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MINI-DISSERTATION

Climate Change Adaptation and Individual Fear: A Pivotal Security Trend

By

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Submitted in partial fulfilment of the requirements for the degree

Master of Arts in Security Studies

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2022

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ACKNOWLEDGEMENTS

Firstly, and most importantly, I would like to convey my deepest gratitude and appreciation towards my parents, who not only stood by me through this process, but who taught me to love and pursue knowledge. I would like to thank the universe for giving me parents with whom I can discuss and debate no matter the topic, parents who, despite my physical limitations knew I could achieve anything.

I would like to use this opportunity to dedicate this study to my Father, Roger David Dixon, without whom I would not have found my love for knowledge as easily. My dad was my equal, my sounding board, my editor, spell-checker, research assistant, and my most loyal fan. Sadly, however, I lost him along the way.

Secondly, I would like to thank my lecturers and supervisor for understanding and helping me transition into my new reality. I would like to thank my supervisor for allowing me to pursue my interests and for guiding me through this process and towards the best achievable result.

Lastly, I want to thank those *individuals* who provided support, guidance, and most necessary, a shoulder to cry on when the going got tough. After losing my dad, my tether to academia, my home, and my routine I struggled to find the motivation to continue and it took me over a year to get to a place where I could look at this study with interest and a positive mindset and thus I would like to acknowledge myself, my perseverance and strength. I am proud of myself and grateful for all who helped me reach the finish line.

ABSTRACT

This study explores the current state of the literature surrounding climate security and the climate-conflict nexus. Currently, literature surrounding climate security and the climate-conflict nexus is preoccupied with empirical climate data, pathways of vulnerability, human security and migration. There is minimal consideration of the emotional responses of the *individual*. Rather the *individual* is seen as that which needs to be secured and therefore not as a relevant participant or possible agent of climate security. This research seeks to answer the following questions: “why does the conceptualisation of national security, especially with regard to the rising climate crisis, need to include *the individual* as a potential security threat,” and “how could such a consideration lead towards improved methods of security, and a deeper understanding of the climate-conflict nexus ?”

This study will engage this issue area through a critical interpretivist lens. This will allow the study to explore and engage with the possible blind spots, as well as the unappreciated complexities, that exist within the discipline of security studies, specifically pertaining to climate security, the climate-conflict nexus, and the concepts of ‘adaptation,’ ‘security-dilemma,’ ‘threat perception,’ ‘the *individual*’ and ‘fear.’ An integrative literature review of current debates and findings will be employed as the key method of this research. This is followed by a discussion and integration of findings by means of scenario-building and the utilisation of an existing qualitative expression formulated to identify threats. The literature utilised is a purposively sampled set of secondary sources. This study maintains the position that *the individual and his/her unruly emotions* are an overlooked and understudied threat to all spheres of security.

Key words and phrases: climate change, security, climate-conflict nexus, climate security, climate adaptation, climate threat, climate change AND individual security, climate change AND national security

LIST OF ABBREVIATIONS

CC	-	Climate Change
CCN	-	Climate-Conflict Nexus
HS	-	Human Security
IPCC	-	Intergovernmental Panel on Climate Change
NS	-	National Security

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CHAPTER 1 - INTRODUCTION

1.1 Background and Introduction to the Research

Throughout the planet's existence, radical changes in climate have brought about severe environmental shifts. Today, however, the world is faced with a natural change in climate which is worsened and accelerated by the production of greenhouse gases, a growing population and an overgrazed environment. Climate Change (CC) refers to rapidly rising global temperatures, and changes in weather patterns, which have caused the earth's poles to melt allowing sea levels to rise. CC has prolonged natural disasters and has degraded an already diminished natural environment. Such changes threaten the life of vital organisms, insects and animals. It threatens the availability of food, health and ultimately humanity (Denchak 2017; Jackson 2013).

Within the discipline of strategic and security studies, the phenomenon of CC and its relationship to conflict has, for the most part, been neglected, with debates focusing mainly on non-traditional threats, environmental security, and variations in weather patterns in relation to geographical locations. Parenti (2011) shows that in today's extremely complex, globalised and interconnected world, a more in-depth exploration is required into the various aspects that influence, and are influenced, by the actions of *individuals*, and states, in order to feel more secure — as opposed to merely highlighting the existence of a possible, yet difficult to prove, relationship between CC and conflict.

It is my hunch, however, that *individuals'* perceptions and fears surrounding the increasing effects that global warming has on climate- and environmental change, will influence and guide adaptation methods and policies for the worse, leading to an increasingly insecure environment. In as much as perception and fear are inseparable conditions from the *individual*, the same *individual* not only experiences the disaster and chaos of CC first-hand, but *individuals* are also the agents taking up adaptation.

The study of the *individual* may not be new to the study of security or the making of strategy, as is evidenced in arguments made by theorists such as Buzan (2008). Buzan (2008) states that *the individual* and state security are mutually dependent. However, it would seem

that this perspective has lacked both theoretical and practical considerations. This has also not been part of the critical views of security i.e. what is deemed threatening and what referent object it is best to focus on when it comes to strategic decision making.

Furthermore, it is evident in the discussions and debates regarding the threat of CC, especially its immediate effects, and the mitigation and adaptation thereof, that the role of *individuals*, as well as their actions and motivations, have rarely been considered. Debates emphasise the need for a human security approach and an understanding of how CC threatens the needs and wants of people and communities, rather than the state as a whole. Debates furthermore highlight the fact that some communities, societies and people, are more vulnerable to the effects and impact of CC than others, due to their socio-economic status or geographical location. These multi-disciplinary studies further speak of people as a collective, thus neglecting the power of a singular threatened *individual*. These studies fail to make mention of the individuality and psyche of each person faced with a threatened livelihood and how this might translate into an *individual* becoming a threat to both human and national security. The focus of this study thus lies in understanding and exploring how fear and *individual* perceptions towards environmental change, can be considered a non-traditional security threat. This can lead to *individuals* choosing methods of adaptation which pose a likelihood of fostering national insecurity, rather than stability.

The exploration of the *individual*, as an important, yet overlooked threat to national security, has various theoretical as well as practical implications within the discipline of security studies and international relations. Firstly, by considering normative conceptions of environmental change, as well as adaptation and fear, exploring the *individual* adds to the complexity of the study of security. It adds complexity to perspectives, illustrating that there are two sides to every story — one actor can be both villain and victim, in respect of the threats posed by a degrading and changing natural environment, as well as how one chooses to adapt to such changes. This contributes towards new and improved analyses surrounding discussions on a possible climate-conflict nexus (CCN), as well as a better understanding and conceptualisation of national security, and security in general. Secondly, such new interpretations could lead to the reform of state-civilian relations, and improved methods of adaptation. In other words, methods which allow the *individual* to feel reassured in times of threatening change. Suffice to say that the construction of normative scenarios will serve as a

practical aid in the exploration of the study. In these imagined and hypothetical outcomes, *the individuals'* fear driven adaptation is considered to be a pivotal trend underlying the future outcomes of national, regional and global security within the realities of CC. This will illustrate an additional pathway for investigating the link between CC and conflict/security.

1.2 The Research Problem and the Articulation of the Problem Statement

This study, after consulting with the literature within diverse disciplines, such as security studies, environmental sciences, political geography and psychology, and covering topics such as CC and CC-adaptation, CCN, environmental change, environmental conflict, environmental security, fear, as well as the *individual* in general, proceeded with an analysis and explanation of these topics. The focus on these topics and themes within the theoretical debates of security (especially critical security perspectives on human security and environmental security), provided an overview of what has previously been said and considered. The absence of the *individual*, and the role or influence of *individual* emotions, such as fear, within these debates has served to identify a clear gap within the discipline of security studies. A gap pertaining not only to the study of a possible CCN, but in the approach and understanding of national security. Therefore, this study is guided by the following problem statement: 'Due to the lack of recognition of the emotions of *the individual* within the normative and conceptual analyses of the CCN, and as such within the discipline of security studies, the *individual* is overlooked as a potential source of threat.' Threat here is understood as an *individual* taking action to protect themselves and their livelihood when in a state of fear and desperation. A state in which *individuals* forgo long-term consequences, rules, and morality towards both human security and national security. Rarely utilised as a unit of analysis ('what') in research, the *individual* and their emotions are thus missing from the processes of policy making, adaptation and mitigation for providing a sense of security with regard to CC.

1.3 The Research Question/s

Stemming from the research problem, the research question posed in this study is, "Why does the conceptualisation of national security, especially with regard to the rising climate

crisis, need to include the *individual* as a potential security threat?” and “how could such a consideration lead towards improved methods of security, and a deeper understanding of the climate-conflict nexus ?” This is followed by two sub-questions: “why is an *individuals*’ fearful reaction towards the effects of CC a vital, but overlooked trend in respect of rising insecurity?” and “why should this ‘trend’ be made a priority in theoretical debates and in practical considerations for the implementation of policy, if global, regional and national security is to be achieved in a time of severe CC and growing global uncertainty?”

1.4 The Research Aim and Objectives

The *aim* of this study is to contribute to the research and conceptualisation of ‘security’ through a nuanced investigation of how CC-adaptation, influenced by *individual* emotion, could possibly drive insecurity in the face of the rising climate crisis and its devastating effects. To achieve the research aim, the study has three *objectives*. First, to explore multi-disciplinary perspectives and debates on environmental security and/or environmental conflict, as well as debates about the various methods of adaptation.

The second objective is to integrate these debates, as well as their different conceptualisations of ‘climate security,’ ‘adaptation,’ ‘*individual*,’ ‘threat perception’ and ‘fear,’ so as to create a conceptual framework, through which to confirm the study’s hunch that the *individual* poses a potential security threat. The third objective is to illustrate that the adaptive actions taken by *individuals* toward CC are most often guided by fear, which can often serve to negate rules or morality. The objective here is to construct, based on the identified trend, imagined outcomes of a probable future amidst the ongoing climate crisis. Simultaneously, an existing five factor qualitative expression is used to identify this trend as a threat to global security. These scenarios will suggest the relevance of the *individual* as an agent of insecurity in understanding security. These scenarios will also depict how *individual* fear, in conjunction with adaptation in relation to CC, could lead to conflict and insecurity, thus contributing to future theory development and practice.

1.5 The Literature Overview

In an interconnected and globalised world, CC is of growing concern within the study of security (Detraz 2011; Srikanth 2014). The most broadly discussed issue, which is mainly addressed using quantitative studies, and which consider climatic parameters as the independent variables, is that of a possible nexus between CC and conflict. Many scholars conclude that there is little tangible proof that such a relationship does indeed exist (Javeline 2014; Salehyan 2014; Levy and Sidel 2014). The theoretical side of this debate conceptualises this nexus as one between CC and security, and it focuses on the securitisation of CC as an existential 'threat' (Myers 2014; Bo 2016). Having reviewed some of the empirical and theoretical aspects of this debate, this study aims to present an alternate explanation for such a relationship, which is based on this hunch that what is missing is the role of the *individual* as a mediating variable between the environmental effects of CC and security; and therefore as a possible threat to global order.

A number of texts engage with the idea of whether or not CC helps to explain the rise in conflict, and if so, how? (Scheffran *et al.* 2012; Salehyan 2014) Linked to this is the theoretical debate on where to position CC within the analysis of modern security (Srikanth 2014; Homer-Dixon 1991). With a specific focus on how CC is linked to global warming, various studies have set out to explain CC's relevance toward rising conflict and (in)security. It is generally agreed that CC is a growing concern that needs desperate global attention as it poses a threat to local, national and global security (Penny 2006; Raleigh and Urdal 2007; Strippel 2012).

The debates on CC and conflict in the literature are multi-disciplinary. Discussion tends to vary between theoretical debates on the broader theme i.e. CCN, and those which focus on the causal links that exist between two or more specific aspects. What is problematic is that in many instances this link is discussed in the broadest sense, using either rainfall patterns or temperature fluctuations to determine a correlation between CC and conflict in a specific geographical area (Leroy and Gebresenbet 2013). Within these studies, conflict is most often used to refer to 'armed conflict' whilst ignoring other aspects of insecurity, such as civil unrest, or xenophobia (von Uexkull *et al.* 2016).

Emerging from the realisation amongst scholars that CC needs to be explained in relation to various other factors, so as to better understand the possibility of a link to conflict, debates in the literature highlight that the explanations of CC need greater specificity, focusing on its effects — environmental degradation, resource scarcity, and migration — together with economic, political, social, and environmental (geographical) factors, thus creating additional pathways of investigation (Scheffran *et al.* 2012; Srikanth 2014). This illustrates that the threat of conflict does not simply come from CC itself. CC is not a direct cause, but rather a ‘threat multiplier’ (Gleditsch and Nordås 2009; Feitelson and Tubi 2017; Day 2019).

‘Threat multiplier’ is defined as, “the catalytic effect of climate-related change on states and societies.” (Inga 2019: 5) Scheffran *et al.* (2012) posit the need to investigate this aspect through two stages. First, to look for a link between rising temperatures and economic growth, and second to investigate the link between growth and conflict (Raleigh and Urdal 2007; Akokpari 2012; Warrell and Femia 2015). In other words, there is a need to look at “the consequences of consequences.” (Leroy and Gebresenbet 2013)

It is further argued by scholars such as Sahu (2012) that one needs to look at existing vulnerabilities, as well as the capabilities, motivations or perceptions of a particular state, or institution, and how these influence the ability and actions of a state to adapt to factors threatened by the effects of CC (Sahu 2012; Scheffran *et al.* 2012; Stripple 2012). This introduces an additional pathway for investigation. Following these pathways, however, does not provide a tangible explanation for explaining this link as a global problem. Rather it is limited to the specific pathway and case study (poor/weak states) examined (Raleigh and Urdal 2007; Leroy and Gebresenbet 2013; von Uexkull *et al.* 2016; Ide 2017).

The relationship between CC and conflict can further be understood by examining theoretical debates on the subject matter. These debates posit a link between CC and security, with CC as a threat to national security (Sahu 2012). The problem is that, by objectifying national security, as that which is threatened by CC (Mason 2013b), preference is afforded to the state as the agent of adaptation. This results in the primary focus of policies being that of state stability. Some argue that this may result in worsened conditions, as this dismisses the idea that state stability relies on the stability of various underlying factors. This opens the door for adaptation through militarisation (Detraz 2011; Mason 2013b; McDonald 2013).

Overall, it is clear that the explanations surrounding the link between CC and conflict/security is centred around two arguments. One is focused on the need to securitise CC as a national security threat, and the second, is a counter-argument which looks toward human security and emphasises vulnerabilities rather than threats (Detraz 2011; Sahu 2012; Stripple 2012; Leroy and Gebresenbet 2013; Elliott 2015). These arguments are similarly addressed in two overlapping discourses which are used to discuss the link between the environment and security. Environmental conflict focuses on the links between environmental problems and traditional threats by arguing for the potential of violent (armed) conflict over resources, whilst environmental security, which relates to the latter of the two arguments, considers human vulnerability (Detraz 2011). It is further evident that even though the literature has attempted to integrate both discourses, the arguments remain largely focused on environmental change, thereby stressing the agency of the state above that of the *individual* (Leroy and Gebresenbet 2013).

The understanding of the possible link between CC and conflict is limited by the tendency of existing arguments to focus on factors and issues of vulnerability, such as underdevelopment, or poverty, in terms of the collective (the state, the institutions, the community). What is needed, however, is a deeper investigation down the causal chain, and a wider multifaceted approach which focuses on the *individual* (including the *individual* psyche) as not only a factor that interacts with the effects of CC, but also as a mediating variable between these effects, factors and vulnerabilities.

Both sides of the debate do touch on this idea. However, by making the *individual* the object of security (that which needs protecting) in order to better understand how the effects of CC causes conflict/insecurity, is still not enough, as this restricts findings to specific *individuals*, societies and states. Rather, what could provide a better understanding of how CC links to rising conflict and a state of insecurity, is to not see the *individual* as that which needs protecting (referent object) but that which the state and the larger global order needs protecting from (threat). It is my argument that national security, in the wake of CC, rests on the *individuals'* emotionally charged reactions to the changes in his/her environment.

1.6 Research Methodology

1.6.1 Research Approach

Guiding this study, as a “strategy of investigation,” (Ackoff 1953: 5; Blaikie 2010: 37; Kerlinger and Pedhazur 1973: 300) will be a qualitative research approach of inductive reasoning. Since the study’s objectives are to explore the development and scope of the literature, which considers climate security and the notion of a CCN (as well as the value of the related concepts for better understanding insecurity in the face of CC), this study focuses on “locating the observer in the world.” In this sense, qualitative research methods and designs are most often used to develop concepts and construct theories which could help us to better understand the complex social world in which we find ourselves (Creswell 2007: 37; 2014: 4). This is consistent with my observation that CC-adaptation, *individual*, fear, and national security, share a complex reality that has been overlooked in both the practice and the study of security and the CCN. This study will explore the concepts of ‘adaptation,’ ‘security-dilemma,’ ‘*individual*,’ ‘threat perception,’ and ‘fear,’ to discern how they impact on the understandings of security. These concepts can help to explain the link between CC and conflict as well as illustrate how *individual* CC-adaptation, through fear, is a threat to human, ecological, and national security.

This study is embedded in the views of both the interpretivist and ‘mind-body monism’ paradigms. These are understood as frameworks of observation, which shape our understanding of phenomena, and which are made up of beliefs (Babbie 2007: 31 - 32; Guba 1990: 7). These views maintain that we cannot separate ourselves from reality, and that what we know is constructed through meanings and understandings. In other words, nothing is truly isolated from the *individual*, and the *individual* is not separate from his/her mind and emotions. As such this study also considers the transformative notion that, “inquiry should intertwine with action and reform.” (Creswell 2014: 9-10) Faced with prolonged drought, for example, an *individual*, situated within an underdeveloped, economically weak country, which is unable to protect its citizens or is disinterested in issues of CC, and whose livelihood depends on his/her ability to produce and sell produce, might turn to extremist groups for aid, take action to acquire some form of power to ensure survival, or flee. The consequences of such fear-induced actions then only lead to further insecurity.

Following from this reality, this study, which is based on the constructivist belief that research inquiry is intertwined with how *individuals* interact and construct meaning (of security), through societal interaction (between *individual* fear and the effects of CC), aims to develop its own suggested “pattern of meaning,” (Creswell 2014: 8 - 10) by introducing a conceptual framework and a subsequent illustration of the relevance of such a framework by way of constructed scenarios of possible future outcomes.

1.6.2 Research Design and Methods

So as to provide an explanation for the CCN, and to better understand security, this study branched out into other fields of inquiry to establish my original observation. By exploring the complex links that I believe to exist between the following concepts, ‘adaptation,’ ‘security-dilemma,’ ‘threat perception,’ ‘the *individual*’ and ‘fear,’ the study suggests an understudied, yet arguably important trend, which underlies security, and more specifically, security as it relates to CC and conflict i.e. climate security. In targeting concept specific literature, in which debates focus on these specific variables by themselves, or in relation to other phenomena, this study does not only explore the quality of existing arguments, but investigates how these arguments, conceptualisations or views can become (or are) naturally integrated. Thus, illustrating alternative or overlooked ‘links’ and the applicability of these variables, in practice, and within broader disciplinary developments, regarding the study and achievement of security, especially in times of growing uncertainty.

This study suggests an additional way for addressing the study of security by introducing concepts into a framework as to suggest their relevance and applicability towards each other, and more importantly towards the understanding of security. These concepts are similarly considered here as variables at play within the security reality. Variables which continuously intersect and impose on one another, influencing the outcome of security. Due to the interpretivist and multi-disciplinary nature of this study, an integrative literature review was utilised which drew on some of the basic principles of systems thinking. This follows from the idea that all things work in tandem. Variables are intersecting and interacting thus allowing one thing to lead to another.

The integrative literature review in this study critiques and synthesises the existing literature with regard to climate security and the CCN by integrating ideas and arguments in

such a way that new views and frameworks are generated. As such, an integrative review focuses on the idea of the, “reconceptualisation of the expanding and more diversified knowledge base of the topic as it continues to develop.” (Torraco 2005: 356 - 358) An integrative literature review design allowed me, as the researcher, to explore and engage with the possible blind spots, and unappreciated complexities, that exist within the discipline of security studies, as well as phenomenon of climate security which is not necessarily confined to the discipline of security studies.

The purpose of this study was to interpret, clarify, and propose relationships between these selected concepts and to assess related arguments, discourses, theories and viewpoints. This study aimed to encourage a better understanding of climate security in the broader discipline of security studies, as well as to inspire future theory development. The literature selected for review, concerning both the existing debates surrounding climate security and the CCN, and the selected concepts, were not randomly chosen, but rather, “shaped and formed by what the researcher wanted to achieve analytically.” (Mason 2002: 127 - 128)

This study employed a purposive sample of secondary sources so as to develop the integrative review. Texts emanating from a variety of disciplines, such as security studies, environmental sciences, and psychology, were utilised and explored. Consistent with the focus of the study, the selected texts concentrated on the ideas, arguments, theories, concepts and discourses surrounding CCN, climate security, environmental conflict, environmental security, and CC-adaptation, so as to understand the environmental and societal vulnerabilities that exist in respect of security. The climate-conflict literature was divided into theoretical, and empirical methods and findings, and was complemented by more in-depth literature emanating from those findings. This literature focused on issues of vulnerability and adaptive response. Discussions emerging from the review and integration of such literature ultimately served to illustrate the need for a deeper and more central focus on the human aspect (the *individual* and the influence of emotion) of security.

1.6.3 Data Analysis

Data analysis followed the integration of the literature whereby arguments were listed, grouped and discussed, and where blind spots and inconsistencies were highlighted. Analysis

was presented through the construction of imagined outcomes which sought to bring about a “logical order,” and a “meaningful interpretation” of the data that was collected (Marshall and Rossman 1999: 150; Schwandt 2007: 6). Such scenarios were constructed in order to illustrate, through an imagined future, the relevance of the central observation of the study. The scenarios were used as, “a means for investigating important decisions,” and for “making significant elements of the world stand out.” (Ratcliffe 2000: 5) Through the scenarios this study ‘tells a story,’ which ultimately allows the study to communicate speculative thoughts.

1.6.4 Ethical Considerations

It is important to recognise that the choices made throughout this study have both political and ethical consideration. In selecting a qualitative and inductive research approach, this study’s data-collection and analysis relied on secondary literature sources which were available in the public domain. These sources have been properly referenced in order to clearly distinguish between the thoughts and ideas of others and those of my own.

1.7 Structure of the Research

This study has been structured as follows. Chapter one introduced the study and provided some background and reasoning for the hunch which drives this study. This chapter furthermore provided the research problem as well as the question/s, aim and objectives guiding the study and the research methods employed. The second chapter is a literature review, which begins with a short overview of national security and a brief discussion of the discipline of security studies, so as to set the scene before commencing with a review of the literature relating to climate security and the CCN. This review includes insights of both the theoretical and empirical sides of the CCN debate, as well as the multi-disciplinary nature of the literature from which these insights are gleaned. Issues of geographical location, climatic variations, vulnerabilities, pathways, human security and adaptive response are then highlighted to show how these inform the normative bias which is currently present in the understanding of the climate-conflict debate, and thus the broader climate security issue.

The third chapter offers a conceptual framework of selected concepts found and considered following this study's hunch. The selected concepts of 'adaptation,' 'security-dilemma,' 'threat perception,' 'the *individual*,' and 'fear' are discussed in terms of their conceptualisations and uses, within and across multiple disciplines. This chapter frames the understanding and relevance of such concepts in relation to one another and to the understanding of security. The fourth chapter draws on the conceptual framework and introduces the missing variables (concepts) in the debate. Thus, introducing a new reality to be considered in the CCN. This is done by framing climate security as an issue underpinned by a trend, namely 'climate change adaptation through fear.' This is further highlighted by way of three scenarios, and the five factor qualitative expression which was first introduced by Blake (2018). Insights are drawn from these scenarios, and the qualitative expression, so as to determine whether the formulation of climate security and national security theory and policy, more broadly, require a consideration of *individuals* and their unruly emotions as an explanation of insecurity. This chapter will conclude with the findings, and a narrative and deeper discussion of the scenario outcomes. A short conclusion and the bibliography of the study will follow this chapter.

1.8 Conclusion

This chapter has provided a background on the CC phenomenon, introduced the hunch from which this study follows, and has provided a preliminary overview of the scholarly debates on the CCN. It has highlighted the researcher's research problem, and it has introduced the research questions posed, as well as the aims and objectives to be achieved. This chapter furthermore discussed the use of an integrative literature review, a conceptual framework, and scenario-building as this study's chosen methods of data-collection and -analysis. Situated within the reality of the CC phenomenon this study ultimately sets out to explore whether the debate and practice of national security ought to consider the *individual*, and their emotions, in the understanding of security.

CHAPTER 2 - LITERATURE REVIEW

2.1 Introduction

This chapter presents a literature review of the debates and empirical findings by scholars relating to climate security and the CCN. It presents a narrative of how the ongoing climate crisis, in conjunction with the evolving understanding of security, has been approached and debated by scholars across and within related disciplines. Through this review, this chapter aims to demonstrate how this study contributes to existing knowledge by broadening the way in which climate and security is thought of. This chapter critically explores the development of the assembled literature, which focuses on security and its relation to the climate crisis. Areas of focus include the concept of national security, the emergence of non-traditional environmental threats, and the extent to which the human security discourse has come to overshadow traditional views of understanding security. The chapter then proceeds by focusing on the notion of a CCN, in which significant points such as; pathways, vulnerability and adaptive responses are discussed, so as to not only summarise the existing debates, but to also highlight gaps, similarities and contradictions.

2.2 Security in the time of Climate Change

‘Security’ has been subject to much debate. The Latin and Roman origins of the concept equate it with having “no worries” or “peace of mind” (Stripple 2012: 183). Security is ultimately that which ensures survival. By being linked to aspects such as institutions, states and people, security has traditionally been phrased to mean the security of the nation-state. This become known as National Security. National security refers to threats to the survival of the state, where these existential threats are responded to through the use of military force. This understanding of security is represented by the traditional views and debates within the discipline of security studies, where a threat (X) + threatened (Y) = response (Z). This understanding of security continues to have relevance in the debates (Grizold 1994; Rothschild 1995; Schmidt 2008).

Within traditional security studies, security has been understood on the basis of who is in danger (the referent object), what they are in danger from (threat) and how to respond (responses). By using these core concepts, scholars and practitioners have also introduced variations on how the understanding of security ought-to develop, so as to positively adapt to the changing global environment. The most significant advances in this regard have been made in respect of the object of security and the possible threats to said security.

The discipline of critical security studies, has produced findings and debates with regard to the need to understand threats to security in a non-traditional way. This entails moving away from considering threats as being only of a military nature, to include threats originating across all aspects of society. These threats can emerge from political, societal, economic, as well as the environmental spheres (Buzan 1991). However, scholars continue to debate the complexity of what it would mean to voice these threats as existential ones. The idea of including the security of people as part of the understanding of national security has, however, emerged. This, together with a greater focus on non-traditional threats, provided scholars concerned with the issue of security in the 21st century with a greater platform for debate (Barnett 2001; Sahu 2012).

2.2.1 A Non-Traditional Threat

CC has also constituted a debate when it comes to the issue of security. With the widening of the security debate, to include threats of a non-traditional nature, environmental issues have also been considered as possible threats to security (Levy 1995; Page 2002). This intersection has come to be known as environmental security. The environmental security debate has undergone many changes since its introduction as an issue requiring attention in the 1970s, with the debate considering issues of environmental-change, and -degradation and its specific connection with conflict.

CC on the other hand is a far newer phenomenon in the debate. Its inclusion has spread across many disciplines. Whereas environmental security focuses on issues linked to disasters, change and degradation, CC is seen as the larger event which imposes change on the global environment at an accelerated rate, due to industrialisation. A phenomenon created by the same 'humanity' now threatened by CC. Known as the largest threat facing the globe, CC has, since

Robert Kaplan first introduced the idea about environmental change and poverty being the cause of disruptions in the political spheres, continued to spread. This is despite widespread scepticism about the validity of CC being real, or a threat to security by other theorists (Gleditsch and Nordås 2009: 12; Dalby 2009). CC, similarly to the way in which environmental change intersects with national security, is known as ‘climate security’ (Sahu 2012: 72 - 82). Climate security broadly, “frames a range of concerns about global warming through the lens of sovereignty, security and borders [mapping], the fears [surrounding] the impact of massive environmental displacement and migration onto existential concerns about the future of borders and sovereignty.” (Cons 2018: 267) Both environmental security and climate security allows for a deeper understanding of the conditions required to be secure since they consider humanity’s most basic concern for survival. Thus, environmental security and climate security are largely interlinked (Buzan 1991: 433; Sahu 2012). Similarly, both concepts challenge the traditional notion of national security, in as much as they interrogate the securitisation of potential threats, where these threats are defended through military action. Sahu (2012) argues, that despite this, it is necessary to link climate security and national security, because CCs’ negative impacts can be minimised with action taken by people, military, political and non-political, state and non-state actors.

Security in the presence of CC does not dismiss Buzan’s (1991: 432) notion that security, in its most basic form, equates to survival. In this context, it merely strengthens the argument that security also consists of a “range of concerns about the conditions of existence.” (Buzan 1991: 432) Security, or the lack thereof, is a result of many factors. The complexity is thus that a feeling of security relies on the maintenance of many parts, one of which includes the biosphere as an, “essential support system in which all human enterprises depend.” (Buzan 1991: 433) It is further argued by Buzan (1991), that these concerns (whether they be political, societal, economic, military or environmental) do not function in isolation of each other, but rather work in tandem, with each highlighting specific aspects of the security issue. According to Buzan (1991), these conditions of existence are thus considered to be linked in their fate, despite each having their own devastating impact (Buzan 1991: 433).

Srikanth (2014: 64 - 65), points to the impact of environmental degradation as one of the most concerning issues facing a nations’ security, by specifically referencing CC. CC leaves in it’s wake, rising temperatures, larger and more frequent storms, festering diseases, and rising

sea-levels, due to melting polar ice caps and glaciers. Other major impacts are fresh water scarcity, drought and uncertain climatic variations. Taking these into consideration, Srikanth (2014: 64 - 65) automatically connects these direct concerns to the concerns of policy, economic stability and societal unrest, as it is logical to have one with the other. Drought limits agricultural production, which in turn causes price fluctuations, famine, trade setbacks and so forth.

In both security studies, and the broader discipline of international relations, the core-periphery theory also contributed to an understanding of the relations between states, and the conditions which perpetuate global events. In short, the countries of the world are economically divided, between states of relevance at the core, characterised by economic strength, steady development, positive population growth and political power, and those with struggling economies, high birthrates, and areas which are severely underdeveloped, situated at the periphery. This divide results in unequal capital distribution. The relevance here is that the climate crisis potentially follows along the same unequal divide. Not only have countries in the periphery fallen victim to outsourcing, whereby they are used by corporations as manufacturing locations which increases their CO₂ emission levels, but some are also located across, what Parenti (2011) coins, the ‘tropic of chaos’ — the area across the globe where the poorest part of the world mostly intersects with high and rising temperatures.

2.2.2 The Peoples Security

Considering these developments within the discipline of security studies, “how might we conceive the subject of security in a warming world?” (Strippel 2012: 182) or more specifically, who is made insecure by a warming world? Just as security studies was widened to include different types of possible threats, so too has it extended to consider other objects of security, such as people. Incorporating human beings as the object of security is referred to as human security. Here security is understood as the absence of threats to the core values of human beings, including the value of life itself, and thus their physical safety. It is believed that the concept of human security came into being with the publication of the 1994 United Nations Development Program: Human Development Report (UNDP). Human security was considered a necessary response to the existing and too narrowly defined concept of security. Explained as being a universal concern, made up of interdependent components which allows

for the opportunity to ensure peoples security through early prevention rather than intervention, human security looks towards security in a way that affords safety from both chronic threats, such as hunger and disease, as well as threats of a sudden and unexpected nature (UNDP 1994: 22 - 23). Human security allows for people to live in a safe and free environment hence the coincided phrase “freedom from fear and freedom from want.” (Hanlon and Christie 2016: 5 - 8) Freedom from fear and freedom from want are two component and complementary concepts considered to best understand the concept of human security with the former mentioning a need to protect individuals from the threats of violent conflicts and the latter from all the worlds’ ills (e.g. poverty and environmental disasters) (Hanlon and Christie 2016: 5 - 8).

According to Hampson (2008), the objective of human security has been to, “safeguard the vital core values of all human lives from critical pervasive threats and to do so without impeding long-term flourishing.” (Hampson 2008: 231; Alkire 2002: 2 cited in Hampson 2008: 231) Therefore, according to human security, military action is not the weapon of choice, for one cannot attack disease or poverty with drone strikes. Although human security hinders the study and practice of national security through continuous disagreement over methods and threats, it has allowed for the elaboration of the environment as a security issue. Human security does so by considering how the environment directly and existentially disrupts the nation-state, as well as how it slowly serves to disrupt societal certainties and securities. Within the context of CC, human security refers to the situation whereby the conditions for human life are secured and protected. Human security is concerned with a life lived with freedom and dignity (Adger *et al.* 2014: 759).

Booth (1991), who is one of the leading scholars in respect of the idea of whose security is truly in question, made several interesting contributions towards understanding the security phenomenon. A long-standing argument has been that, when analysing security, depending on a specific referent, it illustrates different threats, and it prescribes varying responses and solutions. Booth (1991) went further by interrogating the different concerns facing *individuals* and governments. He concluded that it is the *individuals*’ security which is paramount, and that it can only be achieved through emancipation. Booth (1991: 319) defines emancipation as releasing people from all constraints, physical and human, which prevents them from acting in accordance with what they freely choose to do. This means that *individual* security is to be achieved by ensuring total freedom.

The call to consider people as the referent of security progressed the understanding of security, whether it is an agreed upon pivot or not. Human security, unlike the traditional notion of national security, favours the inclusion of views from outside the realm of politics and military disciplines. This has allowed for a better understanding of national, regional, and international politics and security, and it has therefore positively impacted academia with regard to policy, the nation-state as a security threat, environmental change, migration, culture, as well as gender. It is said that human security allows for a more bottom-up, grass-roots view of security, and of what it means to be secure (Bilgin 2003; Barnett and Adger 2007; Newman 2010; Elliott 2015).

Following Booth's (1991) contributions, scholars such as Shaw (1993) and McSweeney *et al.* (1999) further contributed to the idea of the *individual* as the logical referent of security. Shaw (1993), however, argued that incorporating two referents (the *individual* and the state) was not enough, and that what was required was a multilayered analysis of referent variety. He stated that what was needed was a better understanding of the dynamic relations that exist, whereby these potential referents interact and affect each other's security. Ultimately, Shaw (1993) concluded that what is missing in the security debate is a "societal dimension" — the interaction, communication, rules and beliefs that exists within society. Building on this McSweeney *et al.* (1999), pointed out that treating the *individual* merely as a referent was deficient since *individuals* needed to be acknowledged as, "agents who seek to enhance their own and other's security." (McSweeney *et al.* 1999 cited in Bilgin 2003: 209) This points to the fact that *individuals* are not merely victims of consequence, but are also agents participating in formulating these consequences.

Strippel (2012: 184), however, neatly questions as to whom can decide if CC is best approached from a human security perspective (and the emancipation of humans) or as an issue which threatens the survival of the state (Strippel 2012: 184). Strippel (2012) suggests that instead of perceiving security as an object of the state of the world, one ought to think of security as a socially and politically constructed phenomenon. In other words, security is a dialogical procedure which creates conditions with basic implications for how politics might be organised (Strippel 2012: 184). By including the environment, and the emergence of global warming into the theoretical debates in respect of possible non-traditional threats to security (both in relation to the traditional notion of national security or a more human focused

understanding), the discussion developed along the lines of what Homer-Dixon (1991) deemed relevant i.e. the existence of a possible CCN. Although this phenomenon makes for a narrower focus in the understanding of security, its existence can be argued to have paved the way for future studies concerning climate security.

With security broadened and widened to consider freedoms and values, the environment and economies, as well as being no mere condition of a state or an individual but of the world, a condition possibly constructed through social or political actions ought to broaden our views towards whose security is truly in peril as to concenter it to be the security of the globe which is of true importance. Global security does not dismiss the security of the state or of the people, it merely considers that in a time of boarder-less threats, globalisation, global warming, and increasing diversification, it is not one state, or the security of one people who presents as security agents or as the solution, but is rather global cooperation and good governance which is required. Global security could be argued to require a focus on what connects states and people, similarities and shared values (Hough 2013; Osisanya n.d)

2.3 Climate Change and Conflict

Considering the question of whether or not to securitise CC, coupled with the contested nature of the phenomenon, as well as the vast array of actors at play in global politics, it is no wonder that the relationship between environmental change and security has always been a theme conjoined with an unmanageable array of issues (Homer-Dixon 1991). Consequently, the question of climate security, as well as the intersection between environmental change and security, has been explored through the CCN. This has been coupled with an understanding of the type of conflict that emerges as a result of environmental change intersecting with a specific pathway of vulnerability. The issue then is whether conflict has occurred due to a proximate and powerful environmental cause or whether it has emerged as a combination of minor or distant environmental change, which becomes entangled with problematic political, societal or economic realities. Following this division, Homer-Dixon (1991) focused on the link between environmental change and conflict and the development of acute conflict, through the differing causal roles of environmental change.

The many issues acknowledged by Homer-Dixon (1991) have served to categorise the climate-conflict debate into two distinct, yet overlapping, concepts which have grown into discourses which are divided in terms of the referent object and the causal role played by the environment. The first discourse, environmental conflict, concerns the study of a CCN which favours the traditional notion of security. In this view, environmental change relates to resource scarcity which causes violent conflict thus threatening the security and stability of the state. Second, is the environmental security view, which focuses on how environmental degradation places stress on and threatens existing vulnerabilities of peoples' security. Environmental security argues for the human to become the referent object, and it considers vulnerabilities to be the mediating variables intersecting with environmental change to cause or worsen conflict. Despite this divide along traditional debates of security, these two discourses do overlap. It is acknowledged that the security of the state, as well as the security of the people, and vulnerabilities and CC, are all interlinked. However, it would seem that human security is now prioritised when debating the relationship between CC and conflict (Leroy and Gebresenbet 2013).

It is thus evident, as stated by Stripple (2012: 182) that, "the climate issue has made its way to the Security Council," and not only has it been discussed in terms of a non-traditional environmental concern, but, "there has been [and continues to be] a wave of empirically driven research attempts to assess the relative strength of the causal influence of temperature changes in patterns of violent conflict." (Stripple 2012: 182)

2.3.1 The Empirical Side of Things

Overshadowed by empirical and more quantitative studies, the CCN debates have resulted in the subject of security being lost. The climate phenomenon, and its link to conflict, have become the beginning, middle and end of these debates. These empirical studies tend to be country specific, such as Homer-Dixon's (1994) follow-up study, '*Environmental scarcities and violent conflict: Evidence Cases,*' where a specific geographical location, and its relation to long-term climatic change, and occurrence of disaster, were reviewed. In other studies the use of data patterns are also commonly used to illustrate a link between CC and conflict, by using rainfall patterns, increased precipitation, and temperature fluctuations of specific geographical locations.

In respect of case specific studies, the literature tends to focus on states situated in the Global-South, both in terms of economics and geographical location. Most of the literature gravitates toward areas of concern, which are situated in what Parenti (2011) calls, the ‘tropic of chaos’ — the belt where existing vulnerability and the highest temperatures intersect. Countries or areas such as: Kenya (Adano *et al.* 2012; Theisen 2012; Theisen *et al.* 2011; Opiyo 2012), the Sahel (Benjaminsen *et al.* 2012), Syria (Kelly *et al.* 2015; Gleick 2014; Warrell *et al.* 2015), Afghanistan (Parenti 2011) and Israel-Palestine (Mason 2013A; Feitelsan and Tubi 2017; Inga 2019) are isolated for study since they are countries known to be continuously linked with severe drought and violence. Literature related to the CCN is also found in respect to continental Africa (Hendrix and Salehyan 2012) and sub-saharan Africa (Fjelde and Von Uexkull 2012; Akokpari 2012). Further studies concentrate on issues concerning shared geographical areas, such as the Lake Chad basin or the Nile River (Okpara *et al.* 2015; Skah and Lyammouri 2020).

In studies conducted by scholars such as Hsiang *et al.* (2013) Burke *et al.* (2015), O’Loughlin *et al.* (2012) and Maystadt *et al.* (2013) it is shown that areas with rising temperatures have seen increases in civil wars and conflict when they are cross-referenced with specific time-lines. Several conclusions were drawn by these studies based on rising temperatures indicating the relationship between warmer weather and drought, and its influence on livestock prices, which in turn has caused a rise in conflict (Maystadt *et al.* 2013). It is, however, important to note, that O’Loughlin *et al.* (2012), mention that a rise in temperature in East Africa was not the only predictor of the rising violence, when compared to other existing instabilities or issues in the region.

Examining the affect that CC has on violence and conflict, Plante *et al.* (2017), turn their attention towards the correlation between temperature and aggression. By investigating aggression, and the presence of uncomfortably hot temperatures at differing levels, these authors illustrate some deviation in respect of the CCN, despite them concluding that such a correlation is too remote and too small to be relevant (Plante *et al.* 2017).

Similar conclusions have been drawn by scholars such as Harari and La Ferrara (2018), Fjelde and von Uexkull (2012) and Levy *et al.* (2005). Instead of temperature, these scholars looked at rainfall patterns as the mediating variable between CC and rising violence or conflict.

Studies on rainfall have illustrated how issues of drought, freshwater availability and floods are more specific reasons for how rainfall could lead to violence. These scholars acknowledge, however, that a CCN follows along many different and overlapping pathways. What is evident when looking at Levy and Sidel's (2014) overview of some of these studies, is that they mostly constitute country or local specific studies: Syria's drought, Africa's rising temperatures, or the tropic's seasonal changes (Parenti 2011; Gleick 2014; Latif Dahir 2018).

It should be noted, however, that whereas there are conclusions drawn for the probable link between climatic changes — such as temperature increases or rainfall patterns — and conflict; there are equally as many, utilising the same variables and methods, who argue that no tangible proof of such a correlation exists. Several studies suggest that CC has no, or an unequal relation to rising violence or civil war, compared to political, social or economic issues. Levy and Sidel (2014) note a few such studies: In Kenya for example, Theisen *et al.* (2011) found that in times of unreliable rain, peace was prominent, and that violence only tended to emerge following political events such as elections. Similarly, Benjaminsen *et al.* (2012) point to government corruption as the most plausible reason for violent outbreaks.

These studies, have, as Busby (2018) argues, dominated CCN studies across disciplines for approximately 15 years. Many have claimed, that these studies are “irrelevant,” and “contested” (Busby, IPCC 5th). Indeed, in reviewing the typical study for this research, whether it was published in, *Journal of Global Environmental Change*, *Political Geography* or the *Journal of International Affairs*, it is true that findings are inconsistent, and they do not always contribute to the understanding of the possible nexus between CC and (in)security. The studies highlight specific findings which cannot necessarily be generalised or replicated. The data is constantly changing, and ultimately the phenomenon of CC is far too complex to simply draw strings connecting A to B. Thus despite historical claims of a strong relation between climate events and violence, the relationship between CC and conflict remains contested (Zhang *et al.* 2007; Tol and Wagner 2010).

In respect of the CCN, Carleton *et al.* (2016) find that despite it being contested, the interdisciplinary nature of the empirical literature illustrates that the intensity and frequency of conflicts are (at times) exacerbated by variations in climate. These variations add stress to existing instabilities. This offers the possibility that it is not CCN that is flawed, but rather the

directness of the link between CC and conflict. In truth, it is not necessarily that correlations between temperature, rainfall and a variety of conflict outcomes are inaccurate, but rather incomplete. Such a correlation, as argued by Salehyan (2014), needs the additional consideration of the mechanisms at work, so as to best, “understand the underlying causal processes at work.” (Salehyan 2014: 3)

2.3.2 Further along the Causal Chain

What has followed is the realisation that the complexity around the CCN requires scholars and practitioners to view the CCN as the result of the “consequences of consequences.” (Leroy and Gebresenbet 2013) This brings the theoretical understanding of CC as a ‘threat multiplier’ back into view. Additionally, in respect of the idea of armed conflict, studies have started deviating from only focusing on outright civil conflict, to include more of a variation of conflicts such as: unrest, disruptive activities, violent attacks and gender-based violence (Shaffer 2017; Csevár 2021). Hendrix and Salehyan (2012) for example, set out to contribute to the understanding of the link between CC and conflict by focusing on the deviations in rainfall patterns and how this relates to the increase in societal unrest, strikes, and anti-governmental violence. They conclude that environmental shocks do have a significant relation to unrest.

Studies have also moved towards studying the CCN in relation to the existence of indirect pathways. Studies evolved through a process, whereby some have included an additional variable, whilst others have endeavoured to establish the relation by proposing new definitions, additional phenomena, as well as actors or vulnerabilities as mediating variables between the rise of conflict and climatic events or changes (Levy and Sidel 2014; Okpara *et al.* 2015; Carleton *et al.* 2016). The reason for this is that scholars agree that if such a relation exists it would be “highly place and time-specific,” and the “product of many intersecting factors.” (Abrahams and Carr 2017: 233)

Abrahams and Carr’s (2017) study set out to understand the CCN through the disciplinary lenses of geography and political ecology. These authors claim, in respect of the place and time-specific nature of a possible CCN, that the phenomenon is a geographical one (Abrahams and Carr 2017: 233). Following this geographical claim, the authors portray the irrelevance of

the idea of CC as a ‘threat multiplier.’ They argue, that as the field has evolved to include various actors, the preliminary understanding of CC as a ‘threat multiplier,’ in terms of security and defence, has become imperfect, thus providing limited guidance of the circumstances (Abrahams and Carr 2017: 236; Busby 2018: 342).

The authors conclude that using climatic variability as a proxy for CC removes empirical evidence since it generalises findings without truly knowing the specifics of the climatic event, the location, and the differences between how humans respond to such differing contexts (a short-term event of long-term change). As such, they argue that understanding how CC is defined in specific contexts might provide better insights into how changes in climate could have positive impacts, and not only lead to violence (Abrahams and Carr 2017: 238).

Similarly, scholars from a variety of disciplines have also made use of their specialised insights to contribute, understand and even delegitimise the claims of a CCN. Anthropologist, Schaffer (2017) for example, acknowledges the need for the diversification of conflict types, and simultaneously highlights the role of cooperative behaviour in understanding the CCN. Fiske *et al.* (2014) similarly delve into anthropological insights to review the issue of climate security instead of specifically focusing on the CCN. White (2017), similarly to Agnew (2012), looks towards criminology, and incorporates another form of violence, namely, crime.

From an economic standpoint, Koubi (2017) maintains that despite the possible development of social unrest — as a result of pressured agricultural production, there is no concrete proof that a “climate-economy-conflict relationship” exists (Koubi 2017: 200). Stripple (2012: 186) highlights that the CCN could best be understood with reference to economic growth. He suggests that it is economic prosperity which continuously takes precedence over climate action. This reality introduces the argument that in order to successfully securitise CC as a global threat, acceptance by all relevant audiences ought to be achieved (Buzan *et al.* 1998: 91). This further links to the argument that a CCN is contingent on the social positions and identities which ultimately, “shapes human agency and violence in the face of a changing climate.” (Gilmore 2017: 196)

It is therefore evident that a variety of scholars, from fields as diverse as political science, anthropology, economics, geography, and climate science, are all discussing the CCN. The

scholars generally acknowledge (to some degree or another) that a range of indirect pathways may account for the climate-conflict relationship (if there is one). Overall there exists some consensus on the pathways mentioned. Hsiang and Burke (2014) for example, identify as many as eight “non-exclusive” pathways that could explain how CC could cause conflict, namely, government capacity, labour markets, inequality, food prices, altering of logistical constraints, misattribution of the causes of random events, psychological responses, migration and urbanisation. Busby (2018) notes that agriculture and food prices, economic growth, migration, disasters, and institutions are also relevant indirect and conditional pathways. Scheffran *et al.* (2012) further created a framework whereby they linked factors that exist within the climate system, such as natural resources, human security and societal stability. This not only illustrates pathways for study, but it also highlights the complexity and intricate nature of the link between CC and conflict.

What is evident, is that much of the literature, across multiple disciplines, agrees that pathways such as: agricultural production and food insecurity, migration, the stability and capability of governments and institutions, economic growth and development, as well as sudden natural disasters, constitute variables which can account for a possible relationship between CC and conflict. The link between the increase of climatic events, and changes and the rise of insecurity are illustrated within a variety of studies which consider; the economic impacts of CC (O’Brien and Leichenko 2000; Koubi 2017; Tol 2020), drought and water shortages (Zografos *et al.* 2014; von Uexkull *et al.* 2016; Feitelson and Tubi 2017; Inga 2019), governmental and or institutional influences (Dellmuth *et al.* 2018; Pillay and Buschke 2020), agricultural production or food security, and culture (Krupocin and Krupocin 2020).

An interesting pivot, in the literature reviewed, is Warrell and Femia’s (2012) examination of the erosion of state sovereignty, in respect of the various pathways through which climate variations can impact existing vulnerabilities. For example, the issue of migrating people which blurs state borders, or exposes incapable or uninterested governments. It is evident therefore that a further development in the study of the CCN, generally follows along two pathways, namely, migration and vulnerability. It is here where the theoretical understanding of security in the 21st century becomes relevant to support the empirical side of things, and where the reality of climate security questions whether research ought to concern itself with threats or with vulnerabilities (Detraz 2011).

2.3.3 Vulnerabilities, Migration and the Human Dimension

Consistent with the review of literature, it is evident that the concept of vulnerability is found both within the theoretical and empirical literature. Both types start by introducing the environment as a non-traditional threat of both state and society. Understood from the theoretical perspective of security studies, and its theoretical concern for environmental change, vulnerability is almost always understood as the ‘cracks’ that exist within the state, a community, or region, as well as within international society’s foundations.

When I speak of ‘cracks’ I refer to the instabilities and inadequacies of governments, institutions, economies, and society. In *‘Climate Change 2007: Impacts, Adaptation and vulnerability,’* the Intergovernmental Panel on Climate Change (IPCC), defines vulnerability as the, “degree, to which a system is susceptible to, or unable to cope with the adverse effects of CC, including climate variability and extremes,” and as, “a function of the character, magnitude, and the rate of CC and variation to which a system is exposed, [as well as] its sensitivity and adaptive capacity.” (IPCC 2007: 6) As such, vulnerability translates into that which both the state and the people are subjected to. Environmental changes can therefore either directly threaten, or simply apply additional pressure on existing circumstances of state and human insecurity (Chin-Yee 2019).

Just as the human security perspective dominated the theoretical debate concerning the inclusion of the environment within the discipline of security studies, so too do these pathways of vulnerability now require scholars to be attentive to the human aspect of empirical conditions. With regard to this, Rotton and Cohn (2003), as well as Leroy and Gebresenbet (2013), allude to the *individual*, and how environmental factors could influence an *individual’s* proclivity to resort to violence, as well as how a loss of livelihood might instil deeply rooted emotional fear responses. Similarly, Pongiglione (2011) includes *individual* decision-making as the main variable when considering discussions on CC. However, the latter study was not concerned with understanding a CCN, but with understanding the changing climate and how the *individual* fits into that reality.

The concept of vulnerability is also alluded to in the literature relating to CC and rising conflict — especially in terms of ‘human vulnerability.’ In this pathway, vulnerability is

understood to include peoples' fears and wants, as well as their rights, abilities and mentalities (Räsänen *et al.* 2016; Daoudy 2021; Augsten *et al.* 2022). The human dimension of climate security is thus acknowledged as going deeper than simply stating that security should focus on the security of the *individual*, to include aspects of how these *individuals* are made to be or feel insecure, such as; flooded homes, an influx of foreign nationals impeding on citizens' livelihoods and cultures, or the frightening idea of CC (Augsten *et al.* 2022).

Hsiang and Burke (2014) incorporate the pathway of psychology into their study of the CCN. Sellers *et al.* (2019), as well as Levy and Sidel (2014) focus on the vulnerability of human health and rights. Some scholars such as Ide *et al.* (2021), entertain the notion of gender as a forgotten variable of vulnerability, and they consider how additional stress and anxiety could be felt by those held back by society (Ide *et al.* 2021). The idea of human security thus correlates with the idea of insecurity, because of the climatic variations impacting vulnerabilities, and where CC potentially intersects with the *individual*, and the societal dimensions of security. This is where the theoretical arguments of security are again relevant (Bilgin 2003). However, one limitation is that whereas scholars make direct mention of human security, human insecurities are not always identified and acknowledged. Vulnerabilities are simply spoken of as vulnerabilities, and not, for example, as gender inequality due to societal norms or cultural ideals.

Furthermore, both empirical and theoretical studies, do at times become narrowly focused on the subject of migration. Related to environmental change and conflict, migration therefore (similarly to the study of CCN) has become its own subfield in the study of security and society. Migration, as an indirect pathway, which links CC to conflict, represents a concern for both human security and national security since it threatens borders and territories and — by imposing on existing livelihoods — is perceived as threatening to the security of inhabitants. As such, migration is seen as the result of, the cause of, and the intervening variable all in one. Migration for example, is the result of existing threats, a cause of instability, and an intervening variable in armed conflict. Furthermore, migration, is considered not as an outright consequence, but as an act of adaption in response to the threat of CC (Huysmans and Squire 2016; Mortreux and Barnett 2009; Assan and Rosenfeld 2012; Vietti and Scribner 2013; Withagen 2014; Burrows and Kinney 2016; Brzoska and Fröhlich 2016; Bettini 2017; Abel *et al.* 2019; Jacobson *et al.* 2019; Adams and Kay 2019).

Despite the multi-disciplinary literature focusing more closely on pathways of vulnerability, the debate on the CCN remains contested. It is argued that these different approaches have led to a “cacophony of different findings,” causing confusion and persistence of a lack of generalisation (Salehyan 2014). Mostly, studies have concluded that the confusion over divided opinions, the lack of evidence, and the inability to generalise results has translated into a need to look toward governments’ and communities’ adaptive capacity in light of such disasters, or in the case of permanent climatic changes. Therefore, it can be argued that the most compelling contribution towards studying the possibility of a link between CC and conflict is the pathway of ‘adaptive response.’

2.3.4 The ‘Adaptive Response’

Studies now begin to illustrate the additional role played by the ‘adaptive capacity’ of communities and governments which are subjected to increasing environmental change (Brzoska and Fröhlich 2016; Abrahams and Carr 2017: 239). ‘Adaptive responses’ tend to be mentioned in relation to pathways of vulnerabilities. This phenomenon is discussed in relation to government capabilities, or the lack thereof. The use of the concept ‘adaptive response,’ relative to the CCN, and across the various disciplines, relates to the responses of governments, institutions, and communities.

When studies do make mention of ‘adaptive response,’ it comes across as a concept, a phrase of importance, with authors neglecting to explain the thought process followed, or the exploration required to illustrate the relevance of a focus on, or the inclusion of ‘adaptive response’ to the study of climate security or the CCN.

Through the review of the literature, this study recognised an inconsistency in Abrahams and Carr's (2017) study, between their argument that CC is not a ‘threat multiplier’ and the under-explained pivot towards ‘adaptive responses.’ Whereas they have made a large contribution to the climate security field in recent years, in, *‘Understanding the connections between climate change and conflict: Contributions from geography and political ecology’* Abrahams and Carr (2017) claim that CC as a ‘threat multiplier’ is irrelevant when considering the CCN, whilst simultaneously arguing for CC to be understood, as a ‘threat multiplier.’ They argue that, ‘threat multiplier’ presents the CCN as a “product of exposure” specifically

exposure to adaptive capacities (Abrahams and Carr 2017: 237). What this means is that the CCN is a consequence of the interaction between CC and the ‘adaptive responses’ taken up against the threat of CC and its effects.

By including ‘adaptive response,’ it is now possible to discern how climate security relates to broader global security. In this way, the CCN could be understood, not only through the intersection between environmental change, and the existing variables of location or vulnerability, but within the cognitive reality of human choice and action. This is because all of these variables are found across the globe, in all societies, thus allowing for greater generalisation, and the replication of findings. McDonald’s (2013: 49) systematic mapping of discourses relevant to understanding climate security neatly summarises the threat of CC for both the state (NS) and the *individual* (HS). He also acknowledges CC as being a threat to society (international security) as well as ecological security. Similarly, following the Covid-19 pandemic, authors such as Jones and Sullivan (2020), discuss climate security as being concerned with, “environmental security, human security and geopolitical security.” (Jones and Sullivan 2020: i) In reality, CC is a global phenomenon, however, so too are the conflict and insecurity outcomes which result from CC’s effects. Jones and Sullivan (2020) connect CC, ‘adaptive responses,’ and outcomes such as migration, destabilising governments, the erosion of sovereignty and terrorism, to now refer to ‘global insecurity.’ Whereas they do not mention ‘adaptive response,’ nor do they explain the reasoning behind actors’ threatening actions, they do identify that actions taken by actors are threatening to the security of the entire globe no matter where these actions originate.

All in all, the review of the literature highlights that all of these arguments and studies are based on the consideration that CC is not the cause of insecurity, and as such it is not CC that needs be the focus of research concerning climate security or the CCN, but rather the environment of conditions with which it intersects. In other words, the ideas surrounding ‘threat multiplier,’ pathways of ‘vulnerability,’ and ‘adaptive response,’ all simply refer to the notion that it is not the climatic changes which cause insecurity, but rather things such as the adaptive capacity and response of a state or an *individual*, which determines the extent to which CC threatens the socio-economic, environmental, and political stability of, a community, the nation-state, a region, and the globe (Inga 2019: 5).

2.4 Conclusion

There is much debate surrounding climate security. Discussions range from theoretical classifications of climate security as environmental security and environmental conflict, to suggest a nexus between CC and conflict. It is evident that despite the array of empirical studies, that the theoretical underpinnings of national security and human security still remains the same. These underpinnings, however, are not connected with the many empirical studies conducted with respect to the possible link between CC and insecurity. Studies focus on geographically relevant sites despite the fact that CC, although unequally so, remains a global issue. Rainfall and temperature fluctuations are used as data proxies and although all these remain relevant, the literature still seems to fall short of concrete facts.

Studies, whether journeying towards new outcomes, or taking stock of existing studies and findings, seem to fall victim to the same complexities as their predecessors. They mention the need to diversify the meaning of conflict, to follow the indirect pathways, or to broaden perspectives. This is despite these studies building on research that has already done just that. The literature reviewed followed various priorities. These studies mention the use of indirect pathways, they consider the scope of climatic events, and most have come to the same conclusion, namely, the need to focus on ‘adaptive responses.’

This chapter has also highlighted a rare few, less relevant (as some studies had proclaimed) variables. However, this review demonstrates that the concepts of fear, aggression, ecology, and human vulnerability need be considered within the study of climate security and the CCN. These variables are mentioned, similarly to the concept of ‘adaptive response,’ in passing, used as self-explanatory words, simplified to a word in a study and not phenomena consisting of complexity and power.

The literature reviewed indicated that the debate is mostly represented by empirical studies which highlight statistics and distribution patterns, and the CCN as a geographical concern. This is not irrelevant, but does not improve our understanding and practice of human, national and global security in the time of CC. Some might suggest that the debate has come full circle. However, following the review of the preliminary and the selected literature, this chapter concludes that the debate is simply failing to incorporate a few key concepts such as

‘adaptation,’ the ‘security-dilemma,’ ‘threat perception,’ ‘the *individual*’ and ‘fear.’ Concepts which this study argues are important variables to be considered in understanding the CCN, climate security and national security.

CHAPTER 3 - CONCEPTUAL FRAMEWORK

3.1 Introduction

For the purpose of gaining further insights into the CCN, as well as the meaning of national security in the era of irreversible global CC, this chapter will introduce and explore key concepts identified in the literature review, and in the preliminary literature search, following the study's hunch that the *individual* is a key player in security, and that the fearful adaptation to CC is an important trend underlying security. This chapter will show how concepts such as, 'adaptation,' the 'security-dilemma,' 'threat perception,' 'the *individual*' and 'fear,' could be of great value to the future study and practice of both state and *individual* security. Therefore, this chapter develops a conceptual framework based on a multiplicity of findings and a broad set of viewpoints. By introducing and examining these concepts, it is hoped that the imagined scenarios in the final chapter will be allowed to unfold. This could possibly add greater insights to the climate security field, whilst helping future studies and practices to consider the emotional behavioural responses of the *individual*, a significant player when considering community, state and global security. Through this chapter I therefore offer a set of conceptual tools and ideas for others to consider.

3.2 What is meant by Adaptation?

'Adaptation' is not a recent concept. It has been around since the theological philosophising of the universe and all that it holds within. After emerging in the age of theology, adaptation was considered as part of the mystical wonders of astrology. However, the concept became 'real,' with the advent of Darwinism and evolutionary biology. Adaptation is thus most notably connected to the idea of human fitness and reproductive success. In this sense, it is measured in terms of genetics and thermodynamic models (Gorban *et al.* 2021). A simple definition of adaptation, however, is that it is a process, or an action started and taken in response to a changing situation or environment.

Adaptation is thus understood as the key concept in biological evolution, with evolution understood as being adaptation, or the by-product of adaptive changes (Amundson 1996). It is

revealed by Amundson (1996), in a study on the historical development of adaptation, that there has been a vast array of controversy and debate concerning the concept. Adaptation is alternatively understood to be a trait, as well as a process and a product of action. Most debates orbit around concerns of biology, physics, and literature. In respect of literature, adaptation is the action and process of adapting literature into screenplays or productions (Hutcheon 2012).

It seems, however, that adaptation concerns two things. In other words, depending on the circumstances, adaptation is either a process of change occurring over time to suit an environment, or to survive in new or changed environment. Alternatively, adaptation is an action taken to fit a new situation. This corresponds with Amundson's (1996: 42) finding that adaptation relates to both phylogenetic and ontogenetic instances. Phylogenetics understands adaptation as a process of biological change, whereby adaptation is closely associated with aspects such as purpose, function, trait and fitness. Ontogenetically, adaptation is understood as human choice leading to human action (Gorban *et al.* 2021; Amundson 1996: 42). This study favours the latter conceptualisation since it incorporates the quick response, and the human action taken, rather than the biological process of evolutionary change.

Following the observation in the previous chapter that adaptive responses are compelling in respect of highlighting how CC truly impacts security, and how it would best be understood, this chapter further explores the literature on climate security with a specific focus on adaptation. At first glance, the adaptation-related literature tends to revolve around biological adaptation by exploring human biology or psychology, and discussing whether the human mind truly has a hold over reproductive fitness and success (Symons 1990).

The IPCC (2007: 6) defines adaptation as, "the adjustment in natural and human systems in response to actual or expected climatic stimuli or their effects, which moderates, harms or exploits beneficial opportunities." (IPCC 2007: 6) In another sense, adaptation concerns the activities adopted in order to survive, "the negative consequences of CC." (Brzoska and Fröhlich 2016: 198) In a study led by Berrang-Ford *et al.* (2021) regarding human adaptation to CC, it was concluded that behavioural responses make up 75% of adaptation as documented by the literature on this. This study by Berrang-Ford *et al.* (2021) highlights the countries and regions in which human responses are most common. These authors provide evidence of the

dimensions of transformational adaptation which notes the overall response to, as well as the limits, depth, scope and timeline of the responses to CC.

Additional articles consider the existence of various adaptation pathways (Werners *et al.* 2021), and make the interesting finding that urban change is an untapped opportunity for CC-adaptation (Egerer *et al.* 2021). Many authors concur that CC-adaptation has its limits. According to these authors, with technological advancements, and adaptation being contingent on access and capability, CC-adaptation could exacerbate social divides and cause economic, social and political risks and losses. Such limits illustrate how or why adapting to climatic shocks could in itself be problematic or even threatening (Dow *et al.* 2013; Eriksen *et al.* 2011; Atteridge and Remling 2018; Egerer *et al.* 2021: 22).

3.2.1 Psychological Adaptation

Within the context of the threats posed by CC, ‘psychological adaptation’ is said to include, “the focus on intrapsychic conditions that influence how *individuals* and groups appraise challenging circumstances and includes a variety of psychological responses.” (Helm *et al.* 2018: 8) Psychological adaptation is a construct which captures, “a suite of interacting cognitive, affective, and motivational processes that involve becoming more attentive to the CC issue, realising its reality and implications, adopting a problem-solving attitude, and shifting to a more ‘pro-environmental’ attitudinal and behavioural position.” A process of, “sensitisation, (re-)focusing, or (re-)orientation; it implies a willingness to take constructive action.” (Bradley *et al.* 2020: 2) In other words, psychological adaptation concerns the realisation and identification of the reality causing certain emotional responses. This in turn allows for control of emotion and proactive action instead of unruly emotional reactions towards a threat or an uncertain situation.

With regard to climate security, it is necessary to recognise how CC is different from other threats. In this sense, CC is an ongoing global stressor which elicits different responses from *individuals*, than for instance a flood or earthquake would (Reser *et al.* 2011; 2012 cited in Helm *et al.* 2018: 7). This difference is important as it could make mitigation actions towards the negative effects of CC easier to understand or initiate (Fritze *et al.* 2008). Helm *et al.* (2018: 2) argue that, “these adjustments and adaptations [being] made,” largely depend on how

[*individuals*] make sense of their surroundings, and how they come to terms with the phenomenon of CC. Furthermore, this is contingent on the consideration that the *individuals*' worry over valued objects, influences the way they adapt or respond. In other words, adaptive action is conditioned through "perceived stress, and psychological coping methods which include a range of emotional elements." (Helm *et al.* 2018: 5) This confirms that it would be short-sighted for researchers and practitioners to ignore the psychological aspects which are connected to adaptation efforts or responses (as important variables within climate security and the CCN).

Psychological adaptation introduces the reality that resulting ecological degradation will cripple mental health through the increase of stress and anxiety (Helm *et al.* 2018: 1). However, what is potentially missing from the literature is an understanding of what these strategies entail, and how *individuals* manage the heightened emotions in the face of a perceived ongoing and uncertain threat such as CC - a threat far removed from everyday life (Helm *et al.* 2018: 2).

3.3 Security-Dilemma: an infamous yet underrated Concept

The concept of a "security-dilemma," might help to illustrate some of the strategies employed by *individuals* to manage their heightened emotions and circumstances in light of CC, and thus this ought to be important and be considered. It is my argument that this concept adds much value to developing a conceptual framework to better understand the reality of climate security, the responses to CC, and the CCN being the result of *individual* adaptation through fear.

As Buzan (2008) phrased it, the "security-dilemma" is best understood as, "a structural notion in which the self-help attempts of states, to look after their security needs, tends to automatically lead to rising insecurity for the other," with each actor interpreting (for themselves) the degree of threat which their own defensive measures, as well as those of others could potentially carry (Buzan 2008: 3). Hence, by securing yourself you are threatening your neighbour, hence the dilemma. This is consistent with the notion that actions can have positive or negative outcomes, as well as foreseeable or unforeseeable consequences. In other words, how adapting to a threat could ultimately be a threat in itself. This goes even further, since in

order for the state or the *individual* to act on a threat, and try to adapt, so as to secure themselves, they need to perceive something as being threatening.

3.4 In harm's way: the perception of threats

In order to understand a threat, or the potential of something being a threat, it is necessary to consider how it is perceived. Threat perception is relevant in relation to who is being threatened, as well as what the threat is. How something is perceived, ultimately defines it. So, how a threat is perceived tells us not only what is threatening, but who is being threatened.

3.4.1 Threat Perception

'Threat' or 'threat perception' largely involves the reality of observing, causing or being in harm's way. It is the reality of being in direct danger, or of expecting future danger to oneself or others. When considering national security, a threat is described as being, "an action, or sequence of events, that threatens drastically, and over a relatively brief span of time, to degrade the quality of life for inhabitants of a state or which threatens significantly to narrow the range of policy choices available to the government of a state or to private, non-governmental entities within a state." (Shaw n.d.: 40 - 41 cited in Blake 2018: 10) Blake (2018), considers threats to be dynamic. Although they manifest locally, they have the ability to spread rapidly and to escalate to an international level with global implications (Blake 2018: 16). As a consequence of one *individuals'* fear guided action, this could lead to global catastrophe.

In a comparative study conducted by Obaidi *et al.* (2018), perceptions of threat as a predictor of out-group violence among both Middle-Eastern and European Muslims, and European and American non-Muslims, are considered. The authors argue that their proposed comparison is best understood by considering threat perception as regarding two types of threats, namely, 'realistic' and 'symbolic' threats. The former are threats, "typically arise[ing] from the perception of competition over scarce resources such as jobs, land, and political or economic power, as well as from threats to physical safety and the general well-being of the in-group." (Obaidi *et al.* 2018: 5 - 8) On the other hand, symbolic threats, are perceived as "threats to a group's religious values, norms, morals, philosophy and identity and have been associated with self-reported willingness to expel immigrants." (Obaidi *et al.* 2018: 5 - 8)

Thus far, what this chapter demonstrates, is the fact that cognitive psychological factors are inseparable from what threats are and how they are perceived, as well as how perceptions shape *individual* action, and how action can have both negative and positive outcomes.

Harold and Margaret Sprout, who are scholars of foreign-policy analysis made important strides towards understanding aspects of decision-making. These authors focused on what they termed, the “psychological and operational milieus” of decision-making, to argue that decision-making is influenced by the ‘psychological milieu’ of each *individual* decision-maker, and that decisions are made for the purpose of decision-makers protecting or acting within their physical environment (operational milieu). The main point of their argument is that decision-makers’ decisions are informed by their *individual* identities, emotions and perceptions of reality (psychological milieu) (Sprout and Sprout 1957; 1965; 1968; Gold 1978). What they consider problematic, however, is that the ‘psychological milieu’ is not necessarily consistent with the reality presented by the ‘operational milieu,’ thus affirming their elementary first principle; “that what matters in decision-making is not how the milieu is, but how the decision-maker imagines it to be.” (Sprout and Sprout 1957: 314)

3.4.1.a Risk Perception

In researching both ‘threat’ and ‘threat perception’ as singular concepts, as well as in relation to CC or climate security, the concept risk perception is used as a substitute concept. The concept ‘risk perception’ is furthermore considered in respect of the CC threat, but more specifically in respect of the responses and adaptations to these perceived CC threats. Risk perception is understood as, “the process of discerning and interpreting signals from diverse sources regarding uncertain events, and forming a subjective judgment of the probability and severity of current or future harm associated with these events.” (Bradley *et al.* 2020: 1) Scholars have connected risk perception to adaptation and they suggest that the former is created by socio-demographic, cognitive, experiential and socio-cultural factors. Hence, risk perception is best understood as not only a risk perceived in relation to a particular objective threat, but also as perception shaped by multiple societal and personal factors (Obaidi *et al.* 2018; Bradley *et al.* 2020).

Risk perception also links back to the idea of adaptation which Bradley *et al.* (2020) highlight as ‘response efficiency’ (in addition to ‘psychological adaptation’ as a complementary concept). According to these authors, response efficiency is defined as perceived instrumentality. Hence, the belief that the actions we take towards risks or threats will be effective and produce desired results (Bradley *et al.* 2020: 1). With regard to adaptation, Alexander Pope by way of his poetry, explains a similar condition, in that, “and spite of pride, in erring reason’s spite, one truth is clear, whatever is, is right.” (Alexander Pope *quoted in* Amundson 1996) Thus, it can be said that the perception of risk is, “the subjective judgement people create regarding the characteristics, severity and the way in which the risk is managed,” with outrage and indignation being the key elements produced by such risk multiplying anxieties throughout societies (Cori *et al.* 2020: 3).

Additionally, risk perception, and the response to the threat of CC, not only requires an *individual* or society’s knowledge or absence thereof, but also the element of “belief certainty.” This refers to the idea that adaptations are linked to *individual* beliefs and specific behaviours and cognitions (Helm *et al.* 2018; Bradley *et al.* 2020: 2). In a study conducted on CC and how the threat is perceived by the average American, it was found that despite an increase in overall risk perception, perceived personal risk remained low (Ballew *et al.* 2019: 7). As American minds reside within a country which is not as directly exposed to the climatic changes, as those situated within the ‘tropic of chaos,’ it is considered to be less relevant to their personal security, and as such, they might have less motivation to mitigate the effects of CC. This, I argue, could be seen as a ‘security-dilemma’ in itself.

3.4.1.b Political Ideology

Related to threat perception is the idea of ‘political ideology.’ In conjunction with the recent Covid-19 reality, and the continuing controversies surrounding Muslims and middle-eastern ideologies, discussions on threat perception reveal the major influence that ideology and regime politics has on states, communities and *individuals*’ perceptions of what is threatening (Calvillo *et al.* 2020). This comes full circle with the notion of symbolic threats, and how societal and personal factors influence how threats are perceived. That it is not simply objective, but rather depends on what a state or *individual* believes in, the values they live by, the knowledge they have, as well as their cognitive abilities and political orientations (Staniland

et al. 2018; Calvillo *et al.* 2020; Schwaller *et al.* 2020). In exploring the behaviour and attitudes toward CC, Kahn *et al.* (2011), as well as Nisbet *et al.* (2015 cited in Nabi *et al.* 2018: 443) found that ideology is a much stronger influencer than knowledge. This indicates that cognitive bias is an important aspect to consider when trying to understand *individuals'* responses to CC.

3.4.1.c Resilience

The literature on the concept of resilience, and its relation to security, also attempts to provide a better understanding of threat perception, and the reality of emotional responses to these threats. Resilience is relevant to the discipline of security studies, as it describes the ability to withstand or survive, despite unwanted or unforeseen circumstances. This concept therefore also points to an additional dimension and understanding of security. Broadly, resilience is defined as, “the capacity of an entity or a system to withstand shocks, recover, adapt or in some cases learn, evolve or move to a new systematic equilibrium while maintaining basic functions.” (Corry 2014: 257) It is the, “ability of a system, and its component parts, to anticipate, absorb, accommodate, or recover from the effects of a hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration or improvement of its essential basic structures and functions.” (IPCC 2012: 563) Within the climate security discourse, resilience has a few, separate meanings, which have been adapted to accommodate the relevant referent object in question, and may include; strategic resilience, neoliberal resilience, social resilience and ecological resilience (Ferguson 2019: 109 - 119).

After considering human behaviour during the Covid-19 pandemic, Ferguson (2019) defines resilience as, “an *individual's* ability to cope with risk, adversity and stress, despite exposure to a serious stressor that may contribute to a variety of physical behavioural and cognitive and emotional symptoms.” (Ferguson 2019: 106) This is referred to as psycho-social resilience (Ferguson 2019: 106). Resilience thus links the idea of vulnerability (whether of society, the state, or people) to that of emotional reactions, such as stress, anxiety and fear. Vulnerability is said, to not only elicit such reactions, but that it also influences perceptions of what is threatening or stressful (Ferreira *et al.* 2020: 2).

3.5 The 'Individual, 'Fear and other Emotional Responses

A living being can be conceived as an *individual* in two ways. First, by being, at its core, a singular unity which has provided for, and has been created by itself, and which will resist anything that it considers to not be itself. Second, as being created “from the conjunction of a form and some matter.” (Simondon 1882: 297) In response to climate related threats therefore, an *individual's* psychological reactions are considered to be a “combination of *individual* processes,” which include personal concerns and defences, as well as personal thoughts and feelings (Fritze *et al.* 2008). Thus, when considering climate security, or the relation between CC and conflict, it ought to be noted that these phenomena do not exist without participants, and that these participants are *individuals* constituted by complexities.

3.5.1 Fear

‘Fear’ — is as an emotion which all *individuals* have experienced in one form or another. In a medically reviewed article, published online on Verywell-mind, Fritscher (2022: no pagination) writes that fear is a, “natural, powerful and primitive human emotion.”

The idea of fear involves both a universal biochemical response and an *individual* emotional response (Fritscher 2022: no pagination). Fear is an emotion, and a biochemical reaction which alerts an *individual* to real or perceived physical and psychological dangers. Fear is not always logical or real as it can also be triggered by imagined scenarios. Fear which is formed from an imagined reality allows for action to be taken within the *individual's* real environment which can have unintended negative consequences.

Fear is also a symptom of certain mental disorders such as phobias, post-traumatic stress- and panic-disorders. Fritscher (2022) further mentions that in light of the perceptions of a threat, responses are biochemical and emotional. Biochemical responses refer to the natural emotion i.e. an *individuals'* survival mechanism — a universal physical condition — that kicks in. This physical response takes the form of ‘fight or flight’ with rising heart rates and adrenaline spikes. Emotionally, however, fear response is highly personalised. This means that the physical reactions remain the same, the *individual* experience can cause it to be felt as either positive or negative (Fritscher 2022).

Fear is a complex phenomenon. It results from various situations. For some it relates to past experience or trauma, and the knowledge that a thing or situation can cause physical harm or pain. For others, it is felt due to a perceived sense of a loss of control. In some instances, fear tends to be instinctive. This is a result of evolutionary adaptation, as fear aids in survival (Fritscher 2022).

Some of the literature related to the subject of security, CC or climate security, does mention the concept of fear, and the notion that it is a part of security. Publications such as Buzan's (2008) '*People, States, and fear*,' Leroy and Gebresenbet's (2013) '*Science, Facts and Fears*' and Schwell's (2015) '*Security-Fear Nexus*,' which were reviewed during the preliminary literature search on the relationship between CC and conflict, did provide some insight into the existence of fear within the study of security, and the possible threats responsible for the perception that the CCN does indeed exist. However, in these instances, the concept of fear is neither the focus nor is it defined. It is simply mentioned. It is self-explanatory that fear is part of the existence of the nexus, but the reality around the role fear plays is, however, not expressed.

When it came to integrating the literature on climate security, and more specifically as it related to the CCN and fear, scholarly articles were more revealing. Studies do mention phrases which include the concept of fear, such as, 'discourses of fear,' or in the 'age of fear.' Other studies list fear as being a thing in relation to a situation, such as "fear migration" discussed by Beuret *et al.* (2021), for example. This confirms that fear is certainly considered when studying today's reality, in relation to climatic change, natural disasters or economic collapse. A problem, however, is whether or not the concept of fear is made a focus. Fear has not been dissected in the literature in order to better understand its true value, or the role that such an emotion plays within an increasingly uncertain world. Wei Shi (2019), in a study of fear as political dynamics, sets out to demonstrate the centrality of fear within China's socio-political order. Here, what stands out, is that Shi (2019) discusses the power of emotion and fear as a series of chain reactions. His study not only emphasises the presence of emotional responses, but it shows how the emotional responses of people, such as those protesting for their rights, as an act to secure themselves, causes insecurity for government and governing officials, since it threatens the stability and legitimacy of the state.

3.5.1.a Climate Anxiety and Worry

Having been identified as one of the largest pop-culture trends of 2019, ‘climate anxiety’ is understood as the anxiety which is related to perceptions about CC. In other words, anxiety is experienced by anyone, whether directly faced with the effects of CC, or not. The term is associated with the increasing uncertainty which people have about the future, the loss of past ways of life, as well as things or places. This anxiety is related to a sense of “solastalgia,” as well as a loss of ontological security. The former refers to the chronic distress which is experienced due to growing negative environmental impacts and changes, and the latter refers to the unreliable nature of one’s knowledge and understanding of systems previously relied upon (Albrecht 2005 *cited in* Clayton 2020: 2; Norgaard 2006 *cited in* Clayton 2020: 2). ‘Climate anxiety’ is also known as “eco-anxiety” which is understood as being, “a severe and debilitating worry related to a changing and uncertain natural environment.” (Helm *et al.* 2018: 5) Furthermore, anxiety best captures feelings of concern and worry related to negative environmental impacts. As such it is an important factor to consider when examining the emotional responses to CC. Anxiety is further said to involve a sensitivity to negative outcomes, or the anticipation of global conflict. This leads to *individuals* actively assessing the risk in situations and avoiding behaviours that are potentially conflictual (Clayton 2020: 2). This emotion, although distinguished from fear, often co-occurs.

When considering CC, and the presence of emotional responses to it, ‘worry’ is a concept closely related to anxiety. In this context, ‘worry’ is described as being, “a personal, active and motivational emotional state that is characterised by the repeated experience of anxiousness, thoughts about a potential negative event, that is closely related to *individuals*’ personal goals, preferences and behaviours.” (Bouman *et al.* 2020: 5 - 6) Studies which focus on the relevance of *individual* biospheric values, highlight what *individuals* typically perceive to be threatening about CC. This assists research to better understand the influence of personal climate-related beliefs and feelings, thus offering direction for policy action and subsequent interventions (Bouman *et al.* 2020: 21). The findings of these studies highlight the need for understanding ‘worry’ as being related to an *individual* being more informed about CC, and thus being more supportive of mitigation policies and actions. These studies further find that, ‘worry’ is related to an *individual* feeling personally responsible in taking action to mitigate against the negative effects of CC, even though this occurs in different types of *individual* action (Bouman *et al.*

2020: 21). Personal behaviours, so as to deal with the negative impacts, or emotions evoked by CC, have their own outcomes. These outcomes need to be more closely considered since acting on emotion could have negative consequences.

3.6 Conclusion

The concepts discussed in this developing framework create an awareness of the influence and potential consequences of an *individual* human response towards the perceived threats posed by CC. This chapter alluded to adaptation, perception of risk or threat, and the existence of fear, whilst considering how *individuals* shape their understanding of the milieu in which they find themselves, and thus how they respond to this. This chapter thus discerns that it is that which is valued and personal (beliefs, objects value, and biases) which takes precedence over that which is necessary, right, moral or real. The world is made up of leaders, decision- and policy-makers, farmers, teachers, inventors and scholars, all of whom are *individuals*. With respect to security, it is thus prudent to recognise that the world is being ruled by *individual* choice and action which is infused with biological survival instincts, emotions and cognitive biases, so as to better understand and account for present and future concerns threatening global, human, national, and ecological security.

CHAPTER 4 - FINDINGS AND DISCUSSION

4.1 Introduction

Thus far this study has argued that the CCN, climate security as well as national security have to date only been partially explored, and thus have only been partially explained. The failure to conceptualise climate security as the action, thing, or event of securing oneself against climate related threats, and the effects of CC itself (as a security issue), has led to an ill-informed understanding of security.

Furthermore, the future of national security rests on the presence of an ever-evolving climate security issue. In order to explain why this is the case, this chapter will illustrate it through a story telling of the world's future. This chapter creates three scenarios, which transports the reader through possible futures underpinned by the trend of 'climate change adaptation through fear.' The aim here is to provide foresight into understanding global security and the climate crisis going forward. 'Climate change adaptation and individual fear,' is translated into a threat to global security by using an existing five factor qualitative expression. By applying this expression, climate security as a security issue, is operationalised through threats originating from adaptation, which is connected to human emotion and specifically fear and emotion. These adaptation-emotion connections are also considered to intersect with other concepts (variables) which present variations in emotional responses i.e. anger, hostility or apathy.

4.2 Scenarios and Blake's threat expression

4.2.1 Scenario building

Whilst some believe that CC is a hoax, others argue that the CCN is too contested to be considered an issue of security. Scenario building, however, allows the reader and the researcher to consider all possible future outcomes by bringing into view issues previously overlooked. Scenarios help one to envision what will happen by providing a way of thinking about the world. Scenarios are utilised to, "manage risk, and to develop robust strategy plans

in the face of an uncertain future.” (Maack 2001: 62) Scenarios help us, “explore how trends and choices of note might intersect to create different pathways to the future.” (NIC 2017) In this sense, the future of the environment, living conditions and morality.

4.2.2 The five factor qualitative expression

In using a five factor qualitative expression, Blake (2018) illustrates the relevance and importance of understanding health as a security issue. By exploring how diseases threaten human security, Blake’s threat expression neatly illustrates the way in which one can understand security in respect of under-explored threats. Using this expression provides guidance and simplicity to the study of security considering today’s climatic conditions. Blake’s (2018: 10 - 11) qualitative expression laid out in figure 1, states that a security issue (SI) i.e. the dependent variable, results from an interaction (S) between the referent object (RO) and a perceived threat (T). The threat and its interaction with the referent object is formulated on the basis of proximity and time, the possibility of degradation, the probability of occurrence (P) and the duration of occurrence (D) of the issue, whether it is brief or protracted. Together these elements determine the securitisation potential of the issue in question and the agency of the agent to deal with its occurrence (A).

Following this study’s main argument that the threat in question is dependent on how *individuals* respond to perceived threats, the expression will be slightly adapted. The agency or agent value will be added to the expression with the numerical value indicating participation as another variable. Furthermore, to best utilise this five factor qualitative expression, the security issue will be measured numerically. In figure 2, numerical values were added to the variables in question thus allowing the equation to produce a numerical value for each scenario narrated.

SI = T x RO where the SI = Climate Security, T = Climate Change adaptation and Individual fear, and RO = Global Security.

4.3 Climate change adaptation and Individual fear - The reality shaping our future

So as to identify possible futures, it is imperative to first identify the trend which underpins the narratives that follow. A trend, a discernible pattern of change, can have a significant impact on the shaping of policies, actions, as well as the behaviour of actors. Great insight can be gained into a specific trend, as well as insights into the interactions between actors, or the intended direction of a state, concerning preparation for the future. The trend utilised in this chapter is; ‘climate change adaptation and individual fear.’

4.3.1 The trend and the threat (T)

The issue of CC has dominated discourse for some time, with concerns and debates dominating international conferences and agreements. Similarly, emotion has always been characteristic of human nature. Fear and anxiety have also always existed as responses to- and influencers of action toward threats, so as to survive.

Emotion is part of the human condition and thus cannot be separated from choices or actions. Emotion is something which influences experiences, and which is influenced by them. This is a chemical reaction within the human genome which allows for survival instincts to kick in. Instincts which help *individuals* to assess situations, albeit this is widely contingent on how *individuals* perceive their environment. Perceptions are influenced by existing emotional conditions, cognitive biases (such as beliefs and values), as well as the intersection of these conditions with the physical and social environment itself. However, as stated by Sprout and Sprout (1957; 1965; 1968), a person’s psychological milieu, and the actual reality of their physical environment, do not always correspond with one another. Considering vulnerabilities, adaptive capacity and resilience, one should also note that it is the operational environment which influences emotional arousal in response to perceived situations.

In considering how best to approach the issue of climate security, the concept of adaptation provided this study with a means through which to include the *individual* and their emotions, as the missing link required to better understand the reality of the CCN. It is considered the means by which change is affected and action is taken towards the looming threat of CC. Considering that adaptation is not merely an act, but a product of adaptive

changes, it is my proposition that actions taken in response to a changing environment, and influenced by emotions which are aroused from the perception of risk, is the best way by which to understand the various realities surrounding climate security. Adaptation is a coping strategy, and similarly to how *individuals* cope with the stress of life by adapting to habits that are either good or bad for them, so to do *individuals* apply adaptation methods to cope with a climate changing environment. Therefore this trend can be deduced to a few critical uncertainties argued to shape future outcomes (van der Heljden 2005: 243 - 248). Such key uncertainties include the ability of the *individual* to psychologically adapt to the demands of climate security, whether good governance is available in such a way as to provide and prioritise the reassurance and protection of *individual* livelihoods despite a changed climatic condition, and lastly to consider the level of fear experienced by *individuals* faced with the uncertainty of climate security.

4.3.2 The security issue (SI)

By narrowing down the focus to specific emotions, a better understanding of the responses of governments, institutions, and most importantly *individuals* in respect of climate security issues, can be illustrated. In order to better understand the reality of the situation (of CC, its impacts, impacting environment and adaptive responses), it is necessary to not only name the issue, but also to understand why or how the threat is translated into a security issue. A security issue is explained as a variable which is dependent on the product of the referent object and the threat (Blake 2018). This study's proposed security issue i.e. 'climate security' has been confirmed by the literature, and it is arguably linked to national, human, as well as ecological security. As such, it presents a wide range of consequences which places all manner of life in jeopardy.

4.3.3 The referent object (RO)

The referent object for this study is global security. However, it is important to note that this security issue concerns all objects of reference i.e. people, communities, states, and the environment. As such, the security issue does not discriminate. It is an issue that affects the neighbour of a farmer, as well as the son or daughter of a wealthy executive in some small

European State. CC, in the sense of ‘global warming,’ is therefore a global phenomenon. Threats are therefore borderless, whereas action and proaction are not. This is because climate security confronts the reality of sovereign states and international rules pertaining to non-interference.

Nationally, states and governments are affected by climate security, and they are responsible for promoting and enforcing domestic and global policies, and for setting examples for neighbouring states. In this respect, it is expected that thinking and action ought to be ruled by ‘climate first’ values, especially when states interact and bargain with international institutions, multinational and transnational companies, as well as with other states. Within their own borders, governments are responsible for ensuring relief against climatic changes and their effects; for inspiring climate positive actions as a way of life, and for providing the means for their citizens to make that transition. Mitigation actions are expected to cover all spheres; including research, and strategic forward planning, education, technological development, policies, laws and agreements and cooperation between states.

Despite the role of the government in planning, strategising and funding, it is ultimately the *individual* who has the potential to constitute a climate secure population and to contribute to the wellbeing, economic growth and prosperity of the state, and ultimately the world (Blake 2018). It is this same *individual* who will literally be ‘feeling the heat’ when he is working in farmlands, living in densely populated cities, faced with lower crop yields, increasing energy prices, cold nights, as well as livelihoods being washed away.

Just like governments have the responsibility to protect, *individuals* have the responsibility to make the necessary changes suggested, taking what they are being offered, accepting the changing circumstances, and supporting the choices of those in power. However, if these are not provided by governments, if ‘hope is not forged,’ ‘distrust not resolved,’ and ‘power having corrupted leadership’s ability,’ then *individuals* are at a cross-road. A cross-road where the only road not barricaded is that of survival, fight or flight, short-sightedness, or emotionally-charged reactions in adapting to a new and inevitable reality. As such, each sphere whether *individual*, or global, has that same potential to constitute a climate secure environment, and each has the potential to threaten that same environment.

In the following section three scenarios are designed to explore the possible contrasting actions of government in so far as incorporating the *individual* as an important role-player in the disaster or solution of adaptation to CC.

Figure 1:

Blake's five factor qualitative expression (Blake 2018)

Dependent variable: Security Issue (SI)		Climate Security
Define the security issue in terms of the referent object (RO) and the threat (T).		
Threat (T)	What is the threat to the RO?	Climate Change adaptation through fear
Independent Variables	Description	
Referent Object (RO)	What or who requires safeguarding?	Global Security
Situation (^p S)	What is transpiring, where & when? Proximity (p) & Time (t).	Global reach and impact Days
Degradation (d)	How will the situation degrade the RO? Is the impact local, national, regional or international	Global impact
Probability (P _{wpl*p})	What is the degree of certainty? Will occur (w), Probable/Probably occur (p), Likely to occur (l), Possible/Possibly occur (*p).	Will occur
Duration (^{Pr} D)	What is the estimated duration? Brief (b) or protracted (Pr).	For a protracted time
Securitisation Potential (SP)		
Should the security issue remain non-politicised or should it be politicised or securitised?		The threat intensity depends on the circumstance of participation i.e. agent/agency
Agency (A)		
Who is the agent?		
What is the agency?		
$SI = RO \times T$ where $T = {}^pS \times d \times P_{wpl*p} \times {}^{Pr}D = (SP)A$ Note: The logic of the expression lies in the qualitative assessment of the factors. If a factor is assessed as having no significance it implies that there is no security issue.		

Figure 2:

Expansion of Blake's equation to add quantitative characteristics by describing values/weights to the descriptions of the independent variables.

Independent Variables		Description of Numerical Values	Weight
Situation (^p S)	Proximity	Local	1
		Regional	2
		National	3
		International	4
		Global	5

Independent Variables		Description of Numerical Values	Weight
	Time	Days Weeks Months Years Decades	5 4 3 2 1
Degradation (d)	Impact	Local Regional National International Global	1 2 3 4 5
Probability (P _{wpl*p})	Occurrence	Will occur (w) Probable/Probably occur (p) Likely to occur (l) Possible/Possibly occur (*p)	4 3 2 1
Duration (Pr _b D)	Lasting potential	Brief (b) Protracted (Pr)	1 2
Agency (A)	Agent	Individual ruled by fear Individuals ruled by fear + Private organisations Individuals ruled by fear + Trust in and action by Government Individuals ruled by less fear and more trust in government + Proactive Governments + partial cooperation Individuals ruled by less fear and total trust in government + Proactive Governments + Private /Non-Gov organisations + Global cooperation	5 4 3 2 1
SI = RO x T and where T = P _i S x d x P _{wpl*p} x Pr _b D			
Securitisation Potential (SP)			

4.4 Imagined Outcomes

4.4.1 Setting the scene

The expansion of global economies has led to environmental degradation which is being vastly experienced, and which has reached the point where the impact on ecological systems is felt by all. Famine is more regularly experienced by those who are directly dependent on ecosystem services. The average temperature over the tropical belt of the world has risen. Fear

and uncertainty are therefore the prevailing emotions of two-thirds of the earth's population when they consider their future. Wildfires are sweeping across one part of the globe's oxygen manufacturers (forests) whilst a polluted ocean is taking out the other half (coral reefs). With trees and coral reefs gone, money and power are of little use on earth since the atmosphere is hardly breathable and a dark cloud of smog is covering the sun.

By presenting the existential threat (T) to the (RO), CC-adaptation through fear is a security issue (SI) in respect of the human element which is present in the actions taken towards the perceived risks posed by climatic changes which threaten *individual* safety. The scenarios presented will simultaneously identify what makes up a threat, what the situation is in terms of proximity and time, what degradation potential the issue claims, whether the issue is certain to occur, and if so, over what duration.

A. Scenario A: Hot Mess

In this scenario, CC is recognised as threat to security by some. Within some governments, research and the implementation of adaptive responses are occurring. People consider mitigation strategies as a mandate of the state despite the fact that many states are still indifferent to their responsibility, and they do not fully understand the true impact which CC has on economic prosperity.

In the hottest and poorest parts of the world, people have had to forgo their typical forms of livelihood (i.e., tropical fruit plantations, corn or wheat). Crop failures, as a result of drought, floods, the loss of supply of potable water, and the outbreak of illnesses associated with environmental degradation are placing immense strain on the governments of emerging economies which are also the least resilient. Globally agreed upon measures to reduce the carbon footprint of states, which is the product of participation in the global economy, has now placed these economies at a disadvantage. Not only because their industries can no longer produce using carbon intensive methods, but also because funding from the richer North has diminished, as they have been using their resources to look after their own citizens. The hands of global institutions are tied by the rule of sovereignty and non-interference, and by the continuous distrust many citizens of the Global-South feel due to the events of decades past.

Governments of low-income countries are trying their best to support their citizens and to stay in power, but relief funds soon dry up. Fears for survival grow, and corruption and upheaval increases, as citizens start to fend for themselves. Policies and laws are adopted by governments to restrict and surveil, but this only increases the *individuals'* fear and the situation deteriorates. Government actions and abilities are not trusted, and *individuals* cannot see a positive future. Some states collapse altogether and governance by war lords or mafia-bosses starts to emerge. It is a fight for survival. The illegal farming of crops which yield addictive drugs, illegal mining, and human trafficking, are perceived as the only viable economic activities available to desperate *individuals* in a + 2 degree Celsius environment. The wealthiest of the world own, and survive, by way of advanced technology i.e. hydroponic indoor farming factories. The Global-North, however, has its own set of challenges too, with the daily increase of the number of climate refugees demanding food, healthcare and housing. This leads to an increase in rightwing xenophobic factions and instability. An influx of addictive recreational drugs (produced in countries with collapsed governments) hit the global market, and an increase in mafia activities presents itself. Citizens of the West have to deal with tax increases, overpopulation and an environment that is not only unhealthy, but also unsafe. Walled cities, and highly restricted access, are the order of the day. Across the globe governments are faced with disruption and upheaval as insecurity defies borders.

B. Scenario B: A hot yet slightly more controlled mess

In this scenario, CC is recognised as a threat to security. Countries and regions realise that they cannot manage mitigation and adaptation actions alone, and there are regional and global institutions which rework and oversee the implementation of stricter policies in respect of air, water and environmental pollution and degradation. CC, and the protection of the environment, forms part of the basic school curriculum. Mitigation actions are controlled and enforced by governments. Research and technology in respect of adaptive responses to droughts, floods, rising sea levels, as well as the production of food, are shared globally to ensure equal opportunity for all countries to improve the lives of their citizens, and to provide a more secure future to the globe. With infrastructure and policies in place, the year 2050 looks less like an overpopulated wasteland, with walled-in cities and criminal overlords ruling over the lucrative wasteland.

All over the world, areas prone to flooding have been mapped, and if occupied, communities have been moved to safer alternatives. Water and waste-water infrastructure has been adapted to withstand flooding to a large degree, and water reservoirs have been extended to provide water during frequent droughts. Rescue and mitigation plans have been adapted, and government officials have been trained. Governments, funded by global institutions, provide subsidies to food producers for implementing technologically advanced farming methods which decreases carbon production and water usage. These actions ensure better livelihoods for those who are not secured in walled-in, technologically advanced cities, or those in population-dense, less resilient economies. Walled-in cities are no longer impervious to outsiders, but simply structured to both safeguard their own, whilst also aiding those who wish to enter the 'Eden' of the mid-21st century.

Life is secluded, yet more communities and *individuals* are equipped with the infrastructure which is needed to survive in the midst of the world's dried out plains. They survive, but do not live. They have more, but fear, anxiety, and uncertainty are continuously present. Populations are more dependent on government support as resources are restricted, and technology and security are expensive commodities. The implementation of strict rules and laws with regard to resource usage, carbon production and family planning is a large expense to governments. However, this ensures relative stability, since most citizens feel that their future is being safeguarded. Governments are equipped, but only to an extent. Aid is available, but at a price. Distrust persists against those with more, and greed for more lingers, looming in the background and jeopardising the world's true ability to live a fully adapted life. As resources decline, so does the sustainability of economies.

C. Scenario C: Hope forged

In this scenario, CC is globally recognised as the ultimate threat to security. People have come to understand its massive impact on the environment and resources. The foremost concerns are water, food, clean air, safe housing, as well as healthy and productive soils, since all of these form the basis for sustainable human life. The *individual* and his/her actions and reactions are seen as the building blocks of society. Thus, it is recognised that *individual* resilience, and government stability, in the face of the ever-increasing challenges of CC are

required. CC, protection of the environment, and respect for fellow citizens, are now a major part of school curriculums as humanity's focus turns away from "survival of the fittest," and towards "equality and quality of life."

Technological solutions are designed to benefit the environment and the economy. Investment in technological solutions focuses on knowledge and the education of the *individual* towards a better understanding of adaptation methods and the building of resilience. People are optimistic that they can learn and adapt, but they also have humility in the face of the onslaught of CC. It is realised by *individuals*, communities and governments, that local, regional and global action and reaction exist in tandem, whereby factors and problems in one sphere have an influence on another's success rate.

Networks are developed between communities and they are spread globally, providing equal benefits to all, as solutions and improvements to social and environmental problems are shared. Governments, non-governmental organisations and private institutions assist each other and their communities, and the requests and policies formulated by global institutions are adhered to. The adherence and implementation of policies is made possible by an educated and informed society, where the *individual* understands the reasons and outcomes of the drastic measures requested. Whereas *individual* fear and uncertainty persists as a condition of human existence, global cooperation and understanding of what is required so as to live within such new climatic conditions is accepted and proactively followed. Although some *individual* choices and liberties are restricted, people support and adhere to the rules.

The year is 2050, the climate has changed, and the world has changed alongside it. Difficulties and challenges persist, but forward thinking and trust has removed most of the uncertainty. The world continues to develop and grow, by not merely adapting to CC and global warming, but also by finding ways that aim to prevent the further degradation of ecology and human life. Sustainability and accountability is placed before money and power so that the world is richer, and *individuals* feel a sense of power over their own future.

4.4.2 Application of the five factor qualitative expression

$$SI = RO \times T$$

$$T = P_t S \times d \times P_{wpl*p} \times P_r_b D = (SP) A$$

$$\begin{aligned} SI &= \text{Global Security (RO)} \times \text{Climate Change adaptation and Individual fear (T)} \\ &= \text{Securitisation potential (SP)} \end{aligned}$$

$$SI = (SP) \times A$$

Apart from the agency value, the variable values in figure 3 below, are the same for each of the three scenarios. The situation and degradation, probability and duration of the threat is the same and as such the securitisation potential is a constant, with the agent presenting the only variation in the situation. Due to the presence and focus of the *individual* whom, as reviewed and discussed throughout this study, does not exist without emotions or the imbued instinct to survive. As such the agency value can never be zero and a perfect scenario cannot exist. Therefore:

In **Scenario A**, if $SI = SP (A)$ then $SI = SP \times 5$ where A is: *Individuals* ruled by fear.

In **Scenario B**, if $SI = SP (A)$ then $SI = SP \times 3$ where A is: *Individuals* ruled by fear + Trust in and action by Government.

In **Scenario C**, if $SI = SP (A)$ then $SI = SP \times 1$ where A is: *Individuals* ruled by less fear and total trust in government + Proactive Governments + Private/Non-Government organisations + Global cooperation.

Figure 3:

Expansion of Blake's equation to add quantitative characteristics by describing values/weights to the descriptions of the independent variables including the variable weights of the three scenarios.

				Scenarios		
Independent variable		Description of Numerical Values/weight	Weight	A	B	C
Situation (^P S)	Proximity	Local	1	5	5	5
		Regional	2			
		National	3			
		International	4			
		Global	5			
	Time	Days	5	5	5	5
		Weeks	4			
		Months	3			
		Years	2			
		Decades	1			
Degradation (d)	Impact	Local	1	5	5	5
		Regional	2			
		National	3			
		International	4			
		Global	5			
Probability (^P _{wpl*<i>p</i>})	Occurrence	Will occur (w)	4	4	4	4
		Probable/Probably occur (p)	3			
		Likely to occur (l)	2			
		Possible/Possibly occur (*p)	1			
Duration (^{Pr} _b D)	Lasting potential	Brief (b)	1	2	2	2
		Protracted (Pr)	2			
Agency (A)	Agent	Individual ruled by fear	5	5	3	1
		Individuals ruled by fear + Private organisations	4			
		Individuals ruled by fear + Trust in and action by Government	3			
		Individuals ruled by less fear and more trust in government + Proactive Governments + partial cooperation	2			
		Individuals ruled by less fear and total trust in government + Proactive Governments + Private /Non-Gov organisations + Global cooperation	1			
SI = RO x T where T = ^P S x d x ^P _{wpl*<i>p</i>} x ^{Pr} _b D = (SP)						

4.5 Findings

In respect of the three imagined scenarios concerning the climate security issue and the trend of ‘climate change adaptation and individual fear’ which is said to underpin this climate security issue, this section discusses the way in which *individuals* might constitute a threat to climate security and the broader national security issue through their unruly emotions. In the imagined scenarios this reality was identified as one in which climate security is positioned within a framework of *individual* emotion, perception and action. In this chapter, Blake’s (2018) qualitative expression was merged with a narration of these imagined scenarios. This therefore illustrated, both imaginatively and numerically, how the phenomenon of CC, and its effects on the future and security of the globe, could have vastly different outcomes, and how the variability in one single variable (the *individual*) could impact the numerical expression of the situation in each of the three imagined outcomes.

4.5.1 The ‘worst,’ ‘less worse,’ and ‘best’ case scenario

In the ‘worst case’ scenario, the fearful *individual* acts to secure themselves since government support and responsibility is not present. This *individual* action results in a security-dilemma, whereby the act, of *individuals* to secure themselves threatens the security of others. In this scenario one of the unintended consequences is that *individuals* help to promote crime and instability. Since the world is interconnected, this instability spills over into the global arena.

In **Scenario A**, if $SI = SP (A)$ then $SI = SP \times 5$ where A is: *Individuals* ruled by fear.

In the slightly ‘less worse’ scenario, the climate security issue, as well as *individual* participation in mitigating against it, is recognised by governments and global institutions as relevant and inescapable. However, actions to mitigate against climate security are limited to the government and *individuals* trying to survive the effects of CC, and not adapting in order to live with it. *Individuals* are seen as relevant, but they are still absent from policy-making processes and practice. CC is not dismissed as a reality, but neither is its consequences being approached correctly.

In **Scenario B**, if $SI = SP (A)$ then $SI = SP \times 3$ where A is: *Individuals* ruled by fear + trust in government and action by government.

In the ‘best case’ scenario, the future is characterised by a total acceptance of responsibility, and an understanding of what the climate security issue truly is. Policy focuses on allowing *individuals* to feel a sense of certainty and security. *Individuals* thus become agents in adaptation practices. Global cooperation now focuses on adaptation and not simply survival.

Therefore in **Scenario C**, if $SI = SP (A)$ then $SI = SP \times 1$ where A is: *Individuals* ruled by less fear and a total trust in government + proactive governments + private /non-government organisations + global cooperation

In scenarios A, B and C, where A, is the worst and C is the best case scenario, the reader can observe that a security situations (in this case the climate security issue) is dependent on many variables (see figure 1), and that a change in one variable can result in a change (for better or for worse) in a security situation. What the scenarios, and the numerical expression of each scenario tells us, is that the *individual*, and his/her emotional reaction to perceived threats, can independently have a major impact on the future of climate security.

The three scenarios, and their subsequent numerical expression, have provided the means by which to confirm the study's argument, and to further develop the study's conceptual framework into a hypothetical reality. This chapters intended to transport the reader's thoughts through a discussion and towards imagined future outcomes. However, it should be noted that the numerical values attributed to the different variables of Blakes' expression (see figure 3), were simply described in an “average” or “un-weighted” manner to indicate that each factor or response would have a more or less severe outcome. With, one (1) indicating the least severe influence, or the smallest impact on the security issue, and five (5) indicating the largest impact on worsening the security issue. The determination and application of weights to the variables of ‘proximity,’ ‘time,’ ‘impact,’ ‘occurrence,’ ‘lasting potential’ and the ‘agent’ would also be influenced by several factors which have not been discussed in this study.

4.5.2 Back to the climate-conflict nexus

When reflecting back on the phenomenon of the CCN, this chapter has identified a way in which CC could lead to an increase in conflict, by considering the *individual* as an active participant in this process. It is not CC - the variations in rainfall patterns or temperature which is causing violence, but it is rather the fearful *individual* who is responding with anxiety and uncertainty, and who is living within a situational environment (the government, its policies, and capabilities) which is unaccepting of the true reality of CC and unable and unwilling to address CC and its consequences.

As it stands today, the climate security issue could lead to a wasted, outraged, starving and unequal world, unless of course we begin to consider within thinking, policy, study, and practice, the element of humanity, of the role of the *individual*, and his/her accompanying emotions as an active agent within the conditions necessary *for* and *of* security.

CONCLUSION

This study proceeded from the hunch that it is *individuals* and the unruly emotions of fear and anxiety, which need be considered when studying and practicing security, both in the traditional sense, as well as in relation to the concepts of human, ecological and climate security.

After conducting a preliminary review of the literature surrounding security and CC, this study identified that despite progress having been made to include the human aspect in the study of security, together with the idea that security can also be non-traditional in nature, that the literature did not focus enough on the fundamental aspects pertaining to the reality of human existence and society. Through a subsequent integrative review of the multi-disciplinary literature this study came to realise that although the '*individual*' is considered to be a factor in society, the *individual* is viewed as a passive actor who requires safekeeping. Therefore, the literature does not recognise the *individual* as an agent of insecurity, and more specifically as an actor who is ruled by human instincts and emotions.

By considering the presence of this variable, this study observed that an *individual* who is ruled by fear or anxiety, cannot only account for the relation between CC and conflict in terms of states security, but could possibly also be considered when wanting to understand insecurity at a global level.

Pursuing the argument, that national security, in the wake of CC, rests on the *individual's* emotionally charged reactions to the changes in his/her environment, this study set out to provide a tentative answer to the questions of, "Why the conceptualisation of national security, especially with regard to the rising climate crisis, needs to include the *individual* as a potential security threat?" and "how could such a consideration lead towards improved methods of security, and a deeper understanding of the climate-conflict nexus?"

In this respect this study explored the existing literature concerned with the CCN. The review began with an introduction and discussion on the evolution of the concept of security, and it subsequently introduced the idea of climate security. A review of the literature on the CCN, and climate security highlighted the existence of multi-disciplinary studies which

empirically focus on aspects such as geographical locations and the patterns of climate variation, as well as values of vulnerability, consequential pathways, and debates about adaptive responses.

This was followed by the study's own development of a conceptual framework, in which the concepts of 'adaptation,' 'security-dilemma,' 'threat perception,' 'the *individual*' and 'fear' were explored. This conceptual framework demonstrated that understandings of climate security, relative to the psychological aspects of people, and their adaptive responses to a threat such as CC, is crucial to understanding the concept and reality of national security within the context of a changing climate. Currently, the literature is concerned with issues of adaptation, vulnerabilities and the human dimensions of climate security. However, this study has shown that because of the role which human emotion has on behaviour, it is important that this deeper investigative pathway is considered.

The final chapter set out to demonstrate this by incorporating its newly developed conceptual framework, the *individual*, and climate security into a single situation of the current climate reality. This situation was then narrated using a hypothetical futuristic lens. In telling a story of possible futures and scenarios of the situational reality of climate security and the interconnectedness of CC with human emotion, perception, resilience and action was explored. Simultaneously, a numerical expression illustrated that, the threat posed by this interconnected reality, and *individual* adaptation through fear, is one of the variables which has great explanatory potential.

Together what these chapters illustrate is a need for the consideration of the reality of 'climate change adaptation through fear' when approaching an understanding of the CCN, so as to provide for the reasoning of the *individual* as being a core variable in (currently missing from the multi-disciplinary studies on national security) the understanding and practice of national security. Furthermore, this study revealed that in a security situation it is not only the emotion of an *individual* which ought to be considered in the understanding of (in)security, but the operational milieu in which it presents itself. In other words, in order to best understand (in)security one ought to consider the *individual* as an active agent in society and (in)security. The *individual* with his/her cognitive biases and whom is ruled by emotions such as, fear and anxiety intersect with the differing pathways of vulnerability present. These shape the

individual's actions and choices when confronted with real or perceived threats such as the current climate crisis. Therefore, the inclusion of this additional pathway of investigation does not dismiss other variables considered in the previous studies done on the CCN or of climate security, such as vulnerabilities or empirical variations in rainfall patterns, it merely reveals a very important basis on which the causal outcomes rest.

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