivers are interdisciplinary and any one affects all the others (Burrows & Kennis, 2016: 5; Geddes, 2015: 479). In focusing on the role of climate change as an environmental driver, this chapter also acknowledges the political, economic, and social drivers because of their influence on destabilising the lives of individuals, communities, or entire nations.

5.2.1. Types of Migration

Financial, physical, and social resources are all at the centre of an individual's decision to migrate (Geddes, 2015: 478). Without question, the world's poorest people are in the worst position to be able to migrate, leaving them heavily vulnerable to environmental changes. Sudden displacement or forced migration typically occurs as a result of sudden-onset environmental changes such as floods, hurricanes, and droughts. On the other hand, voluntary migration typically allows the individual time to make a decision and tends to occur as a result of slow-onset environmental changes (Lilleør & Van der Broek, 2011: 570). However, an inability to escape environmental changes creates trapped populations. Individuals within trapped populations lack the assets (physical and economic) that allow for migration, and therefore the capabilities to migrate. The vulnerability of these individuals is increased by multiple variables (for example financial and health status). Globally, an opportunity exists to prevent trapped populations but only with effective political interventions and correct methods of facilitation for future migration (Bank et al., 2017: 1; Geddes, 2015: 185-186).

5.2.2. A Look at Modern Migration through a Climatic Lens

With the confirmation made by scientists of the link between the human-induced increasing carbon dioxide (CO₂) emissions to rising changes in global temperatures, an increased academic and political focus on climate-induced human mobility has resulted (Webersik, 2011: 148). "Humans have long migrated due to changing climates, but have never before

faced such rapid, global anthropogenic change” (Torres & Casey, 2017: 1). Climate-induced migration can be seen as the ‘human-face’ of this rapid ecological change (Bettini, 2019: 336). Predictions of the impact of climate change are highly uncertain, because of the unpredictability of human nature and the inherent uncertainties in the climate system itself. Climate-induced migration is not a new phenomenon, but increasing interest in the topic has led to wide debates and has left predictions about the state of the globe in 2050 looking rather dire (Lilleør & Van der Broeck, 2011: 570). Human mobility has in the past, and continues to be in the present, a key factor in adapting to a rapidly changing climate. Climate change is a threat facing millions of people through multiple drivers. Land degradation, biodiversity loss, pollution, and deforestation are just a few of the environmental consequences that can trigger population flows (Van der Geest et al., 2010: 108; Webersik, 2011: 148-149).

Several authors focus on the ethics of climate-induced migration. These authors’ arguments are largely based on Peter Singer’s (2010) principle of ‘polluters pay’. The notion implies that those industrialised countries that have reaped the benefits of using natural resources to create economic wealth and leading to the anthropogenic era have a moral responsibility to compensate those who have borne the burden as a result of a rapidly changing climate (particularly third world countries). These individuals tend to live in poorer communities with little ability and/or no financial means to adapt or prevent devastating and destructive consequences within their communities as a result of climate change and climate variability (Nawrotzki, 2014: 69-71; Bettini et al., 2017: 348; Lilleør & Van der Broek, 2011: 570- 571). This is a dominant feature of climate change and migration as individuals seek to function, identify, and work on their capacity to adapt, learn, and thrive at all levels of the migratory process (Torres & Casey, 2017). As they have little ability to achieve this, it is the moral responsibility of more economically advanced countries and large corporations (in post-colonial environments) to compensate the least developed countries (LDCs), in order to give them a footing to achieve their own prosperity (Nawrotzki, 2014: 69-70). The negative impacts of CO₂ emissions are particularly borne by individuals in LDCs and poorer communities within most developed countries (MDCs). These individuals have the least means to cope with the impacts of climate change, and often face the most severe mental and physical health consequences (Bettini et al., 2017: 350-351; Nawrotzki, 2014: 69-70). The climate change impacts destroying the livelihoods of these individuals can be causally connected to MDCs’ century-long releasing of emissions to build their own wealth (Nawrotzki, 2014: 71).

The media play a large role in creating a negative image of people on the move. The intensifying media attention of the effects of climate change conveys an image of migrants “flooding” through “insufficiently protected” borders. This picture is often represented as LDC individuals trying to make their way to the MDCs in search of a cushy haven, bringing with them diseases and different, ‘disruptive’ cultures (Van der Geest et al., 2010: 107; Lilleør & Van der Broeck, 2011: 570). These individuals are being pictured as the ‘other’, a threat to the everyday ‘norm’ (Bettini, 2019: 341). This viewpoint has shifted a large part of the focus on climate-induced migration towards state security, as states rush to secure their borders from the influx of individuals migrating in response to climate crises and in search of economic empowerment. This leads to policy interventions, media attention, and academic circles generalising about the topic of migration and failing to include several significant human security-related factors, including gender (Detraz & Windsor, 2014: 127- 128; Geddes, 2015: 473- 474).

Migration, climate change, and agricultural production are rapidly emerging related topics of conversation. Dramatic or even slight changes to seasonal patterns, rainfall, and landfall of extreme weather events can have detrimental effects on the yield and production of agriculture (Backhaus et al., 2015: 535). This leads to food shortages, which leaves individuals reliant on local produce and facing food insecurity, leaving them with little to no choice but to migrate. The adverse impacts of temperature changes (increases and decreases) on agricultural productivity, particularly in agriculture-dependent countries, are widely documented (Backhaus et al., 2015: 534- 535; Cai et al., 2016: 136-137; Greiner & Sakdapolrok, 2013: 524). Subsistence and agricultural production farmers, who experience detrimental crop loss as a result of the increased unpredictability of climate variability, are also at high risk of mental health issues. Safi (2020: 1) explores the major link between climate change and increases in farmer suicides in India. Every-Palmer et al. (2016: 16-18) present the direct and indirect mental health effects of climate change. The authors conclude that there are two significant correlations. The first is the relationship between severe anxiety disorders and weather-related disasters. The second is the relationship between high temperatures and suicide. Qi et al. (2015: 114) presents the high suicidal rates of Australian farmers in the anthropogenic era as a result of land loss and varying crop production due to changing weather patterns.

People on the move as a result of slow-onset climate change or unpredicted weather events are prone to extensive physical and mental health consequences at all stages of the migratory process. It is important to note that these consequences are gendered as men, women, and children all have different experiences of the process. One particular stress which has vast implications for the mental health of individuals migrating, and those who remain at places of origin, is the disruption of cultural practices and social networks (Torres & Casey, 2017: 1). Although social ties can act as a positive agent (positive interactions with family, neighbours, and friends) in informing the decision to migrate and the ultimate destination, it can have dire implications for both the migrant and people who remain in places of origin. The migrant has the added responsibility of providing emotional and financial support to members at home (Torres & Casey, 2017: 2-3).

Table 5.1: Health Effects of a Changing Climate on Climate Change-based Migration

Climate change health risks	Consequences of the risks for climate migrates
1. Increases in the occurrence and intensity of extreme weather events. This includes floods, heat waves, droughts, and storms.	These extreme weather events can result in serious injuries, fatal diseases, death, and displacement for whole populations. As temperatures rise, the risk of exposure to extreme heat becomes more likely, and can cause heatstroke and other serious illnesses.
2. Increases in air pollution.	Worsened air quality can result in increases in chronic lung and heart diseases.
3. Climate change influences the transmission of vector-, water-, and food-borne diseases.	Climate variability and climate change lead to changes in precipitation patterns, rising temperatures, and increases in sea-level rise. Changes are caused in the time (duration of the transmission seasons) and space (extent in latitude and elevation) of the distribution of vectors and the transmission to the pathogens. Destruction of infrastructure as a result extreme weather events can spread food-related and water-borne diseases (for example, cholera).
4. Climate change threatening food security because of disruptions of land productivity.	Climate change impacts on food systems are detrimental to humans' health and very existence. Extreme weather events will lead to declines in the overall land productivity and coral reef health; increases in ocean temperatures result in declining fish yields. This decline is further exacerbated by increases in pollution, ghost gear, and overfishing.

5. Climate change leading to the decision to migrate may lead to increases in conflict.	Climate impacts will only further limit the availability of resources and aggravate stressors such as political instability in already vulnerable areas. This will often result in further conflict and exacerbate the health risks of migrants as a result of lack of resources, increased exposure, and direct militant threats.
6. Climate change threatens mental health and all-around well-being.	Climate change can have consequences for the mental health of individuals at all levels of the migratory cycle. Extreme weather events can cause loss of homes, income, and ability to provide for one's family. Women and children are at risk of sexual abuse at all levels of the process. This leads to detrimental mental health outcomes.

Source: The author

Table 5.1 lists climate change health risks in the first column and the consequences of these risks for climate migrants in the second column. The table discusses the results of climate change and several other contributing factors for whole populations confronted with experiencing loss in land productivity, loss of habitable land, increased exposure to hazards, and food/energy/water insecurities. This is often felt most intensely by the poorest populations as they lack the means to adapt and prevent or avoid impacts on their health and normal social patterns. These confrontations only increase the exposure of individuals to disease vectors (Riddell et al., 2019: 2). Migrants are highly vulnerable to changing disease vectors at all levels of the migratory decision and process. Not only are migrants further prone to exposure to disease vectors, but they may also play a role in the spread of these vectors. Climatic changes in rainfall patterns and seasonal patterns place individuals at risk as agricultural yields are detrimentally affected, potentially leading to malnutrition. Floods promote disease vectors to multiply as cases of infectious diseases such as cholera rise. Climate migrants face increasing social challenges and physical and mental health risks during all parts of the migratory cycle. These migrants are confronted with overcrowded settlements, limited access to health services, poor nutritional status, fear of the unknown, and unsanitary conditions (Riddell et al., 2019: 3-4).

5.2.2.1. The Securitization of Climate Change-related Migration

“There are no military solutions to ‘environmental insecurity’” (Brundtland, 1987: 34). By the end of the Cold War, scholars questioned the narrow-minded definition of security as

merely involving militant threats and began to include other factors (including environmental change) within the security realm. This transition was firstly internationally recognised in the UN's Brundtland Report of 1987 as reflected in the quote above (Weberstick, 2011: 161). The dramatic consequences experienced in the anthropogenic era have led to environmental change being seen as a 'threat multiplier' to poverty, health, social, and political determinants.

Climate change has recently been reframed from being a purely environmental issue to becoming a security threat. Security is a major feature of the discourse in analysing the nexus of climate change and migration. "Migration is multi-causal and the effects of environmental change will interact with other factors such as economic and political change" (Geddes, 2015: 479). The focus needs to be placed on the climate-migration-conflict pathway to understand the influences of climate variability in exacerbating conflict (Burrows & Kinney, 2016: 1-2). Conflict is not the only discourse in climate securitisation, with particular reference to migration. A driver of migration that also needs to be included within the discourse is the construction of a migrant's identification as 'endangering national security' (Bank et al., 2017: 3).

Environmental uncertainties further catalyse a sense of urgency in times of political and economic unrest. Those bearing the burden of climate change (climate migrants) are vulnerable to the perception of being identified as destitute 'victims' needed to be saved, or as 'threats' needed to be feared and regulated (Bettini, 2019: 341). When referring to individuals fleeing climate disasters, a sense of 'otherness' is created by leaders, communities, and the media. This perceived notion of migrants as security threats in destination countries can be more dangerous than actual security threats as it may result in violence and inhospitality directed towards these migrants (Burrow & Kinney, 2016: 9-10).

5.3. A Short History of Migration in the 20th Century

"Human history is the history of human mobility" (Luthi, 2018: 2). Migration and human movement have played a distinctive role throughout human history and are not new phenomena. Migration is currently acknowledged as a global phenomenon, but this has not always been the case. Historical stories of migration are dominated by nationalist perspectives; it was not until the 20th century that a global perspective has been introduced into the discourse. This has increased both the scope of knowledge and scholars expanding on

this knowledge regarding migration as a global phenomenon. 21st-century global migration movements cannot be assessed without understanding the strong influences of a diverse range of factors, including urbanisation, industrialisation, decolonisation, nation-states' security policies, and environmental changes. Socio-economic, demographic, ethnic, and political influences all lie at the heart of the patterns of migration. Migration has a long and distinctive role throughout history (Bettini, 2019: 339), and is not an emerging phenomenon of the Anthropocene. This section will provide a brief history of pre-21st-century migration to expand on how it has shaped modern migration.

This chapter will provide a brief historical outline, the suggested readings will afford in-depth look at rich and long history of migration.¹⁹ The first half of the 20th century was dominated by the First and Second World Wars. Both wars had detrimental consequences for entire populations and resulted in massive refugee movements across the globe. States' power was monopolised as restrictions were put into place to prevent the movement of people fleeing conflict at the time. Identification and citizenship documentation were introduced as entry restrictions were intensified; these documents soon formed part of everyday life. Military service was promoted and patriotically driven. An historical example of increased restrictions and forced migration is the Soviet Union under the rule of Joseph Stalin. In the 1930s harsh labour regimes were introduced under Stalin's reign. Millions fled as a result of these harsh laws and conditions. The end of the Second World War marked the displacement of millions of people as refugees fled from the new communist regimes of Eastern Europe.

Moreover, post-colonialism has been at the forefront of how we understand modern migration today. Western countries have become idealistic havens for poor migrants from the former colonies. The independence movements of the 1960s resulted in Britain, Belgium, France, and the Netherlands granting independence to their previous colonies. This fight for independence and decolonisation resulted in an influx of displaced people within Africa. Three types of migration occurred as a result of decolonisation that disrupted the world order at the time.

¹⁹ Massimo Livi Bacci (2012). *A Short History of Migration*. Cambridge: Polity Press. 1-150; Bailey, A. (1993). Migration history, migration behaviour and selectivity. *The Annals of Regional Science*. 27 (1), 315-326; and Greenwood, M & Hunt, G. (2003). The Early History of Migration Research. *Sage Journal*. 26 (1), 3-37.

1. “Reverse migration” occurred as colonisers and those placed in their colonised region to build a livelihood, migrated back home.
2. “Displaced migration” occurred as a result of the disruption of the old social order and people needed to find their place within the newly independent states.
3. “Labour migration” occurs as people move in search of economic upliftment to mitigate the disruptions in their lives (Luthu, 2018: 2).

5.4. Migration Case Study through a Planetary Health Lens: Bangladesh

This chapter gives a comprehensive but concise overview of the influence of a changing climate on the decisions of individuals in Bangladesh to migrate, as well as of the detrimental outcomes. This case study has been chosen as it is a representative example which looks beyond the simplistic assumptions that are far too often evident in the narratives of climate-related migrants. The causal pathway of climate migrants to make the decision to migrate is not limited to just the impacts of climate change, but also includes several compounding stressors that lead to the decision, such as negative economic and social events or situations. These factors need to be accounted for as climate-related migration is a complex phenomenon. Applying the proposed conceptual framework to Bangladesh is one way of addressing the research question: *What are the implications of using planetary health as a response in resolving the challenges of migration?* This case study will focus particularly on climate migrants leaving areas on the outskirts and on low-lying land of Bangladesh and moving into the inner cities.

The proposed conceptual framework (see Figures 4.4 and 4.5) is a holistic tool to examine just this. Planetary health addresses several stressors and not only environmental stressors when talking about migration. The framework represents all the elements of the conversation in planetary health and adapts them to the Bangladesh case study.

5.4.1. Why Bangladesh?

Figure 5.1: Bangladesh National Flag



Source: <http://www.operationworld.org/country/bang/owtext.html>

Bangladesh has a complex history. The country is bordered on the west, north, and east by India and on the south by the Bay of Bengal (see Figures 5.2 and 5.3). It has the second largest river system in the world: the Ganges Brahmaputra-Meghna (Ahsan, 2014: 6). Approximately 30% of Bangladesh is made up of coastal regions (Abir & Xu, 2019: 191). On the border of India and Bangladesh lies the world's largest mangrove forest, flanked to the south by the Bay of Bengal. The Bay of Bengal is an area where the impacts of climate change are felt the worst in Bangladesh (Paprocki, 2019: 2). This section will focus especially on the environmental element of the migration discourse, but will also include a number of other stressors which exacerbate, and are exacerbated by, climate change at all levels of Bangladesh's migratory cycle. This chapter does not disregard the existing political instability and complex history of the country. Bangladesh, a densely populated South Asian country, has constantly had to cope with floods, tropical storms and several other natural disasters. However, in the anthropogenic era, Bangladesh has seen interrupted patterns of migration and chaotic patterns of urbanisation as a result of accelerating climatic changes, which increase the frequency of these extreme weather events. With predictions of migration up to 200 million people by 2050 (Miller, 2017: 89), Bangladesh offers a good example of the urgency of addressing climate-induced migration for individuals across the globe.

Figure 5.2: World map indicating the position of Bangladesh



Source: <http://ontheworldmap.com/bangladesh/bangladesh-location-map.html>

Figure 5.3: Map of Bangladesh



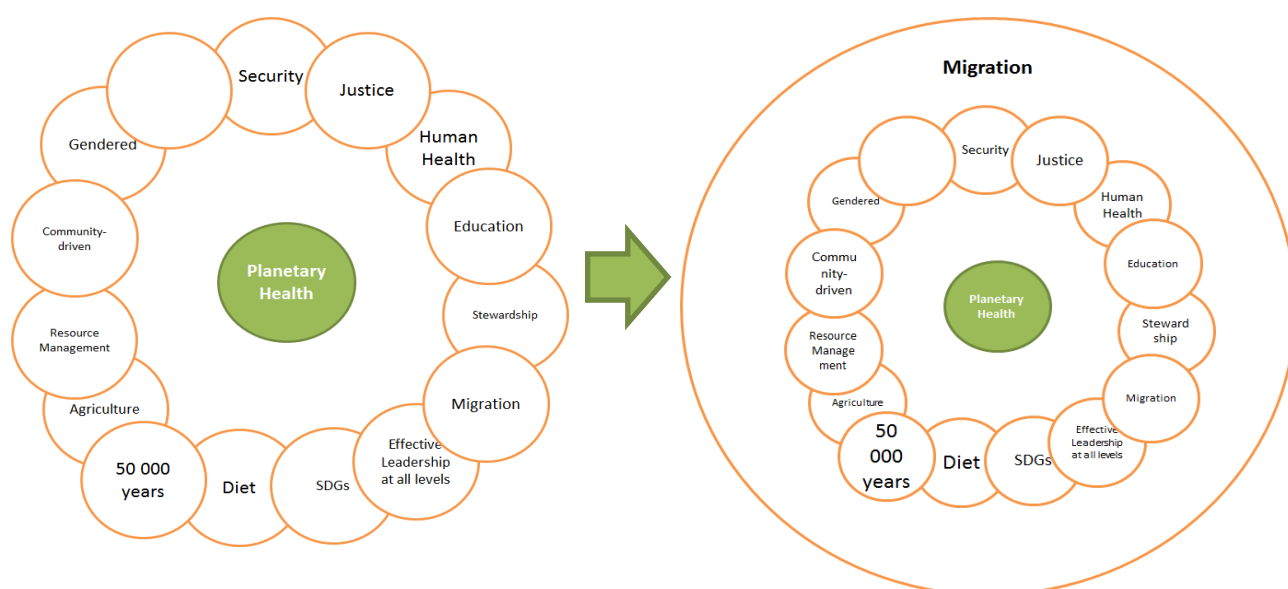
Source: <http://www.operationworld.org/country/bang/owtext.html>

Bangladesh has been selected as the case study because of the increasing intensity with which climate change influences the entire Bangladeshi population. Climate change-related impacts include loss of homes, infrastructure, food insecurity, major health consequences, and limited access to education. “Global sea levels have risen by approximately 0.2m since 1900, with projections showing continued changes under anthropogenic warming” (Hauer et al., 2020: 28). The two most common at-risk populations include, firstly, populations living in 100+-year-old floodplains, and secondly, populations living in the low-elevation coastal zones (LECZ). Bangladesh coastal zones are heavily populated with over 110 million people residing in LECZ areas and over 12 million in 100+-year-old floodplains (Hauer et al., 2020: 29-30). Bangladesh is visibly experiencing increases in the frequency and severity of extreme weather events. Major challenges arise from this because of the destruction of infrastructure, displacement of people, increased damage to LECZ communities, and disruptions of food patterns and accessibility (Roy et al., 2020: 120-122). The Bangladesh government has often come under much criticism and scrutiny for its corruption. The accusation is that resources and budgets are not being effectively monitored and this continues to have dire consequences for the Bangladeshi population, particularly marginalised individuals, and their ability to adapt to climatic changes.

The proposed conceptual framework (Figure 5.4) is potentially helpful for understanding migration in Bangladesh as it offers guidance in identifying and interpreting the integrated

conversation between human health and climate change, and how migration fits into that picture. The proposed framework addresses consequences of a rapidly changing climate through a planetary health lens. Each circle indicates a major relationship in the planetary health arena between climate change and health. The migration circle has been zoomed in on because of its importance in answering the research question on whether planetary health is able to offer an effective response for migration. Each circle holds the complete framework within itself to illustrate the interdisciplinary approach that planetary health offers to a fuller understanding of migration.

Figure 5.4: Zooming in on Migration within the Proposed Conceptual Framework



Source: The author

5.4.2. Applying the Proposed Conceptual framework to Bangladesh

The proposed conceptual framework (Figure 5.4) shows the ability of planetary health to offer an agenda for examining the relationship of climate change and human health in International Relations. By identifying the response Planetary Health offers to dealing with the complex relationships of climate change and global health, it is possible to respond more effectively to the challenges of migration. Migration is not a single issue, but involves a number of causal links that affect the mental and physical well-being of people on the move. By linking migration with security, justice, health, education, effective leadership, achieving SDGs, the importance of diet, a 50 000-year focus, agriculture, resource management, and

community leadership, all through a gendered lens, the planetary health response to migration goes beyond a superficial focus on movement.

“It is almost certain that climate change-related environmental events will continue to affect human life and livelihoods in Bangladesh with increasing intensity and frequency” (Naser, 2019: 11). South Asian countries located in the Arabian Sea, Bay of Bengal, and East of the Indian Ocean fall in the region of heavy rainfall within the monsoon belt (Hossain et al., 2018: 956). A salient example is Bangladesh, which sits in the middle of the Bay of Bengal (see Figure 5.3). Bangladeshi livelihoods are often dependent on aquatic systems which are rapidly being degraded by climate change (Hossain et al., 2018: 956- 957). Migration has played a large role in the history of Bangladesh and is closely linked to the socio-economic livelihoods of the people (Etzord et al., 2015: 80). Migration or displacement tends to occur on a national rather than international scale in Bangladesh, as people tend to move to urban areas more so than different countries (Geddes, 2015: 474). An estimated 6 million people have already been displaced internally due to extreme weather events in Bangladesh (Sarker & Puskur, 2018: 6). Kabir and Baten (2016: 1) identified Bangladesh as the third most vulnerable country to sea-level rise. This will result in increased flows of internal and international migration. In Bangladesh 13.3 million people are estimated to become climate migrants by 2050 (Sarker & Puskur, 2018: 6; Naser et al., 2019: 1). Climate change will continue to have long-term effects on Bangladesh’s population mobility. This is the case for both the inland and coastal regions of Bangladesh. This case study will focus on citizens of the coastal region of Bangladesh moving to major inland cities (such as Dhaka). It is important to note that the coast of Bangladesh is very different from the inland areas of the country. This is not only because of the coast’s unique geophysical characteristics, but also because of the different vulnerabilities to Bangladeshi livelihoods experienced by coastal and inland communities (Hossain et al., 2018: 956- 957).

Conversations around Bangladeshi people’s reasons to migrate often include social, economic, and health reasons, indicated as circles in the proposed conceptual framework. All of these consequences are related to the conversation on planetary health, as they are influenced by and have influence over climate change and health. Migrants are often the poorer members of the community, and their poverty is further exacerbated by the impacts of climate change. It is distressing to think that the future of Bangladesh is so gloomy and unpredictable (Anwer, 2012: 7). In the early 21st century Bangladesh has already experienced

increased frequency of shifting seasons, rainfall variability, rapid onset of natural hazards, and creeping environmental degradation. These rapid climatic changes have several serious consequences for the Bangladeshi population, including food insecurity, loss of homes, farmlands, and even lives. The socioeconomic impacts experienced by climate migrants affect every aspect of their lives (Saker et al., 2019: 1).

5.4.2.1. Human Security and State Security (Circle 1)

The first circle of the proposed conceptual framework is security. Security and justice are two exceptionally important topics in the conversations about climate change and conversations about health, and their relationship. The undermining of state and human security by climate change, and the marginalised populations that feel its consequences the most sharply, are issues addressed in the proposed conceptual framework for planetary health.

5.4.2.1.1. Human Security

It is well known that Bangladesh is among the countries hardest hit by climate change. A large percentage of the population is at risk of losing their entire communities, social network systems, livelihoods, and ‘normal’ lifestyles (Kolstad et al., 2019: 1- 2; Naser et al., 2019: 5). One cannot fully understand this vulnerability faced by Bangladeshi people without also assessing their adaptive capabilities and the local governance strategies in place to mitigate the effects of climate change (Etzold & Mallick, 2015: 80). “One reason people are moving in Bangladesh is that the climate is changing... You probably remember the cyclone Ayla, which brought devastation to many communities... Many families have also lost their homes or land through river erosion and flooding. Some say that the mangrove forest is dying” (Kolstad et al., 2019: 16). These comments illustrate the vulnerability of Bangladeshi people living in the southern coastal belt, the drought-prone northern areas, and next to the rivers to the impacts of climate change (Etzord & Mallick, 2015: 80- 81; Kabir & Baten, 2016: 1). Climate change acts as an environmental push factor for individuals from marginal, rural, and poorer countries with low-lying coastal areas – a significant example being Bangladesh. Cyclones, increasing salinity, sea-level rise, natural hazards, and environmental degradation are all consequences in the anthropogenic era. Migration within Bangladesh tends to occur internally rather than internationally (Kolstad, 2019: 1). Rapid population growth, urbanisation, and climate change all contribute to the complex impacts of migration within the low-lying areas of Bangladesh. Cascades of major environmental and human security risks are experienced on the road to the migratory destination (particularly from low-lying

areas to urban areas such as Dhaka). This can be seen predominantly in the country's fast-growing slums. Evidence of the dramatic impacts on Bangladesh indicates 32% of the low-lying coastal communities experience major detrimental climatic consequences each year (Naser et al., 2019: 1).

5.4.2.1.2 State Security

Several authors conclude that migration is an adaptation strategy in the aftermath of natural disasters. It can be a coping mechanism in response to intense political power games being played by the Bangladesh elites that ultimately shape everyday life for the average Bangladeshi citizen. Adaptation measures are not always successful; they take into account climate change, but may not be based solely on climate change alone (Ayeb-Karlsson et al., 2016: 680). People's livelihood resilience is strengthened through adaptation strategies. Migration can serve as a successful strategy to move away from cyclones and flood-affected areas; however, the adaptation strategy may leave people more vulnerable as a result of poor and precarious living conditions and the Bangladesh government's inability to respond to the influx of migrants moving within its borders (Ayeb-Karlsson et al., 2016: 693). The political context of Bangladesh's migration patterns is dense and cannot be ignored (Kolstad et al., 2019: 4).

When looking at adaptation from any angle, one must not focus only on climate change as this may shift the focus away from the multiple livelihood risks faced by citizens on a daily basis. These risks include the social and economic inequalities faced by the Bangladeshi people. Salinity of the soil as a result of sea-level rise, disruptions to the water table, and extreme weather events leave Bangladesh households vulnerable to changes in aquatic systems and exacerbates already existing threats to deepen poverty (Hossain et al., 2018: 963). The social, economic, physical, and psychological aspects of life are altered by floods, droughts, ocean acidification, saline water intrusion, erosion, sea-level rise, cyclones, changes in precipitation trends, and tidal surge (Sarker et al., 2019: 1). The disruptions faced by LECZ countries such as Bangladesh can only be fully addressed by targeting the main elements represented in the framework through a planetary health lens.

5.4.2.2. *Climate Change, Migration (Circle 6), and Justice (Circle 2)*

In Bangladesh the depressed lower-income areas tend to accommodate poorer, underprivileged individuals. The elderly, women, and children are severely affected by

climate change impacts. Because of their demographic status, social, and physical situations, these members of the community are unable to cope with and respond appropriately to extreme natural events (Sams, 2019: 62). Individuals who find themselves without the capabilities to migrate are often left behind. It is important to look at Bangladesh climate migrants through a gendered lens. Women experience increases in work burdens and vulnerability at all levels of the migratory process. These consequences can occur at all levels of an individual's life and include economic, social, physical, and psychological aspects (Saker & Pusker, 2018: 7-11).

Social, economic, educational, physical, ecological, and occupational dimensions of daily life are not gender-neutral. Women and children already experience major gendered inequalities every day, and climate change exacerbates and compounds the inequalities felt by women and girls. Women and young girls are highly susceptible to gender-based violence, and physical and mental trauma (Sams, 2019: 57). Bangladesh can be considered a patriarchal society which limits women's position in decision-making at family and community levels of Bangladesh society. This patriarchal social structure cements gendered norms and cultural values that may limit women's roles in society (Sams, 2019: 60). Bangladesh migrants are faced with trauma, sleep disturbance, eating disturbances, anxiety, fear, and anger at all levels of the migratory cycle. Bangladeshi rural communities along the coastal regions of the country are extremely vulnerable and susceptible to ecological disruptions to livelihoods. Displacement and the decision to migrate by whole Bangladeshi communities are a result of ecological disruptions that have been linked both loosely and intensely to climate change (Paprocki, 2019: 1).

Rural livelihoods are intensely dependent on seasonality and rainfall, which are in turn sensitive to the changes brought by a rapidly changing climate in the anthropogenic era (Etzold et al., 2015: 80). Rainfall variability and food security are closely intertwined. Rapidly occurring extreme weather events and the influence of climate change on seasonal variability can result in too little or too much rain at 'wrong' times of the year. These changes in rain patterns impact negatively on the availability of food in the region, resulting in a skyrocketing food insecurity dilemma for the Bangladesh population. Food insecurity is felt particularly severely by the country's poor (Etzold et al., 2015: 79-80). An example of this is in North-West Bangladesh, where migration is seen as a coping mechanism to climatic impacts, particularly to avoid food insecurity (Etzold et al., 2015: 89). Despite an increase in

the influx of migrants, many people in the region are unable to migrate for physical, economic, and social reasons, with the result that they can be regarded as “trapped Bangladesh populations”.

5.4.2.3. Bangladesh Health (Circle 3), Agriculture (Circle 11), Diet (Circle 9), and Future Focus (Circle 10)

“In any incidence of hazard, if we lose [food] production we have hardly any alternative but to migrate” (Etzold et al., 2015: 90). This comment from an elderly woman in the North-West Bangladesh region represents the desperation of people trying to cope with the consequences of climate change. The proposed conceptual framework sees agriculture, diet, and food security as fundamental building blocks in reaching the goal of planetary health and in understanding the balance between protecting the earth and protecting the health of populations. Planetary health looks beyond tomorrow and focuses on optimising health for thousands of years to come. Planetary health demonstrates the dependence of Bangladeshi people on agriculture and their ethical understanding of land and sea. Bangladeshi people along the coast arguably understand the interdependent relationship of their livelihood with the water that surrounds them. The anthropogenic impacts emerging in Bangladesh are detrimental to the biodiversity of the country. It is even more unnerving that the south-west coast of Bangladesh is heavily dependent on the sensitive aquatic system for food and income. The anthropogenic era has placed food supply and environmental sustainability in the region at risk (Hossain et al., 2018: 954).

Although Etzold et al. (2015: 81) do not mention planetary health in their article, the authors do refer to the same principles implied by academics investigating planetary health principles. An important principle of planetary health is a stable and secure diet and food security. Planetary health acknowledges the importance of understanding the relationship between resources and health. Food insecurity occurs in all aspects of environmental crises and can be seen as a major environmental push factor for Bangladeshis to migrate. Bangladesh’s economy and people are particularly reliant on shrimp cultivation, river and sea fishing, livestock farming, salt farming, crab fishing, and drying fish. All these forms of production are dependent on natural resources. Planetary health sees the economic, physical, social, and physiological importance of protecting natural resources. The Bangladesh economy would be heavily affected by any disruption of, and limited access to, natural resources. Disruption of natural resources, and particularly those linked to agriculture and

fishing, would drastically affect the diet of millions of Bangladeshi citizens. This would result in severe food insecurity and malnutrition rising rapidly. It is also important to acknowledge the psychological burdens that result from the disruption to natural resources. Farmers, heads of households, and all people in society are mentally affected by an inability to adequately provide for their families. Besides, people have increasingly less access to social and economic services as severe impacts to livelihoods occur (Sams, 2019: 57- 58).

5.4.2.4. Bangladesh Population's Access to Services in the Anthropocene (Circle 2; 7; 11; 12 and 13)

Ecosystems in Bangladesh are at the heart of Bangladeshi livelihoods. With major threats to biodiversity through climate change, the services provided by the Bangladesh ecosystem are no longer operating successfully. Unsustainable practices and increased anthropogenic threats including water pollution, destructive gears, overfishing, and shrimp postlarvae²⁰ collection, continue to create major hardships for Bangladesh communities dependent on natural resources and agriculture as their main source of income (Hossain et al., 2018: 965). Multiple studies have concluded that environmentally-influencing factors contribute significantly to the forced displacement and decision of Bangladeshi people to migrate. Environmentally-influencing factors include:

1. Fresh water contamination caused by salinity, particularly in the low-lying areas in Bangladesh;
2. Cyclones, monsoons and other extreme weather events can result in or are married to flooding, river erosion, coastal erosion, coral bleaching, tidal surges, and sea level rises;
3. Sea-level rises, extreme weather events, and salinity all result in loss of suitable agricultural land leading to lack of access to basic services and food insecurity (Naser et al., 2019: 5).

Livelihood diversification is a way to empower communities. If a community is not dependent on only one form of income industry, then the impacts of climate change to that industry may pose a lesser threat to the physical, mental, and social health of Bangladeshi

²⁰ Wild postlarvae are used in freshwater prawn farming. "The livelihoods of around 400.000 people, many of them women and children, are associated with prawn and shrimp post larvae in coastal Bangladesh" (Ahmed et al., 2009: 218). Unsustainable fishing practices of wild postlarvae have had a detrimental impact on the biodiversity of Bangladesh's coastal ecosystem (Ahmed et al., 2009: 219).

people (Hossain et al., 2018: 964). Ecological disruptions and slow-onset changes will result in obstruction to basic services, massive potential loss, and intense damage to both the physical and mental health of millions of Bangladeshis. Resilience in the face of these tremendous impacts is strongly influenced by the resilience of local social networks, the severity of the climatic events, and the socio-economic situation of the Bangladeshi population (Naser et al., 2019:5).

5.4.2.5. Climate change hindering the Sustainable Developmental Goals in Bangladesh (Circle 8)

The importance of marine ecosystems to Bangladesh is indisputable. They provide food, tourism, and marine-based incomes to many Bangladeshi people. The Bangladesh government has started focus on achieving SDGs which are in line with planetary health's stated principles and goals. As low-lying coastal areas in Bangladesh are particularly vulnerable to the consequences of climate change, it is imperative to acknowledge the importance of ocean-based resources for Bangladesh's economy and the livelihood of its people. Several SDGs focus on conserving and sustaining the use of the ocean resources, for example, SDG 14: *conserve and sustainably use the oceans, seas, and marine resources* (Saker et al., 2019: 7- 8).

Bangladesh has many popular tourist destinations which support the country's economy, including Cox Bazar, one of the world's longest sea beaches and the largest compact mangrove forest in the world. Climate change-induced extreme weather events will be detrimental to tourism in this area. Coral bleaching, biodiversity loss, crop loss, loss of infrastructure facilities, and saline water intrusion are also consequences of climate change that will have an impact on the country's tourism industry (Sarker et al., 2019: 6-7). When looking at Bangladesh's coastal frontlines, one must identify the adaptive responses that are available to achieve ecosystem and sustainability for both the country's oceans and rivers (Hossain et al., 2018: 963). Sustainable development for ocean and coastal resources is arguably achieved through the Blue Economy. Sarker et al. (2019: 1-5) successfully illustrate what Blue Economy is. Blue Economy is defined as promoting "economic growth through the sustainable utilization of ocean resources with technological inputs to improve livelihoods and meet the growing demands for jobs without hampering the health of the ocean ecosystem" (Sarker et al., 2019: 1).

Climate change creates a number of barriers to achieving the UN SDGs. This is argued by planetary health and illustrated by the Bangladesh example, and is especially relevant to SIDS. Renewable alternative sources of energy are an important step towards breaking down these barriers experienced by SIDS. Coastal communities in Bangladesh are often remote and therefore possess limited access to services such as a national power grid. Renewable energy resources need to be implemented as an alternative in order to reduce the vulnerability of Bangladeshi livelihoods. Vulnerability may be decreased as people would have access to major services despite their remoteness and economic status (Moolna et al., 2019: 1- 2).

5.4.2.6. Bangladesh Leadership (Circle 7)

It is impossible to guess precisely how many people will migrate. It is not acceptable to isolate environmental consequences from other consequences such as unemployment, lack of good governance, security vulnerabilities, and poverty (Naser et al., 2019: 4). Climate-change led barriers to sustainable fishing along the coast of Bangladesh has resulted in decreases in catching productivity and increased vulnerability to livelihoods. Overfishing has led to massive decreases in marine fish catches. Fish with the highest commercial value are targeted the most. Governmental policies have failed to target the many impacts felt at all levels in the anthropogenic era. Rather than including the protection of coastal biodiversity at the core of policies, the focus has been placed on economic development and state security (Hossain et al., 2018: 964).

How do the locals perceive the impacts of climate change in their everyday lives? This is an important question to ask when deciding on the implementation of policies by the Bangladesh government (Etzold, 2015: 83; Kabir & Baten, 2016: 1). Bangladeshi people moving from coastal low-lying areas to urban cities may feel that they are not receiving any direct help or positive interventions by the Bangladesh government. These migrants experience hardships at all levels of the migratory processes. The hardships are not restricted to the place of origin and instead are experienced even when the destination is reached. Governmental bodies should provide emergency relief services and establish health centres in remote and coastal areas for climate migrants (Ashan, 2014: 9 and Abir & Xu, 2019: 202). Non-governmental organisations (NGOs) are active in Dhaka, Khulna and other urban cities in Bangladesh. These organisations try to provide some assistance for access to basic services and human rights. Lack of resources and suffering from trauma leave migrants with little choice but to settle in places where they can find jobs and access to cheap land (Ashan, 2014: 10). These

are often major urban area such as Dhaka. Despite NGO efforts, government corruption and ineffective leadership lead to overcrowding and lack of access to services for a large majority of the Bangladesh population.

5.4.2.7. Internal Migration and Urbanization in Bangladesh (Circle 6)

Bangladesh is a rapidly urbanising country by international standards, but it still has a large rural population (Ahsan, 2014: 6). Sams (2019: 61) argues that displaced people (in this case, displaced as a direct result of climatic conditions) tend to relocate to adjacent urban areas considered 'safer' from the direct dramatic impact of climatic change. The proposed conceptual framework acknowledges the importance of understanding urbanisation patterns, as existing patterns are disrupted or inflamed patterns by ecological disruptions. Planetary health particularly connects adverse health effects (including the spread of NCDs) with urbanisation. Slums in cities are identified by several academics as highly likely destinations for displaced persons or voluntary Bangladeshi migrants. Slums in Bangladesh have been both largely unplanned and rapidly growing in recent years. This creates a major challenge for leadership and policies to tackle the influx of migrants moving away from low-lying rural coastal areas to cities such as Dhaka. This form of urbanisation is the consequence of several factors working together, including the significant effect of environmental influences in the decision to migrate. Sams (2019: 61-62) and Naser et al. (2019: 7) conclude that income/economic constraints prompt a number of Bangladesh families to make the decision to migrate.

5.4.2.8. A Gendered Perspective: Bangladesh (Circle 13 and Circle 14)

Women are particularly vulnerable to disasters and other anthropogenic changes. These challenges faced by Bangladeshi women are challenges felt by millions of women across the globe. Because of societal norms women are more likely to take care of a number of the issues indicated in the proposed conceptual framework: sustenance farming, feeding their family, water collection, and looking after the health of their households. The misuse of resources, a corrupt state, a changing climate, and migration place significant burdens on women and their ability to perform these caretaker tasks that society has assigned them. An example of these burdens, for Bangladeshi women in particular, is the limited availability of fresh water supplies. It is clear that the relationship between climate change and human health is not gender neutral. Women face multiple burdens that climate change exacerbates at all levels of life. Women have less control and ownership over Bangladesh resources and,

hence, women have less power in decision making about strategies to improve the lives of Bangladeshi people.

When linking the gender circle and migration circle in the proposed conceptual framework, it is important to note that it is not gender neutral. Internal migration is a common practice for Bangladesh families as male members often leave their spouses as they search for better opportunities for work outside of their home towns. Women are then left to care for the ill, raise the children, subsistence farm, and provide for the rest of the household. Climate change exacerbates these burdens as slow-onset changes and extreme weather events make performing daily tasks tedious and precarious, affecting physical and mental health. These changes include disruptions to farmland and the access to water, which makes life for Bangladeshi women very difficult. These women also tend to have no access to effective physical and mental health facilities. The Bangladeshi government is not targeting these environmental disruptions with the seriousness they deserve as they have massive negative consequences for women and entire town populations (Mason & Rigg, 2020: 178- 182; McLeod et al., 2020: 116). The gender circle in the proposed conceptual framework indicates the importance of understanding the significance of gender within planetary health. It is a major issue that needs to be targeted in every circle of the framework, as none are gender neutral.

“When parents cannot afford to feed or educate their children, it is usually girls’ futures that are sacrificed first” (Mason & Rigg, 2020: 119). There is much evidence of the heightened risk of and increases in child marriages in the aftermath of extreme weather events which may have been exacerbated by climate change. The increased risk of child marriage as a result of climate change exasperates Bangladeshi’s already high prevalence of such marriages. 22% of the country’s girls under the age of 15 are already wed as child brides, without taking extreme weather events into account. Bangladeshi households place expectations on the young females to be married and move out their houses. Poverty is considered as the most prominent driver for increases in child marriage; compounded with climate change impacts, this only escalates detrimental physical and mental health implications for the young girls and women of Bangladesh. This is not only the case in extreme weather events, but child marriages may also be an adaptation strategy for many Bangladesh households in the face of slow-onset disasters such as sea-level rise. Planetary health sees the importance of including gender within the conversation as it emphasizes

community-led leadership and the importance of placing women in power-wielding roles. By identifying the role of gender, planetary health can offer an agenda with women at the forefront through understanding their needs and vulnerabilities at all levels of migration. Each circle in the proposed conceptual framework, some more than others, influences the lives of women and girls in Bangladesh. Migration and displacement increase risks for women in particular, as Bangladesh families are vulnerable to human traffickers and sexual assault.

5.5. The Proposed Conceptual Framework: An Analytical Tool for Bangladesh

The proposed conceptual framework (Figure 5.4) shows the main issues overlapping when people talk about climate change and health. The interdisciplinary nature of planetary health is conveyed by the 17 circles in the novel framework. Each circle is connected to the others, never breaking to indicate that no matter the position of the circle, each issue is connected to the others represented. “While Bangladesh has made impressive strides in reducing poverty levels, 23.3% of its population remains impoverished and another 12.9% lives in extreme poverty” (McLeod et al., 2020: 116). The magnitude of the impoverished population in Bangladesh means that the circles security, justice, human health, migration, the need for effective leadership, achieving SDGs, agriculture, resource management, community leadership, and gender are particularly important for Bangladesh to focus on. The circles of education, stewardship, diet, and the projection of looking 50 000 years into the future are currently less important. Because of slow-onset environmental change and extreme weather events, Bangladeshi people are losing their homes, have little to no access to food and water, are being displaced or having to make the decision to migrate, and education is often the first expense to be cut. Immediate attention is needed for these infringements of basic human rights to be addressed. The issues currently faced by the large marginalised population of Bangladesh, fighting day-to-day battles for their physical and mental survival, have to be addressed before Bangladesh can enjoy the luxury of looking into the future.

Bangladeshi people are not faced only with the issues of security, justice, and migration that arise because of climate change; but also, the influence of climate change and health on gender, corruption, education, agriculture, resource-management, community empowerment, achieving SDGs, and stewardship are issues influencing entire populations at all levels of society. Therefore, despite the purposeful sequence of the circles, no issue is isolated but rather they are interlinked to convey a better understanding of the role planetary health can

offer for Bangladeshi migrants. In the case of Bangladesh the empty circle allows planetary health to offer a platform to integrate a number of issues. An example of an issue represented by the empty circle is the nexus of climate change, mental and physical health, migration, and child marriages which is a reality for many Bangladeshi women and young girls. It is an issue which needs immediate attention due to the heightened vulnerability of displaced women and children because of slow-onset climatic changes and extreme weather events. By looking at the proposed conceptual framework that zoomed in on migration (Figure 5.4), the circles justice, gender, migration, and human health are able to expose such an issue by looking deeper into the literature available when connecting the circles. The proposed conceptual framework is an analytical tool that is able to effectively help with understanding what planetary health can offer in addressing the implications of migration faced by countries across the globe.

5.6. Conclusion

The 17 connected circles that depict planetary health in the proposed conceptual framework have the ability to provide an accessible checklist to investigate the overlap in what is happening when people talk about climate change in Bangladesh and when people talk about the health of people in Bangladesh. As a densely populated country with entire coastal residential regions threatening by flooding as a result of sea-level rise and extreme weather events, Bangladeshi men, women, and children all find themselves and their livelihoods very much in jeopardy. In the case of Bangladesh, some circles need more urgent focus than others. Stewardship and 50 000 years projected thinking are of less pressing and immediate importance in the case of Bangladesh than issues of security, justice, migration, gender, agriculture, and effective leadership for the mere survival of the marginalised population of Bangladesh. Climate change brings with it unpredictable outcomes, particularly for the more marginalised populations across the globe. The empty circle represented within the conceptual framework is also important, as it helps us to be forward thinking in identifying unforeseen and unpredictable issues do not have a definite place in the framework but will still require immediate attention.

The framework has successfully provided a flexible means to look at the complex phenomenon that is climate-related migration and, by doing so, offers an answer to the research question of whether planetary health can offer a response for migration. Bangladesh continues to feel the worst impacts of extreme weather events and slow-onset climatic

changes; without effective interventions by its government, NGOs, and international intervention, Bangladesh's population (particularly those already marginalised) will continue to suffer acutely. Bangladesh migration tends to be internal rather than international. The proposed conceptual framework for planetary health is able to identify the magnitude of the suffering felt by Bangladeshi migrants as they suffer at all levels of their livelihoods. By addressing migration under the umbrella of planetary health, individual grievances are successfully identified and the way they interlink is better understood when policies want to effectively address the many overlapping issues when talking about climate change and health.

6. Conclusion

An emerging concept was identified in the discourse as planetary health in dealing with the relationship between climate change and health. *The 2015 Lancet Commission on Health and Climate Change* presented the importance of nurturing nature to nurture our own well-being. Communicable and non-communicable disease vectors are disrupted by climate change, and the climate variability of extreme weather events make access to adequate water, shelter, and health care very difficult. The urgency of addressing climate change is only increasing; planetary health works to address this urgency by providing effective responses. The nexus of climate change, human health, and migration needs urgent attention and is one that has not been adequately explored under a planetary health umbrella. As the study progressed it became clear it is not only physical health that is important, but mental health because of stress is as detrimental to climate migrants. This study has applied the principles of planetary health to the case of Bangladesh to explore its utility as an analytical tool to understand the nexus of climate change, human health, and migration.

In order to understand the research problem of *IR scholarship, as an epistemic community, failing to define, describe, and explain migration within the context of planetary health*, an understanding of planetary health and the associated discourse of climate change and human health is essential. The primary research question was: *Does planetary health suggest an agenda for addressing the relationship between climate change and global health in International Relations?* Chapters 2 and 3 suggest an answer to this primary research question as they outlined the existing overlaps in the discussions of climate change and health. Chapter 2 provided an historical look at the evolution of ecological and health studies. Chapter 3 presented the theoretical underpinnings of ecological and global health studies.

The secondary research question reads: *What are the implications of using planetary health as a response in resolving the challenges of migration?* Chapters 4 and 5 suggested answers to this secondary research question. Chapter 4 presented the emergence of the discourse of planetary health out of its theoretical antecedents of ecological and health studies. The chapter then presented the proposed conceptual framework for Planetary Health in order to understand the complex relationship between climate change, human health, and migration. Chapter 5 uses the proposed conceptual framework in action through the case study of Bangladesh.

6.1. Summary of the Study

Chapter 2 provides the historical evolution of ecological and global health studies. It provides the context for the study of climate change and health. The historical relationship between the two was presented in a globalising future. The interrelationship between the literature on climate change, health, and migration (Figure 2.1) includes the topics of global inequalities, gender, mental health issues, communicable and non-communicable diseases, policy intervention, security, migration, and direct and indirect impacts. The evolution of climate change and health cannot be represented without a representation of the institutionalisation of these concepts. The institutions consulted under the evolution of the literature on climate change include the IPCC, the UNFCCC, COP, and the Rockefeller Foundation. The institutions consulted under GH include the WHO, the Rockefeller Foundation, and PEPFAR. GH is susceptible to rapid changes in an increasingly globalised world and the impacts of climate change on health are only increasing.

The full significance of planetary health cannot be presented without consideration of the theoretical foundations it is built on. Chapter 3 presents the theoretical foundations of ecological and GH studies. It identifies the relationship between the variables presented when looking at the genealogy of GT (Figure 3.1) and the genealogy of GH (Figure 3.2). The GT approach to justice, gender, and security is presented and strands of green are discussed. The original four pillars of GT are presented and include ecological responsibility, social justice, non-violence, and participatory democracy. Chapter 3 approaches the genealogy of GH by presenting health inequalities, gender, migration, the global political economy of health, security, and global health governance. The links between the two genealogies of social justice and inequalities show the poorest nations suffering the environmental consequences most severely.

Chapter 4 presents the emergence of planetary health since the release of the *Lancet Commission on Climate Change and Health* by the Rockefeller Foundation in 2015. The principles of planetary health are explicitly discussed (Figure 4.1) and include a bottom-up approach, stewardship, brave leaders, green alternatives, active change, and education. Planetary health is represented as offering a better future for civilisation and the natural system that civilisation depends on. The proposed conceptual framework (see Figures 4.4 and 4.5) is presented in the chapter and works as an analytical tool to offer clarity on an emerging discipline. The novel framework of planetary health presents the main principles in circles and their interdisciplinary nature as they all make one larger circle of planetary health. The

circles include security, justice, human health, education, stewardship, migration, effective leadership, SDGs, diet, 50 000 years future thinking, agriculture, resource management, community-driven change, and gender. The order of the circles is important as the larger relationships within the conversation are represented next to one another, for example, security and justice, and education and stewardship. An ‘empty’ circle is left in the proposed conceptual framework as it represents the over-ended nature of planetary health. Planetary health acknowledges that climate change and other environmental challenges are unpredictable and ever-changing in a globalised world. The empty circle represents the work still left to be done in the discourse of planetary health, but also represents the vast possibility of planetary health’s ability to identify challenges faced not only by climate migrants, but entire populations.

Chapter 5 is a case study of Bangladesh. It presents the challenges faced by Bangladeshi migrations through the proposed conceptual framework (Figure 5.4). Some circles of the proposed conceptual framework are more important for Bangladesh at present than others. Climate-related challenges explored from the framework include security, justice, health, agriculture, diet, access to services, SDGs, leadership, and gender. Certain circles need to be addressed to ensure the basic human rights for a large majority of the marginalised population in Bangladesh. Therefore, the circles of education, stewardship, diet, and the projection of looking 50 000 years into the future are less important to focus on currently. The Bangladesh case study demonstrated the proposed conceptual framework in action and worked to successfully answer the secondary research question.

6.2. Solving the Research Questions

In order to answer the first research question of what agenda does planetary health suggest for examining the relationship between climate change and human health in IR, the study needed to define its main two concepts within the planetary health conversation: climate change and GH. Planetary health successfully offers a response for climate change and GH as it clearly presents the interests of both narratives, whilst preserving the health of the earth and the well-being of the Earth’s population.

Planetary health, as the successor of GH and public health, addresses not what the health and environmental discourse has failed to address, but rather expands on the existing knowledge. Planetary health offers a holistic approach to deal with an urgent situation. Planetary health puts the ecosystem at the centre of the conversation about human health and a changing

climate. The Rockefeller Foundation-Lancet Commission on planetary health released, and is still releasing, several flagship publications reflecting the discourse on planetary health. The commission defines planetary health as “the health of human civilisation and the state of the natural systems on which it depends” (Hill-Cawthorne, 2020: 14). The open-ended nature of planetary health, as seen in the ‘empty circle’ of the proposed conceptual framework (Figure 5.4), is what it has to offer for the way forward. The purpose of the empty circle has been explicitly explained throughout the study, but it may still be interpreted as only adding to vague and uncertain nature of planetary health. However, including the ‘empty’ circle in the proposed conceptual framework offers a chance to link the different variables that may have previously been overlooked in traditional IR. For example, the narratives of security and justice have been largely presented in IR, but planetary health is able to extend this relationship by highlighting a nexus of security and justice with agriculture, gender, and community leadership. The empty circle has been offered as a blank canvas for the kind of community-driven discussions that planetary health prides itself on. Planetary health is a means to effectively offer an agenda for addressing the grievances faced by entire populations, particularly largely marginalised groups. It is not only a discourse to address grievances, but also a hope for the future in addressing climate change for the sake of the better health of civilisation and of the natural systems that civilisation depends on.

The secondary question probes the use of planetary health as a response to the challenges of migration. Complexities arise when working with a phenomenon such as migration because of the different influences and adaptive capabilities of individuals in each case. Planetary health has the ability to offer an achievable agenda for complex climate- and health-related issues faced globally through the proposed conceptual framework. Planetary health, as an emerging interdisciplinary field, understands that migration is not a challenge that can be addressed effectively merely by focusing on one variable; all other influences of climate change and health need to be a part of the conversation. The proposed conceptual framework (Figure 5.4) uses the conversations in planetary health to identify possible implications when using planetary health as a response to resolving the challenges of migration. The framework successfully points out the challenges faced by climate migrants at all levels of society, life, and the migratory process. The empty circle is a representation of how much more there is for planetary health to do, but also what it has to offer as an open discourse willing to listen to information from ground-level. There remains a vagueness around how planetary health and the proposed conceptual framework works as an analytical tool to offer some clarity for

policy-makers, researchers, health physicians, and anyone willing to listen. This study may have benefited from two case studies (for example a working comparison between a developing country and developed country) in order to give more depth to the proposed conceptual framework. Migration is a complex issue which needs to be presented in a non-polarising manner to include the experiences of different climate migrants across the globe. However, it cannot be ignored that the case of Bangladesh offers an answer to this secondary question as it illustrates the multiple issues that need to be addressed in order to understand the challenges faced by Bangladeshi migrants. The conceptual framework is multidisciplinary and offers as an easily accessible look at planetary health.

By successfully answering the primary and secondary questions, the research problem of International Relations failing to define, describe, and explain migration within the context of planetary health has to a large extent been addressed. The proposed conceptual framework (which may be called the Lederle Framework) acts as an analytical tool to define, describe, and explain migration under the umbrella of planetary health. Despite the ability of the conceptual framework to provide an explanation of planetary health's understanding of migration, the field itself is still relatively new and lacks concrete capabilities to address some complex questions effectively. The *2015 Lancet Commission on Climate Change and Health* increased the popularity of the concept of planetary health, yet it still retains its "new kid on the block" status. This leaves much work to still be done in order to provide appropriate responses to the problems within the nexus of migration, climate change, and human health. The issue of the ability of the principles of planetary health to be transferred into practical, policy-changing responses to complex problems is an issue that still remains to be resolved. It has become apparent that if environmental and health education became a priority for healthcare workers and teachers, planetary health would become a more concrete concept.

6.3. Areas of Future Research

The COVID-19 pandemic is on-going (December 2019-present) and planetary health may be able to offer some answers and guidance on the major consequences that have risen. The pandemic has disrupted entire nations' economies, the movement of people, and become a burden on healthcare systems around the world. The COVID-19 pandemic is a chance for planetary health to present as a concrete agenda on a global scale.

Planetary health principles are valuable to address issues of justice for marginalised groups of people, yet there is little literature on the nexus of LGBTQ+ communities, health, and climate change by planetary health. In order for PH to offer as an effective response that works to pay particular interest to minority and marginalised groups, it is essential to pay attention to the voices of LGBTQ+ communities regarding the issues they face.

When I started to conduct the research for this thesis, Google Scholar recorded that “planetary health” had been cited 16,300 times (18 September 2019). Just under a year later, on 2 September 2020, Google Scholar recorded that “planetary health” had been cited 69,000 times. This dramatic jump in the number of citations indicates the increasing popularity of the concept of planetary health in less than a year. This promises an optimistic future for the emerging field of planetary health studies.

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