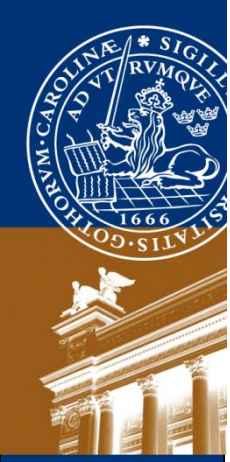

A Never-Ending Story or the Beginning of the End?

– A Qualitative Analysis of Perspectives on Climate Change Induced Migration

Terese Göransson

2013

Environmental Science
Degree project 30 credits
Lund University

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Abstract

Climate change induced migration is sometimes pictured as an urgent up-coming crisis that could result in waves of international refugees and violent conflicts, and sometimes as part of human history. It is a contested topic, an issue that divides actors and that still has no agreed upon definition. To get a better understanding of the debate, this thesis sets out to display the main discussions and perspectives on climate change induced migration and to elaborate on the implications that different policy proposals might bring.

Through a literature review, main debates and perspectives are identified resulting in the choice of two contesting perspectives to analyse, the climate migrant and the climate refugee perspectives. By analysing the perspectives on a case of climate change induced migration, Bangladesh, debates regarding different types of migration as well as the causes of the phenomenon are elaborated and the implications regarding policy recommendations following the approach of one perspective or the other discussed, bringing theory and reality together.

The analysis explores the complex nature of climate change induced migration. It is found that the different perspectives focus on different aspects of the phenomenon, including contesting views on causes and effects. Gaps in both perspectives' policy recommendations are found and it is argued that there is a need for an approach that recognises the needs of the people affected, but that is also adapted to the current context of international climate change politics.

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Degree project 30 credits in MVEM30* 2013
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*Subject of degree project: see Description of the course

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List of abbreviations

AWG-LCA	Ad Hoc Working Group on Long-term Cooperative Action under the Convention
CCIM	Climate Change Induced Migration
COP	Conference of the Parties
ENGO	Environmental Non-governmental Organisation
IDP	Internally Displaced People
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
NAPA	National Adaptation Plan of Action
NATO	North Atlantic Treaty Organization
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
UNU	United Nations University

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1. Introduction

People have in all times relocated because of changes in the environment, so on the one hand climate change induced migration could be seen as something that has always existed, *a never ending story*. On the other hand, the upcoming and future challenges caused by anthropogenic climate change could be seen as something new, resulting in severe implications, waves of international mass-migration and violent conflicts if not addressed, and in a worst case scenario, *the beginning of the end.*

If there is one thing that can be agreed upon regarding climate change induced migration it is that the topic is contested, a question that divides institutions, politicians and people. Political actors, writers and researchers are debating the best strategy to handle this upcoming or, as some claim, existing challenge.

Climate change induced migration has been and is discussed on several different levels of policymaking, and within different fields of research. Neither an acknowledged definition, nor a common stand point on actions to be taken by the international community, exists. The topic divides institutions within states and different fields of research. At the same time this division is not as simplistic as a division between for example commercial versus non-beneficial organisations, as is often when environmental problems are discussed. The same arguments are being put forward by politicians as well as Environmental Non-Governmental Organisations (ENGOs); by anti-asylum groups as well as the media.

In previous research different perspectives on climate change induced migration have been highlighted (see e.g. White, 2011; Piguet, et al., 2011). The perhaps most dominant perspectives have been named the maximalist/alarmist perspective and the minimalist/sceptical perspective. Recently, the link between climate change adaptation and migration has been included in the debate, resulting in a discussion regarding whether migration is best described as the failure of mitigation and adaptation actions or if it should be seen as an adaptation strategy. These different points of view propose contesting ways of addressing climate change induced migration.

Although there is a disagreement on how the topic of climate change induced migration should be addressed, one thing that most actors seem to agree on is that this issue needs to be addressed (see for example IPCC, 2012; UNFCCC AWG-LCA, 2009, pp. 13, para 25; Foresight, 2011; IOM, 2009; Cruz, et al., 2007, p. 488; McLeman, 2011). More recently the topic of climate change induced migration was discussed under the United Nations Framework Convention on Climate Change (UNFCCC) and its eighteenth Conference of the Parties (COP) in the context of the work programme on loss and damage. The discussion was also here divided and resulted in a decision to work further towards an international mechanism to regulate the adverse effects of climate change, including human displacement (UNFCCC; COP, 2012).

To be able to choose how to address a certain topic one arguably needs to get a better understanding of the options proposed, what information and views the different sides rely on and in what way they differ from each other. Therefore, this thesis sets out to come one step closer to understanding this division by analysing different perspectives on climate change induced migration through the application of the perspectives to a case of climate change induced migration.

1.1 Aim and research questions

Even though climate change induced migration is a contested topic, most debaters seem to agree on the relevance of addressing this issue. The results of this thesis will hopefully shed some more light on the differences and similarities between the contesting sides of the debate, including which aspects of the issue they bring forward and highlight. The aim is also to see which, if any, gaps in the policy recommendations proposed need to be filled in order to put together a comprehensive response to this issue. By analysing different perspectives on a case of climate change induced migration, the aim of this thesis is to point out not only the different arguments but also to reveal how different perspectives and their proposed policy recommendations could be externalised and what implications they would bring for an existing case of climate change induced migration.

To meet the aim of the thesis the following research questions will be analysed:

- What perspectives and main debates regarding climate change induced migration exist in the literature?
- What policy recommendations on climate change induced migration do the different analysed perspectives propose?
- What similarities and differences can be found between the perspectives regarding policy recommendations?
- Can any gaps in the policy recommendations of the perspectives be identified? If yes, which issues remain to be addressed?

1.2 Method and materials

Although quite a few comparisons between perspectives on climate change induced migration have been conducted in the past, the analyses have remained mainly theoretical in their approach. Contrarily, case studies of climate change induced migration carried out rarely reflect upon the social construction of climate change induced migration. This being said, even if a perspective is not specifically pointed out, it does not mean that an underlying perspective cannot be identified.

Thus, previous studies have rarely, at least explicitly, applied perspectives of climate change induced migration on a case within the same field. Furthermore, it has been argued that more interdisciplinary analyses in the field of climate change induced migration are needed; taking into account different ways of understanding the issue as well as findings from empirical studies carried out (see e.g. White, 2011). A bibliometric exploration made by Findley and Geddes (2011) shows that the term 'environmental refugees' has been frequently used, in academics and especially within policy discourses. However, few in-depth studies have been carried out (Findley & Geddes, 2011, p. 142).

To fill the gaps identified in previous literature displayed above, the approach applied in the current work is to bring theory and reality together by analysing perspectives of climate change induced migration on an empirical case. The following sections describe more in detail the approaches, methods and materials used in the analysis and explain the reasons behind the choices made.

1.2.1 Approach and methods

The analysis in this work consists of three parts. First, a review of contemporary writings on climate change induced migration was carried out. The review focussed on identifying main themes, including overall similarities and differences. Thereby the most dominant perspectives on climate change induced migration were identified. After singling out the main debates and perspectives, materials from the respective sides were collected and analysed, complemented with the result of previous analyses. This first part of the analysis, presented in chapter 2, displayed a debate between the maximalist/alarmist and the minimalist/sceptical perspectives. Nowadays, however, much of the debate is circulated around the linkages between climate change induced migration and adaptation to climate change. To include the most recent literature in the field I chose to build the analysis on a model[1] constructed by Felli (2012) consisting of the two perspectives, the climate migrant and the climate refugee perspective. A discussion on the choice of analytical tool and methodological considerations is presented in section 2.6 in the current work.

In the second part of the analysis, presented in chapter 3, empirical findings from a case of climate change induced migration, namely Bangladesh, were reviewed, categorised and summarised. Thus, for this work, the case of Bangladesh was used as an emblematic case of climate change induced migration. Including findings from a case of climate

[1] Please see Annex 2 for the original model by Felli

change induced migration in the analysis aimed at visualising the differences and similarities and the implications of following one side or the other of the debate. Visualising the perspectives in this way, I argue, enabled the identification of aspects of climate change induced migration that might not have been easily identified only looking at empirical evidences. Bringing theory and empirical evidences together, I believe, facilitates taking a holistic approach to address the issue at stake.

There are many reasons behind the choice of Bangladesh as a case of climate change induced migration. Bangladesh is often pointed out as highly prone to be affected by many different effects of climate change (see e.g. Kartiki, 2011; McLeman, 2011; Kniveton, et al., 2008). For example, Bangladesh has in previous literature been presented as "[…] *a compelling if not urgent case in which environment-population mobility linkages may be studied, and addressed*" (Findley & Geddes, 2011, p. 146).

Another reason is that I believe that the result from this specific case will be easier to generalise than for example from the case of small, low-lying islands. Although these islands are often pointed out as the main example of climate change induced migration, because of their low populations, more people are likely to be affected in other parts of the world (McNamara & Gibson, 2008; Kartiki, 2011; Biermann & Boas, 2010, p. 69; Docherty & Giannini, 2009, p. 356f). Furthermore, the case of small, low-lying islands is quite unique and might therefore need specific actions. Also, much recent literature on the topic indicates that climate change induced migration is likely to be internal (Kniveton, et al., 2008, p. 74f; Leighton, 2009, p. 330; Sharma & Hugo, 2009, p. 3; Walsham, 2010, p. 28; Findley & Geddes, 2011, p. 143). Following this indication Bangladesh comes out as a more relevant emblematic case than small island states, in this context.

Thus, my aim was not to make a case study on Bangladesh specifically, but to use one case of climate change induced migration, to explore how perspectives on climate change induced migration could be manifested if applied on an existing case. Hence, the case should be seen as instrumental, an approach I chose as I believe it to be possible to make a deeper analysis using an existing case rather than a fictive one.

In the third part of the analysis, presented in chapter 4, the findings from the empirical evidence from Bangladesh were categorised and inserted in the model used[2], to identify and elaborate similarities and differences between the perspectives. It should be noted that the analysis was hence not about proving which perspectives are most 'true', or 'correct', but to show how the perspectives differ and the practical and ethical consequences that follow from relying on one or the other perspective. This is an approach that can be recognised from discourse theory, and the role that discourse theory plays in this work is an aspect I find important to point out.

Hajer defines discourses as: "[…] *a specific ensemble of ideas, concepts, and categorizations that are produced, reproduced, and transformed in a particular set of practices and through which meaning is given to physical and social realities*" (Hajer, 1995, p. 44). Hajer's definition displays how theories, as in ideas and concepts, transform into actions and explain phenomenon. Though I did not conduct a discourse analysis per se I used previously conducted discourse analyses as part of my materials. Furthermore, I

[2] Please see appendix 4 to the current work for the full categorisation of the findings presented in chapter 3 into Felli's model of the climate refugee and the climate migrant perspectives.

categorised empirical findings and explained them through the use of perspectives on climate change induced migration, an approach that is similar to how Hajer's definition of how discourses and realities are linked together. I also compare contesting debates, an approach common within discourse analysis and related to an understanding of power-relations (Bergström & Boréus, 2005, p. 328). A general approach for discourse analyses, according to Bergström's and Boréus' description, is to see power as turning a certain understanding into the 'truth'. Our understanding is in turn shaped by how we interpret information given. The aim for politics is to shape opinions and discourses are here seen as a struggle for getting the opinion for the view that the discourse proclaims (Bergström & Boréus, 2005, p. 327f). Discourses are thus important not if they are correct or not but to what extent they are able to shape the public opinion and thereby politics. As I have already stated, climate change induced migration is a contested topic. One of the main struggles within the field and that I studied but also encountered can be simply expressed by asking: Why is it so hard to agree on this issue? Why is there still no agreed upon definition and why is this topic so controversial? Here, discourse theory gives an answer: Because we see the world through different lenses and there is therefore no 'true' or 'best' way to address an issue. Policies are hereby seen as normative. In this line, the aim of this thesis is not to determine which approach is the best but rather to see what happens when one perspective or another is applied to the issue.

The importance of discourses for politics I find is explained in a good way by Hay, who writes that when information gaps exist, we have to rely on interpretations (2002, p. 209). Often within politics this is done through the use of broader paradigms. The problem is that when seeing the world through a lens, not all available options are clear or even available to us: *"How actors behave – the strategies they consider in the first place, the strategies they discount, the strategies they deploy in the final instance and the politics they formulate – reflect their understanding of the context in which they find themselves. Moreover, that understanding may eliminate a whole range of realistic alternatives and may, in fact, prove in time to have been informed by a misrepresentation of the context in question*" (Hay, 2002, p. 211).

Hence, by constructing our understanding of a certain issue, discourses are important as they, so to speak, provide the space available to take policy decisions. Therefore, looking at discourses is an important tool to use in analysing debates. Or as Bingham puts it: "*Discourse analysis is becoming a common tool in the field of environmental policy due to the recognition that different articulations of environmental problems and their solutions directly affect practice in terms of institution-building, policy-making and environmental problem-solving*" (2010, p. 5).

Seeing discourses in this broad context as in providing the space for policy decisions and shaping our society is also reflected in my choice of terminology. The different sides of the debate have been called 'discourses', 'perspectives', 'takes on' or 'views on'. As will be further discussed in section 2.6 in the current work, the different views are not easily separated into clear discourses and when also seeing discourses as something that is not only expressed in the language used, but also in how our society is shaped, it becomes even more challenging to categorise arguments into well-defined discourses. I therefore find it reasonable to call the sides of the debate by the more vague term 'perspectives' rather than 'discourses'.

In short, discourse theory partly forms the approach of the current work. As the approach per se includes interpretations, I find it important to display how the analyses were conducted in a transparent way. I have therefore included the models used and the categorisations made in the appendixes to this thesis.

During the autumn of 2012 I did an internship with the UNFCCC Secretariat and also participated in the latest, yearly Conference of the Parties (COP) under the convention, held in Doha, Qatar, 2012. The experiences gave me valuable information and also formed my view on the topic. I believe that my personal experience of the issue enabled me to conduct a more in-depth analysis. However, witnessing international climate change negotiations from 'the inside' shaped my understanding of the topic and thus also affected the way I approached and used materials. To increase transparency, I think it is important to highlight this approach and would again like to refer to the appendixes for further insight in how the analysis was conducted and how materials were used.

1.2.2 Choice of literature

For choosing relevant materials and themes for the first part of the analysis, a review of how climate change induced migration emerged as a concept, was conducted. The review comprised of recent academic literature available to see which topics are, and have been, the most discussed in order to single out the most prominent perspectives[3]. First, background information was collected using recent meta-analyses such as the work edited by Piguet, Pécoud and de Guchteneire from 2011 and the work by White, also published in 2011. Second, additional literature was used to fill gaps.

Materials used for the second part of the analysis consisted of available published studies on climate change induced migration in Bangladesh, including articles published in academic journals as well as official reports from major international and transnational organisations dating back five years in time which provides an updated view of the issue.[4] The literature was in some cases complemented with additional references found in the selected literature. The aim was to get a comprehensive and varied evidence-based overview of the state of the relevant empirical research carried out within the field. Literature on climate change induced migration in the case of Bangladesh was selected using keyword searches within databases including scientific journals, books and articles, and words within titles using Google Scholar and Google to find the material providing the foundation for the analysis. In this way, both scientific and materials produced from organisations were selected. Keywords used include: Bangladesh, migration, climate change *or* environment.

The literature review sought references for the case of climate change induced migration chosen, i.e. Bangladesh. The lack of sources in languages other than English is a gap in the review. Other keywords could have been chosen, such as 'global warming'. However, the meta-analyses reviewed overall referred to 'climate change' or 'environment'. Also, the use by intergovernmental or international organisations such as the United Nations

[3] An overview of the literature review is presented in chapter two, where the background of the concept of climate change induced migration is presented.
[4] Please see Annex 1 for the complete list.

Framework Convention on Climate Change, UNFCCC, and the Intergovernmental Panel on Climate Change, IPCC, of the term 'climate change' implies that this term is the most commonly accepted. Therefore, the materials were limited to references to the terms 'climate change' and/or 'environment'.

It should thus be noted that, due to the gaps in the literature review pointed out above other impacts and effects may exist. However, as the literature sought to find the most recently produced documents, I believe that it provided sufficient materials to conduct the analysis. Starting from this review, future studies can then fill gaps and complement the results from this study.

1.3 Terminology used

There are many definitions describing people having to relocate due to climate change impacts[5]. The main term used in the current work – when not referring to definitions used in previous literature – is *climate change induced migration*, hereafter also referred to as CCIM.

The use of 'climate change' instead of 'environment' limits the topic to climate change and not environmental issues and/or natural disasters in general. However, as no commonly recognised definition exists, materials used were not limited to only previous works using the term climate change. I, however, have focused on effects from climate change, and the conclusions drawn from this work should be seen as in the context of climate change impacts, though some probably could be generalised to environmental changes in general.

Contrarily, the use of 'migrants' instead of 'refugees' was chosen as a way to broaden the survey and to look at the issue from more angles than if the narrower term 'refugees' would have been picked. Additionally, talking about migration instead of refugees is more general and less politically sensitive.

Though one of the perspectives analysed in the current work uses the term 'migrant', it should be stressed that the aim of this thesis is not to take side for one or the other perspective. As pointed out above, the choice of the term 'migrants' was taken based on the practical implications of the term.

[5] Please see section 2.1.1 for a more detailed review of the definitions and their implications

1.4 Disposition

The following chapter gives a brief overview of the literature review, starting with a description of the birth of CCIM as a concept followed by a presentation of the most frequently discussed topics and its different sides and arguments. The chapter also covers a presentation of the most dominating perspectives, resulting in a choice of perspectives to use for the analysis as well as the choice of analytical tool. Next, chapter 3 describes the findings from a case of climate change migration, namely Bangladesh, resulting in an identification of different projected scenarios, using data from empirical studies. Chapter 4 brings theory and empirical findings together, identifying differences and similarities of the contesting perspectives and trying to show how the projected scenarios would be addressed according to the different perspectives, including an identification of possible gaps in the policy recommendations. The results of the analysis are presented progressively throughout and then summarised. The last chapter, chapter 5, includes a summary of the findings and conclusions of the analysis.

2. What is Climate change induced migration?

As already argued, CCIM is a contested topic. This chapter will start by giving a brief background on the concept, specifically pointing out debates and perspectives within the field. First, broader definitions and perspectives will be highlighted. Next, an elaboration of different views on the nature of CCIM will be presented followed by a look into what has been argued to cause the phenomenon as well as its consequences. Then there will follow an overview of different proposals on how to address the issue at stake. After pointing out specific arguments within the debate the choice of analytical tool will be presented and discussed.

2.1 Definitions of and perspectives on climate change induced migration

Though the issue of CCIM has been discussed for already quite some time, still no common agreed upon definition exists. One could perhaps think that it does not matter what definition one uses, the issue and its implications stay the same. However, the definition used also reflexes issues such as what one believes is causing the issue and the best way of addressing it. Therefore, this chapter now looks deeper into the debate regarding which definition to use and perspectives on CCIM.

2.1.1 Refugees, displaced people or migrants? The definition-debate

Literature within the field refers to a paper written by the United Nations Environmental Program (UNEP) in 1985 (El-Hinnawi, 1985) as the first time climate change induced migration was discussed (Morrissey, 2009, p. 3; White, 2011, p. 21; Docherty & Giannini, 2009, p. 363; Salauddin & Ashikuzzaman, 2012, p. 55). However, the term used was ‘environmental refugees’ - not ‘climate refugees’. According to McNamara and Gibson climate change entered the picture with a publication by the Worldwatch institute in 1988 (Jacobson, 1988). (McNamara & Gibson, 2008, p. 477) Not until the 1990s was the term used frequently and its use increased significantly between 1990 and 2009 (Findley & Geddes, 2011, p. 140).

Still, however, people who are forced to migrate because of environmental changes have no formal protection under international law (McAdam, 2011b, p. 3; Docherty & Giannini, 2009, pp. 357, 363). To address this gap it has been discussed whether the current protection of refugees, The United Nations Convention Relating to the Status of Refugees of 1951 (also referred to as the Geneva Convention), could and should provide

protection for 'climate refugees'. Below, a brief comparison of different proposed definitions of environmental/climate refugees and the current definition of refugees from the Geneva Convention will follow. It should however be noted that neither Biermann and Boas nor Docherty and Giannini, presented below, argue that climate refugees should be included under the Geneva Convention, but rather under a new regime (a topic discussed in section 2.5).

Norman Myers defines environmental refugees as "[…] *people who can no longer gain a secure livelihood in their homelands because of drought, soil erosion, desertification, deforestation and other environmental problems, together with the associated problems of population pressures and profound poverty. In their desperation, these people feel they have no alternative but to seek sanctuary elsewhere, however hazardous the attempt*." (2002, p. 609).

In the purpose of providing protection for climate refugees under the UNFCCC, Biermann and Boas elaborated an own definition of climate refugees as: "[…] *people who have to leave their habitats immediately or in the near future, because of sudden or gradual alterations in their natural environment related to at least one of three impacts of climate change: sea-level rise, extreme weather events and drought and water scarcity*" (2010, p. 67). Compared to Myers, Biermann and Boas use a narrower definition, pointing out impacts related to three specific issues due to climate change. Perhaps the difference can be explained in relation to the time of the publication of the definitions, climate change entered the migration scene, as stated above, later than environmental change. Similarly, however, both Myers and Biermann and Boas use the term 'refugees', not 'migrants'. Biermann and Boas argue that by using the term the need for protection is highlighted as well as the importance of the issue (2010, p. 67).

Docherty and Giannini provide another definition of climate refugees as "[…] *people whom climate change forces to relocate across national borders*" (2009, p. 350). The definition thus differs from Biermann and Boas definition by excluding internally displaced people (IDPs) but including all kinds of climate change impacts.

Excluding IDPs is, according to Docherty and Giannini, a way to recognise state sovereignty and also in line with the existing refugee regime, which they argue is more practical and more likely to be accepted. To limit the refugees to people who have no other choice than to cross a border to find safer ground, the definition includes that the movement has to be *forced*. Furthermore, the definition, Docherty and Giannini argue, take into consideration future scientific advancements making it possible to separate climate change impacts from natural changes (2009, pp. 368-371).

Except for the change with the 1967 protocol that extended the possibility of seeking refugee status due to events also after January 1st 1951 (UNHCR, 2011, p. 46), the original definition of refugees in the Geneva Convention still stands, including people "[…] *owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable*

or, owing to such fear, is unwilling to return to it" (UNHCR, 2011, pp. 14, Articel 1, para, A2 of the Convention).

Compared to the different definitions of climate/environmental refugees above the Geneva Convention does, in line with Docherty and Giannini, only protect cross-border refugees. It has been argued that excluding climate change induced IDPs from protection is problematic as most migration due to climate change impacts has been pointed out as likely to be internal (Brown, 2007, p. 7; McAdam, 2011b, p. 17). Furthermore, refugees are protected under the Convention if the refugee is being, or at risk of being, 'persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion', but, as Warner argue, the cause for seeking refuge from climate change is in general not persecution (2010, p. 404). It could perhaps be argued that Myers' definition of environmental refugees does include persecution as the reasons listed are related to 'population pressure and profound poverty', actions that the government arguably have lacked in addressing. However, these reasons are not mentioned as reasons for seeking protection under the Geneva Convention and in the case of climate change impacts it could also be argued that governments lack of addressing poverty and population pressure can rather be linked to a lack of resources. This is in line with the view, highlighted by Piguet, Pécoud and Guchteneire, that while the industrialised states are mostly responsible for greenhouse gas emissions, it is the poorest people on the earth who suffer from its effects and thus are industrialised states responsible to assist developing countries in addressing CCIM (2011, p. 20). Defining climate change impacts as the reason for seeking refuge puts, in a way, the responsibility for causing the harm on many actors - the polluters, in contrast to the current refugee regime which puts the responsibility on one actor - the state.

A possible similarity between the Convention and the definition above is the way that affected people are forced to, or cannot return to their homelands. Myers writes that 'people feel they have no alternative', Biermann and Boas include 'people who have to leave' and Docherty's and Giannini's refugees are 'people who climate change forces to relocate'. However, in previous literature it has been argued that migration due to climate change is different than traditional refugeehood, as CCIM generally does not apply to people who need protection *from* their governments - quite the contrary they are still under the protection of their governments. It has further been argued that the debate does not take into account how affected populations want to be treated and that most people do not wish to leave their homes (See e.g. McAdam, 2011a; Oels, 2009, p. 18).

Furthermore, some critics to the use of the protection of climate change migrants by providing refugeehood and moving people to safer ground argue that the approach is too simplistic. CCIM is not just about migrating; it is also a question of equality and of addressing cultural losses. The critics mean that the question is rather about human rights than about refugeehood (McNamara & Gibson, 2008, p. 481; Farbatko & Lazrus, 2012, p. 383). It has also been argued that protecting 'climate refugees' under international law risks taking away the responsibility of developed countries to provide assistance to developing countries affected by climate change impacts, as long as they provide habitations for the refugees (McNamara & Gibson, 2008, p. 482). In this vein White stresses that an inclusion of climate refugees under the 1951 Convention could undermine the protection of people who traditionally are counted as refugees (2011, p. 23). More

generally it has been argued that as the current *refugee* regime, the Geneva Convention, does not provide protection to people fleeing from climate change impacts, the use of the term ’climate *refugees’*, wrongly implies that these people would already be protected by the Convention (Warner, 2010, p. 404; IOM, 2009, p. 4f).

It has further been argued that even if the Convention would be extended, existing institutional arrangements would not be able to handle this change (Warner, 2010, p. 404; IOM, 2009, p. 4f). Brown claims that only in cases of extreme weather events some assistance could be given, but then in the shape of humanitarian aid and preventive actions such as early warning systems (2007, p. 25).

Not only institutional capacity seems to be lacking, also political will. For example, Findley and Geddes argue that "[*t*]*here is certainly no evidence of any sympathy for the view that the International Convention on Refugees should be changed to accommodate environmentally linked migration*" (2011, p. 144). Instead would, the writers argue, developed countries be more willing to finance adaptation of vulnerable areas.

It has been argued that the term ‘climate refugees’ was first used to put climate change on the international political agenda (McNamara & Gibson, 2008, p. 477), by humanitarian groups claiming "climate justice", but also by the anti-asylum lobby who argues that increased border security is needed to respond to the predicted invasions of migrants from poor countries (Morrissey, 2009, p. 8f).

Linking environmental change to conflicts has, according to White (2011), been used in the same vein: To make environmental problems a top-priority for governments, in the hope of getting more attention to environmental problems from stakeholders as well as the public. On the other hand, White argues, framing something as a security issue can negatively lead to a stronger state involvement and a step away from involving actors at the local level (2011, pp. 63-65). In line with White, Hartmann (2010) argues that some of the literature regarding CCIM and conflicts can be associated with an attempt to raise awareness of the issue and to make western states take responsibility, mobilising the fear of industrialised states to be over-flooded by refugees. However, this is, Hartmann argues, a counterproductive method: "*Playing with fear is like playing with fire. You cannot be sure exactly where it will spread*" (2010, p. 239).

In the opposite side from the ‘climate refugee’ definitions, IOM has elaborated a more inclusive definition, defining environmental migrants as "[...] *persons or groups of persons who, predominantly for reasons of sudden or progressive changes in the environment that adversely affect their lives or living conditions, are obliged to leave their homes or choose to do so, either temporarily or permanently, and who move either within their country or abroad*" (2009, p. 5). Here it can be noted that IOM’s definition includes groups or individuals, migrating due to slow or onset events, in a forced or voluntary manner, resulting in permanent or temporal migration.

Arguably in a nexus between IOMs definition and the ‘environmental/climate refugee’ definitions presented above, Williams (2008) proposes a definition of climate refugees on a gradual scale, reaching from acute refugee status to chronic displacement, and everything in between. Accordingly, protection should be provided on a sliding scale. This way the complex nature of CCIM is recognised, as well as the necessity to address not only displacement, but also the causes of displacement (2008, p. 522f).

Previous literature shows that while CCIM might have started by defining different types of refugees, a variety of definitions have been proposed. The contesting definitions could arguably be linked back to the view on the role of adaptation actions. According to Felli, while the term 'climate refugees' has been used to point out the failure of climate change mitigation and adaptation policies, the use of the term 'climate migrants' has been mostly used to signal migration as an adaptation strategy (2012, pp. 4f). The point of view taken in this discussion arguably also impacts other factors of the definition used. If migration is seen as an adaptation strategy then the movement is voluntary. On the contrary, if migration is seen as the failure to adapt, then the definition used would more likely be 'refugees' or 'displaced people', as the action is forced.

Hence, the definition chosen also displays other points of view and unveils other questions such as: Who should be protected? What changes in the environment have to appear for protection? Should only cross-border migrants be included or also internally displaced people? The side taken on these questions can further be associated with different perspectives on CCIM – the topic for the next section.

2.1.2 The beginning of the end or a never-ending story? Perspectives on climate change induced migration

As stated above, it has been argued that climate refugees were put on the agenda to draw attention to climate change. Such reasoning can arguably be linked to the so called alarmist or maximalist perspective. Gemenne (2011) describes the perspective as typically painting out dramatic images of what could happen if nothing is done to address this upcoming crisis, including violent conflicts. The perspective soon got its opponents, writing within a perspective called the sceptical or the minimalist (Gemenne, 2011, p. 230).

Morrissey, writing for the IOM, points out Myers, along with environmental and humanitarian non-governmental 'climate justice' organisations such as Christian Aid, as the main spokesmen for the maximalist school (2009, p. 8, see also Oels 2011, p. 2). Myers drew a link between CCIM and violent conflicts and estimated large numbers of future climate refugees, numbers cited in prominent works such as the Stern Review on the Economics of Climate Change (see e.g. Stern, 2006, p. 77).

Contrastingly, Suhrke (1993) uses contemporary examples of effects of environmental degradation on migration patterns to show that the relationship is not as simplistic as the maximalists suggests. According to Suhrke the maximalists "[…] *tend to extract the environmental variable from a cluster of causes and proclaim the associated out-migration as a direct result of environmental degradation.*" (1993, p. 6), while "[*t*]*he minimalists focus on the impact of a particular process such as land degradation or changing climate in migration"* (Suhrke, 1993, p. 5).

Within the maximalist/alarmist perspective the relationship between climate change and migration has generally been seen as linear with changes in the environment leading to future large-scale migration. The minimalist/sceptical perspective instead looks at current migration patterns and their complex nature, and thereby stressing multi-causality and a

non-linear relationship (for an overview see e.g. Morrissey, 2009, p. 18f; Gemenne, 2011, p. 230).

According to Morrissey (2009), despite attempts to use a more holistic approach to the link between climate/environmental change and migration, the field became more and more polarised during the late nineties. Morrissey points out Norman Myers, continuously publishing alarming figures of the number of expected climate refugees as the front figure for the maximalist school, and Richard Black on the other side, writing within the minimalist school (Morrissey 2009, p. 7).

Black (2001) questions the underlying agenda of the alarmists and argues that separating environmental refugees from other refugees could undermine the chances of getting asylum, as one of the reasons for seeking asylum is indeed environmental change. In this line, after conducting a literature review of different types of environmental migration, Black finds little proof for the big numbers of migrants predicted by the Maximalist School (2001, p. 10f). One of the major concerns of Black seems to be the methods employed, as Black states that "[…] *the strength of the academic case is often depressingly weak"* (2001, p. 2). Black argues that defining environmental refugees from other refugees is close to impossible, as migration is such a complex phenomenon. As estimates of the expected number of environmental refugees needs a definition of environmental refugees, such an attempt is also very problematic (Black, 2001, p. 3).

McNamara criticises the maximalist school for being simplistic and not taking into account other factors. However, she also criticises the minimalists for providing a view of CCIM as non-existent, though the aim might have been to point out that other factors also contributes to migration. McNamara argues that the critiques from the minimalist perspective "[…] *have had the effect (whether intentional or not) of contesting and dismissing the phenomenon of environmental refugees altogether*" (McNamara, 2007, p. 14).

Morrissey argues that the dominance of the maximalist perspective started to lose ground within academic writings after the strong critics (2009, p. 5). However, he also points out that the maximalist perspective is still winning a lot of interest, especially from different humanitarian organisations as well as within popular literature (Morrissey, 2009, p. 11).

More recently, attention has been given to another debate, namely whether migration is best explained as the failure of mitigation and adaptation, or as an adaptation strategy.

2.1.3 A change in the debate? The migration and climate change adaptation nexus

As shown in the section above, a clash between mainly two sides, the maximalist/alarmist perspective and the minimalist/sceptical perspective, has been identified. More recently, also a debate regarding the link between climate change adaptation and migration has emerged. For example, Piguet, Pécoud and de Guchteneire point out that the view on the link between adaptation and migration is a contested topic, as migration can be seen either as an adaptation strategy, or as an indication of the failure to adapt to climate change (Piguet, et al., 2011, p. 15).

According to Felli (2012), the perspective of migration as an adaptation strategy is recent, and its use can, on the level of international organisations, be traced back to 2007 and the International Organization for Migration (IOM). Thereafter it has also been used by e.g. the United Nations Environmental Programme (UNEP), the United Nations University Institute (UNU) and the World Bank (Felli 2012, pp. 5-7). Findley and Geddes write that "*IOM researchers have been particularly eager to consider migration as one of a range of adaptation strategies for populations facing environmental change, rather than portraying mobility as a negative outcome and evidence of a failure to adapt*" (2011, p. 143). In this line, Morrissey (2009) argues that there has been a turn away from the alarmist perspective within academic writing. Morrissey points out that the IOM has turned to point out a more complex system and how the Intergovernmental Panel on Climate change (IPCC) and the United Nations High Commissioner for Refugees (UNHCR) have adjusted their tones from a more alarmist one to respond and adjust according to the minimalist school (Morrissey 2009, pp. 12f). A change in rhetoric by the IPCC is also pointed out by Bettini (2012) who analyses writings by the IPCC and others, inspired by poststructuralist discourse theory. Bettini identifies and analyses four different discourse families labelled capitalist, humanitarian, scientific and radical climate change discourses within the climate-migration nexus. Identifying the IPCC within the scientific family, Bettini finds that the IPCC has turned from using an exploratory to a more cautious tone within the debate (2012 pp. 3f). This tone differentiates from the other three discourses, which instead use "[...] *strong and dramatic tones*" (Bettini 2012, p. 4).

Felli uses a Marxist political economy perspective for arguing that the shift in the debate, from one claiming that migration caused by climate change is the result of the failure of climate change mitigation and adaptation to one arguing that migration should be seen as a strategy of adaptation to climate change, "[…] *is related to broader transformations in climate, migration and development policies and follows the nature of neoliberal capitalism in that it produces and reproduces 'primitive accumulations'*." (2012, p. 3). Felli identifies and labels two perspectives, the climate migrant perspective that sees migration as an adaptation strategy, and the climate refugee perspective that sees migration as the failure of climate change mitigation and adaptation. Both perspectives are normative and used to highlight different sides of the debate.

As an ideal type, key features for the climate migrant perspective includes, according to Felli (2012, p. 9), a view of migration as voluntary and as a part of human history. Migration can according to this view be managed and if managed lead to positive outcomes such as financial resources and knowledge transfer. Furthermore, migration is caused by vulnerabilities, in the environment and among populations, and addressing migration therefore includes capacity building in vulnerable areas and actions to increase resilience. Climate migrants should, according to Felli's description of the climate migrant perspective, be protected under soft laws and through the inclusion of climate migrants under the protection of domestic policies, as well as through policy diffusion. However, if left unmanaged migration can lead to environmental degradation, violence and disruptions (Felli 2012, p. 9).

On the other side of the spectra, as an ideal type, Felli (2012, p. 9) describes the climate refugee perspective as seeing migration as involuntary. CCIM should according to this view be addressed by further efforts on mitigation, as well as actions to repair losses and

damages associated with the adverse effects of climate change. It is further argued that if no actions are taken, climate change will lead to migration and consequently to degradation of the environment in the area to where climate refugees move. The climate refugee perspective, according to Felli's description, seeks recognition under international law, in the shape of for example a new international treaty, and the overall responsibility lies within the industrialised states. Climate migrants are typically portrayed by islands vanishing into the ocean, or as a 'barbarian invasion' to western countries (Felli, 2012, p. 9).

2.2 Different types of climate change induced migration

This section tries to shed some light on the current characteristics of CCIM and what will characterise it in the future. One of the main clashes in the debate regarding the nature of CCIM has been whether climate change impacts will lead to large scale cross-border migration or if migration will be mainly internal. Another important discussion has been whether CCIM will be mainly voluntary or forced.

Using estimations of population pressure, people living in absolute poverty and how many people that are likely to live in areas with increased environmental pressure, Myers estimates that the number of environmental refugees will increase significantly, with up to 200 millions of people having to relocate as a result of climate change impacts by the year 2050, some of them internally but still with slim chances of ever returning (2002, p. 610f).

Critiques of Myers' and other maximalist writers' way of dealing with environmental refugees argue that estimating large numbers of potential climate refugees puts an unnecessarily apocalyptic tone on migration related to climate change (Morrissey, 2009, p. 4). For example, Suhrke (1993) argues that the broad categorisations to define environmental refugees and environmental degradation of the maximalist school automatically result in a prediction of large numbers of future refugees. The problem with such studies is, according to Suhrke that, the categorisations are too broad to be useful. Furthermore, alarmist thinking risks frightening the public and give fuel to anti-immigrant voices. Researchers instead need to include the broader perspective of development processes into the analysis (1993, p. 6f).

White argues that the first literature concerning climate change and migration tended to present an image of millions of refugees trying to cross the borders to the north Atlantic states (2011, p. 47). However, Piguet, Pécoud and de Guchteneire argue that nowadays most researchers have moved away from this apocalyptical view on CCIM (2011, p. 5).

Several studies point out that based on patterns of existing migration and empirical findings, migration as a result of climate change is most likely to be short-distance and internal (Kniveton, et al., 2008, p. 74f; Leighton, 2009, p. 330; Sharma & Hugo, 2009, p. 3; Walsham, 2010, p. 28; Findley & Geddes, 2011, p. 143). These findings go against some of the first and widely cited publications regarding CCIM indicating that climate

change impacts risks causing international mass-migration (Piguet, et al., 2011, p. 5; White, 2011, p. 47).

More specifically, the findings from the fieldwork by Bohra-Mishra and Massey (2011) suggest that slow-onset environmental changes, namely salination of groundwater, soil erosion, draught and desertification increases the likelihood of *local* migration but decreases the likelihood of *international* migration. One of the explanations given behind this result is that international migration requires time-consuming preparations and with an increase in the time needed to collect necessary livelihood, people have less time for such preparations. This indicates, according to Bohra-Mishra and Massey, that the image of climate refugees as masses of international migrants trying to get over another state's borders is exaggerated (2011, p. 98f).

In this line, McLeman and Hunter (2010) argue that the size of this migration is dependent on the strength of adaptation measures taken. Also non-migration patterns should be taken into consideration in order to take prompt policy decisions. The authors argue that it is important to learn from empirical studies in order to eliminate "[…] *much of the still-remaining guess work on how climate change-related migration will unfold*" (McLeman & Hunter, 2010, p. 458). Furthermore, following the argument that it is the social-economic situation that ultimately decides the extent of migration and the view of the relationship as non-linear, it has been claimed impossible to calculate the likely number of future climate migrants, as the number is dependent on processes related to underlying mechanisms, as well as what and if actions are taken today (see e.g. Piguet, et al., 2011, p. 25; Foresight, 2011, p. 31; Warner, 2010, p. 403; Brown, 2007, p. 17).

According to Morrissey, researchers within the field of CCIM have put much effort into trying to differentiate between forced and voluntary migration due to changes in the environment (2009, p. 4f). In this vein, one key approach has been to distinguish environmental refugees from voluntary migrants by looking at the extent to which relocation occurs in advance or as a direct effect of an environmental problem of some kind (Morrissey, 2009, p. 8). However, in previous literature the difficulty of separating different types of migration has also been stressed. For example, short-term migration can turn into long-term migration if things do not turn out as hoped, making it hard to distinguish between forced and voluntary migration (Piguet, et al., 2011, p. 15f). To get a deeper understanding of the difficulty to distinguish and to explain CCIM, the next section will look further into its causes and underlying mechanisms.

2.3 Causes and underlying mechanisms of climate change induced migration

Discussions regarding causes and underlying mechanisms of CCIM include to what extent migration as the result of changes in the environment can be attributed to climate change, and thus anthropogenic, and to what extent changes are 'natural' in the sense that they would have occurred also without anthropogenic forces. Furthermore, even if anthropogenic climate change causes migration, is it possible to distinguish CCIM from

migration due to other impacts? Also, the debate seems torn between highlighting climate change as the main cause and vulnerability or lack of resilience among affected populations as the main cause. These discussions will be displayed in this section.

In previous literature it has been stressed that people have in all times migrated because of changes in the environment and the way in which environmental problems affect migration patterns has long been discussed (Piguet, et al., 2011, p. 3f; Morrissey, 2009, p. 8; Warner, 2010, p. 402).

The discussion regarding how climate change can result in migration was in turn born from the research on how changes in the environment in general affect human mobility (Piguet, et al., 2011, p. 3f; Morrissey, 2009, p. 8; Farbatko & Lazrus, 2012, p. 384). However, it has been argued that the debate around CCIM often does not pay enough attention to how environmental changes in general affect human migration (Morrissey, 2009, p. 11; Brown, 2007, pp. 14-16; McAdam, 2011a, p. 2; Findley & Geddes, 2011, p. 145). Hence, if the link between environmental problems and migration has much in common with how climate change impacts affect human mobility, much can be learned regarding CCIM from the environmental change and migration nexus. However, in the literature regarding CCIM, some features being specific for this field of research have been accentuated.

For example, Piguet, Pécoud and de Guchteneire (2011) point out that although environmental impacts and climate change impacts often tend to lead to the same effects on human migration patterns, there is an important difference between the causes. The difference, according to the authors, is that while victims from a natural disaster, such as an earthquake, suffer from a nature-made phenomenon, people affected by the impacts of climate change suffer from the effects of anthropogenic activity (Piguet, et al., 2011, p. 19). Though both phenomena risk displacing people, only one is man-mad and someone can thus be blamed for the impacts. This also reflects on proposals on how to address CCIM, a topic that will be further elaborated in part 2.5 below.

There is also, according to White (2011), a difference between climate change impacts and other man-made environmental problems. While individuals who have to relocate due to for example depleted environments as a strategy in war or because of dam building, CCIM is caused by human actions and not the result of one policy decision as in the other examples (White, 2011, p. 25). Hence, in the case of climate change, the cause of migration/displacement as well as the actor causing the problem is more diffuse and difficult to identify.

Nevertheless, studies on CCIM points to that climate change will become an increasingly more important trigger for migration (McLeman, 2011, p. 24; Piguet, et al., 2011, p. 25; Foresight, 2011, p. 9; IOM, 2009, p. 1; Docherty & Giannini, 2009, p. 349).

IPCC's special report on extreme events (2012) indicates (with medium agreement and medium evidence) that disasters associated with climate extremes have an impact on population mobility and relocation. Furthermore, would these disasters become more intense and/or occur more frequently some areas will provide fewer resources resulting in decreased possibility for maintaining livelihood. According to the authors, this could in turn result in more permanent migration, resulting in higher pressure on the areas of relocation (2012, p. 14).

Regarding temperature changes due to climate change, Rebetez (2011, p. 40) argues that an increase in extreme temperatures is the most likely to directly affect human migration. According to Rebetez, temperature changes are also likely to indirectly affect the human mobility through for example an increase in insects in some regions leading to an increase in cases of malaria and in turn to migration. Another example given is the combination of rising temperatures and air pollution leading to ozone formation in urban areas. Rebetez (2011, p. 42) work shows that effects of climate change on migration are often difficult to predict because of the complexity of the processes in the nature. For example, rising temperatures negatively affect water-security through the melting of glaciers. On the other hand, climate change also leads to an increase in rain, leading to well-filled water reservoirs, which might make up for the disappearance of glaciers (Rebetez, 2011, p. 42).

Generally, different climate change related impacts affect migration patterns in different ways. Climate change related hazards are sudden, while others appear gradually. In a simplistic way it can be said that sudden impacts such as floods result in temporary mass-migration, while slow-onset events such as sea-level rise have more diffuse impacts on for example development and can result in more permanent resettlement (see e.g. Foresight, 2011, p. 81; Walsham, 2010, p. 3; Sharma & Hugo, 2009, p. 2; Findley & Geddes, 2011, p. 145; IOM, 2009, p. 3f).

According to Morrissey (2011), a methodological concern especially important for writers within the maximalist school is the problems encountered with the uncertainties regarding the scale of climate change impacts, especially when it comes to so-called tipping points. Tipping points in this context refers to changes that occur quickly as a result of pushing the carrying-capacity of the nature as far as the nature can support the impact, resulting in an abrupt change. Such sudden change is believed to result in mass-migration. Here, Morrissey argues, the literature is mostly hypothetical, as such non-linear relationships are difficult to assess (2009, p. 13f).

Asmita Naik discusses whether natural disasters can at all be seen as a cause of permanent migration, or if such an outcome rather is the result of government's lack of resources to help the population (2009, p. 295f).

In this line it has been argued that CCIM is closely linked to other factors such as social and economic vulnerability and the impact of environmental stresses or shocks and migration varies depending on socioeconomic as well as psychological factors of those affected (Piguet, et al., 2011, p. 17f; Kniveton, et al., 2008, p. 74f; IOM, 2009, p. 2).

The EACH-FOR[6] report identifies three causal factors resulting in different types of forces migration: conflicts, development policies and projects, and disasters. The report points out that: "*Many observers note that forced migration is complex. The study of forced migration is multidisciplinary, international, and multisectoral, incorporating academic, practitioner, agency and local perspectives*" (Jäger, et al., 2009, p. 9).

Furthermore, though the poorest people might have the biggest incentives for migrating and seeking better opportunities elsewhere, they often lack the resources needed for migrating, especially in cases when environmental change leads to the destruction of the

[6] The EACH-FOR project was a two year long research project based on case-studies, co-financed by the European Commission. The project ended in 2009. See <www.each-for.eu> for more information.

few resources they previously relied upon (Black, et al., 2011a, p. 449; Walsham, 2010, p. 28; Warner, 2010, p. 410; Piguet, et al., 2011, p. 25; Foresight, 2011, p. 72; Brown, 2007, p. 2).

Taking into account the complex link between migration and climate change it has been claimed close to impossible to single out climate change as the most important factor behind a decision to migrate (Piguet, et al., 2011, p. 15f). In this line, Findley and Geddes (2011, p. 139) argue that putting 'climate' or 'environment' together with 'migrants' or 'refugees' all have the same problem – they imply that changes in the environment and/or the climate would be the main driver for migrants/refugees. The authors further argue that such a view is too simplistic and that the direct link between environmental/climatic changes and migration/refugeehood has little empirical ground (Findley & Geddes, 2011, p. 139). Black questions "[…] *the value of international policy-makers focusing on 'environmental refugees' as a significant group of migrants, deserving of the world's attention*" and argues, that identifying environmental change as the main reason for seeking refugeehood is misleading (2001, p. 1).

2.4 Consequences of climate change induced migration

The previous section presented different views on causes and underlying mechanisms of CCIM, but also displayed the difficulties in distinguishing causes of CCIM from environmental changes in general. The consequence of CCIM is yet another contested topic within the field, a topic that the current section will look further into.

Myers (2002) argues that existing policy responses do not address this issue adequately and that a good starting point would be to recognise that environmental refugees exist at all. Myers describes the link between environmental change and migration as "[*a*]*lthough it derives primarily from environmental problems, it generates problems of political, social and economic sorts. As such, it could readily become a cause of turmoil and confrontation, leading to conflicts and violence*" (2002, p. 611).

In a similar tone, McLeman writes that: "*In short, the makings of a perfect storm are in place: human population numbers are growing in the very regions where the physical risks of climate change are most likely to undermine livelihoods and trigger migration, leading many to worry that this storm may be accompanied by political instability and violence in vulnerable regions*" (2011, p. 24). This dramatic view of CCIM is far from uncontested and much of the recent literature employs another view: That climate change impacts not necessarily lead to migration and that when migration does occur, it can also have positive effects, effects that should be given support in addressing CCIM (Foresight, 2011; IPCC, 2012; Piguet, et al., 2011; Kniveton, et al., 2008; Findley & Geddes, 2011).

By arguing that climate change could lead to conflicts by causing mass-migration, climate change becomes a security issue (Morrissey, 2009, p. 8f). The debate whether climate change will cause conflicts or not can, with its proponents and opponents, also be separated into belonging to the maximalist and the minimalist perspectives, according to Morrissey (2009, p. 13f).

For example, different political scenes and arenas such as the United Nations Security Council and the North Atlantic Treaty Organization (NATO) have been pointed out as driving the climate change and conflict perspective, where the findings from writers within the maximalist school, such as Myers, are often used to underpin arguments for addressing the security aspects of CCIM (Oels, 2012, pp. 2-6; White, 2011, p. 69ff).

Betsy Hartmann criticises what she calls the climate conflict discourse by arguing that painting out climate refugees as a security threat is not an accurate way of addressing climate change and can harm development aid by militarising the issue (2010, p. 242). The way of picturing climate change as the major cause of migration is too simplistic and neglects that the effects of climate change also depend on the resilience of affected areas and adaptation measures taken, which in turn depend on socio-economic factors (Hartmann, 2010, p. 237f).

In this line, White argues that emphasising climate related migration as a security threat results in developed countries putting resources into protecting themselves from a presumed threat and building thicker border protections, instead of using the resources to undertake mitigation and adaptation actions: "*What is clear is that while a security framework is politically successful, it takes away intellectual, political and financial capital from more fruitful and just policy measures*" (2011, p. 144). Furthermore, putting a security framing on the issue means that the obligation of the state is to protect its citizens from this threat, and they would be "off the hook" from solving the underlying problems causing CCIM (White, 2011, p. 69).

2.5 Addressing climate change induced migration

Regarding how to address CCIM, several proposals have been given in previous literature. The main sides in this debate seem to be if CCIM should be regulated under international law, or if it is better to focus on soft laws and local adaptation as well as to facilitate the use of migration as an adaptation strategy. These suggestions, with their pros and cons, will be presented in this section.

2.5.1 A new international treaty

Biermann and Boas (2010) argue that 'adapting away' CCIM will only be possible in some cases. Especially poor countries will need assistance and support and 'climate refugees' are in need of support and protection. Therefore, the authors suggest the establishment of a new legal regime, "The Protocol on Recognition, Protection and Resettlement of Climate Change Refugees", operating under the UNFCCC (Biermann & Boas, 2010, p. 61). In short, Biermann and Boas propose that the new protocol could be included under a broader adaptation protocol to ensure holistic adaptation actions and to combine adaptation with planned relocation programmes. However, the writers argue, it is important that such a protocol does not undermine the protection of those populations for whom adaptation is not an option (Biermann & Boas 2010, p. 78). The protocol should, according to the proposal, be placed under the authority of the COP and the UNFCCC could provide for an executive committee. The Committee would maintain a

list of areas under the protection (e.g. villages) of the protocol and its population would thereby be recognised as in need of relocation and should be given support for this (Biermann & Boas 2010, p. 77). Every party under the UNFCCC could accordingly propose new areas of inclusion that should then be decided by the COP. Key elements on an operational level to the new protocol would, according to Biermann's and Boas' suggestion, include a scientific body specialised on the issue, a network of assisting agencies coordinated by the UNFCCC secretariat as well as a new fund for this purpose under the authority of the COP (Biermann & Boas, 2010, pp. 77-82).

Docherty and Giannini (2009, p. 350) argue that due to the possible large scale of CCIM, and also because of the anthropogenic nature of the problem, international efforts are, and should be, provided. The writers propose a new international legal instrument under a new international convention as they find the Geneva Convention too restrictive and the UNFCCC too focused on states rather than individuals at risk. This legal instrument aims at providing humanitarian aid and to provide protection of human rights for climate refugees. To fulfil this aim coordination between different actors is, according to Docherty and Giannini, essential, to make sure that home and host states as well as the international community assist in the work and to establish a body of scientific expertise within the field. Furthermore, the international community should provide refugees with humanitarian aid through "[*g*]*lobal fund awards to intergovernmental or non-governmental humanitarian organizations*" (Docherty & Giannini, 2009, p. 384).

Williams (2008) proposes an alternative to a new international agreement; regionally oriented regimes operating under an international umbrella framework, arguably the UNFCCC. Williams argues that taking into account the unwillingness for states to participate in international climate change regimes such as the Kyoto Protocol, it is unlikely that a new international agreement on climate refugees would be successful. Also, the current refugee regime only operates with cross-border refugees and not internally displaced people (IDPs), which is problematic in the case of climate refugees (Williams, 2008, p. 517). Williams argues that regional cooperation allows for adapting actions after regional context, further implement regional frameworks on IDPs and to exchange experiences through regional platforms – efforts that, in the long-run, could open up for international agreements (2008, pp. 520-522). While it would be up to the regions how the issue would be addressed, Williams proposes some minimum international agreements under a new post-Kyoto protocol: The recognition of climate refugees as a phenomenon and an encouragement to address the issue regionally (2008, p. 520).

2.5.2 Soft laws and migration as an adaptation strategy

Several researchers have recently argued that the complex relationship between environmental changes and migration needs to be addressed holistically. Migration due to climate change is not necessarily negative, contrarily migration can bring positive effects for both sending as well as receiving areas and therefore migration can and should also be seen as an adaptive strategy to climate change (Bardsley & Hugo, 2010, p. 239; Black, et al., 2011a; Morrissey, 2009, p. 37). As migration can prove to be a good adaptation

strategy, it should therefore not be avoided in all cases (Kniveton, et al., 2008, p. 74f; Walsham, 2010, p. 4; White, 2011, p. 7).

Warner (2010) argues that existing as well as new modes of governance with structures that address the new challenges that climate change poses on human mobility management will be needed to make society capable of managing environmentally induced migration. The current regime puts the main responsibility on international humanitarian organisations and national governments and focuses mainly on short-term disaster relief, not long-term guidance including the importance to consider the link between adaptation and migration that will be required (Warner, 2010, p. 410f).

According to Warner, key features in governance structures appropriate for addressing human mobility linked to environmental change include international guiding principles for states to assist the implementation of policies to address environmentally induced migration and a focus on capacity building. In this vein, a platform for policy dialogue where governments can exchange information and best practices should be established (Warner, 2010, p. 411). Warner also proclaims practical assistance for climate change migrants, including help to integrate in the new area, protection from discrimination and assistance in finding new livelihood options (2010, p. 409). Warner argues that effective governance is the key to success. To Warner, effective governance in this sense means flexible governance to meet the challenges of this complex issue, including increased participation of those affected by environmental change and to use a holistic approach, including a combination of instruments proved effective in the past (2010, p. 411).

In line with Warner, Brown (2007) points out gaps in existing legislation and also lacking political will to address the issue of forced migration due to climate change, "[*t*]*here has been a collective, and rather successful, attempt to ignore the scale of the problem*" (2007, p. 2). However, taking into consideration the reluctance of the international community to address the issue, Brown argues that it is unlikely that an extension of the Geneva Convention to incorporate climate refugees would be possible. Brown further argues that the issue is therefore better addressed through adaptation, and to consequently take actions to facilitate migration as an adaptation strategy (2007, p. 25f). To succeed, Brown argues, the issue has to be internationally recognised and adaptation as well as development policies in areas at risk need to significantly address people's vulnerability to climate change, including more efficient use of already available resources, by providing local adaptation strategies as well as to relocate people from areas especially at risk (2007, p. 29). An increased information exchange and shared mandate should, according to Brown, be achieved through ameliorated communication between practitioners in different fields all related to forced climate migration such as human rights, migration and environmental organisations. An approach to migration as an adaptation strategy has to take into account the benefits that international labour mobility can bring, but at the same time protect developing countries from losing skilled labour (2007, p. 29f').

As Brown and Warner, the International Organization for Migration (IOM 2009) also criticises the view of migration as the failure of adaptation actions. Especially at early stages of environmental problems, migration is and has always been an adaptation

strategy and should thus be seen as such. CCIM is a complex phenomenon and therefore an approach that focuses on human-security needs to be applied (IOM, 2009, p. 5).

To assist environmental migrants, the IOM (2009, p. 7) proposes a holistic and collaborative approach. According to this approach efforts undertaken should be focused on raising awareness of the challenges posed by climate change and the actions needed among policy-makers as well as the public. Furthermore, a better understanding of the linkages between environmental change and human migration is, according to the proposal, needed. It is further argued that as environmental migration is a complex phenomenon and linked to human-security issues and development, the issue of environmental migration needs to be mainstreamed into overlapping policy domains, and vice versa. Furthermore, the IOM stresses that humanitarian actions need to be provided enough resources to meet the new and growing challenge that climate change poses. In this line, efforts should be taken to decrease forced migration and instead provide resources to facilitate migration as a voluntary action taken to adapt to climate change. Such efforts could include for example the development of temporary and/or circular schemes for labour migration (IOM, 2009, p. 7).

2.6 Analytical framework

As presented above, the literature covering the 'debate of the debate' shows at least four perspectives within the field: The minimalist/alarmist, the maximalist/sceptical, the climate migrant perspective, and the climate refugee perspective. As the field is relatively new and authors use different labels for similar perspective it is of course difficult, if not impossible, to completely separate the perspectives from one another. Taking the polarisation and disagreement over definitions into consideration, I see these perspectives as currently under development. Hence, it should be noted that this categorisation should not be seen as exclusive, other perspectives could be identified.

Felli developed a separation of the climate refugee and the climate migrant perspectives into two ideal types. As analytical tool for the remaining part of my analysis I have chosen to use Felli's model for multiple reasons.

First of all, the separation into the maximalist/alarmist and the minimalist/sceptical perspectives is relatively old. Much has happened within the field since Suhrke presented her ideas in 1993. Felli's work is recent and therefore arguably gives a more accurate picture of the current state of the debate. Furthermore, the different time-frames I argue also make it hard to actually say if new perspectives have emerged or if the old debate between the maximalist/alarmist side and the minimalist/sceptical side has taken a new shape. For example, the maximalist/alarmist perspective did, in line with the climate refugee perspective, promote the use of the term 'refugee' and not migrant. Another example is for example Black's (2001), above referred to as one of the most prominent speakers for the minimalist/sceptical side, more recent turn into promoting migration as an adaptation strategy (see e.g. Black, et al., 2011a, "Migration as adaptation"), in line with the climate migrant perspective. By pointing out these overlaps I would again like to stress the challenge in separating the four identified perspectives. Such separation could even be misleading. As argued in 1.2.1, these overlaps are illustrating one of the reasons

why I have chosen to talk about the sides in a more wage way; using the term 'perspectives' and not 'discourses'. Bearing this in mind I find the use of Felli's model even more motivated, as it takes into account the change in the debate in general towards a higher focus on climate change adaptation, without excluding e.g. the still remaining definition-debate.

In this line, Felli's model elaborates views on the adaptation-migration nexus, an approach that I find in line with much of the recent literature in the field of CCIM. One of the most striking outcomes of the findings presented in this chapter is the important role that adaptation plays. The existence or non-existence of adaptation actions was pointed out to determine the future nature of the phenomenon. Regarding causes, the lack of adaptation actions was pointed out as one important explanatory factor, and accordingly was adaptation actions pointed out as one way of addressing CCIM. This view, however, is not uncontested and it was also argued that CCIM will not be possible to 'adapt away'. Therefore, shedding light on the role of adaptation to climate change in the context of migration not only seems to be in line with the current debate, but also a key factor to examine different policy responses. Furthermore, this approach is also in line with much of the general work on climate change and the increased attention given to climate change adaptation in general. This can be illustrated by the progress in international climate change negotiations under the UNFCCC with the establishment of the Cancun Adaptation Framework in 2010, including the Work Programme on Loss and Damage and the Adaptation Committee, stating that climate change mitigation and adaptation should be equally addressed (UNFCCC, 2012b).

Also, as I have not conducted a discourse analysis myself, but build on analyses presented in other works, I find it reasonable to use an existing model. This way I have the possibility to apply previous findings on another type of material, allowing for future adjustments. For the same reason I also find it more accurate to use broad rather than narrow perspectives.

A point against using Felli's model is that Felli himself argues that migration as the failure of adaptation has lost its dominance within academic writings. Felli however argues that the perspective is still important outside of the academia and within the popular literature, something that I also became aware of during the latest Conference of the Parties, COP18, at a side event named "Climate Forced Migrants: On the question of Rights and Responsibilities" (Warner, et al., 2012). As the title of the event suggests, the discussion circulated around the understanding that climate change will lead to large-scale *forced* migration, a view that arguably has similarities with the maximalist/alarmist as well as the climate refugee perspectives; an important difference between Felli's categories lies in the extent of voluntariness in the decision to relocate (see table 2.1 down). Though the term 'migrants' was used in the title of the event, the discussions circulated around migration as the failure of adaptation actions, also in line with the climate refugee perspective. Furthermore, the panel argued that climate change is caused by actions of industrialised countries and therefore these countries should also bear the burden of the costs related to CCIM. Thus, migration in this case was framed as the failure of mitigation of greenhouse gases, not as an adaptation strategy. This event, I argue, is just one example of settings where the climate refugee perspective is still applied. Table 2.1 below shows the model used to analyse perspectives on CCIM,

presented in chapter four, using empirical findings from Bangladesh, presented in chapter three.

Table 2.1 Migration as the failure of mitigation versus migration as a strategy for climate change adaptation

Key points for the perspectives	**Perspective**	
	Climate refugees – climate change induced movement as the failure of mitigation and adaptation measures	**Climate migrants** – climate change induced movement as a strategy for adaptation
Definition	Climate refugee	Climate migrant
View of migration	Failure	Adaptation strategy
Nature of migration (4.1)	Forced	Voluntary/distinction not useful/grey zone Environmental migration is part of human history Manageable/to be managed
Responsibility (4.2)	Climate change, produced by Northern countries	Vulnerability (individualization of the responsibility or displacement on the 'victims' or its territory)
Storylines (4.3)	'Sinking islands', 'barbarian invasion'	'Humanity on the move'
Consequences of migration (4.3)	Environmental degradation in the receiving territory, which could result in violent conflicts	If properly managed: new resources, remittances, knowledge transfer If left unmanaged: disruptions, degradation, violence
Climate policy (4.4)	Mitigation	Adaptation
Institutional level (4.4)	States International security International law	Individuals/communities Human security Human rights
Form of the law (4.4)	New international convention or treaty	Soft laws, internalization in domestic policies, policies diffusion
Uses of 'climate refugees/migrants' (4.4)	To underline the human consequences of climate change To underline the responsibilities of Northern countries To strengthen refugee/migration laws in receiving countries	Replacement of mitigation policy by adaptation policy Promoting the 'migration management' and the institutional reform agenda As a source of labour-power in the North
Consequences of responsibility assignation (4.4)	Climate change mitigation Reparation (funding for adaptation to climate change, taking-in of climate refugees…)	'Capacity' building of vulnerable countries Building 'Resilience' of vulnerable population

Source: Modified by the author from Felli 2012 (p. 9). For the original categorisation by Felli, please see annex 2 to the current work.
Comments: Ideal types. Analytical framework employed for the analysis presented in chapter 4. Section of chapter 4 in which the respective key points of the perspectives are mainly discussed within brackets.

3. Climate change, migration and Bangladesh

The complexity shown in the previous chapter highlights the challenge to predict the magnitude and the impacts of future migration due to climate change. This chapter sums up the findings from the conducted literature review regarding impacts of climate change on migration patterns in Bangladesh.[7]

The chapter starts with a presentation of how climate change is likely to affect migration patterns within and from Bangladesh. Next, the changes in migration patterns are described. To understand the changes one arguably needs to put the issue in a wider context. Accordingly, a description of links between vulnerability and CCIM in the context of Bangladesh is provided. Finally, human security issues and conflicts as well as how to address such issues are explored.

Image 3:1. Map of Bangladesh

Source: United States Central Intelligence Agency [Public domain], via Wikimedia Commons, available from <http://commons.wikimedia.org/wiki/File%3ABg-map.png>

Bangladesh is located in Southern Asia, by the Bay of Bengal. Bordering countries are India and Burma. The county is approximately a third of the size of Sweden, holding a population of approximately 150 million people (year 2011). Most of the country consists of a large delta and few areas are located higher than ten meters above sea level (for an overview, see e.g. Utrikespolitiska Institutet, 2013). The high population density and coastal location make Bangladesh especially vulnerable to climate change impacts such as sea-level rise, especially as most people are living on the low-lying delta and are dependent on agriculture for livelihoods (see e.g. McLeman, 2011; Kartiki, 2011; McAdam & Saul, 2010; Sharma & Hugo, 2009). A more in depth analysis of Bangladesh's vulnerability in the context of CCIM is provided in section 3.3 below.

[7] Further details on the result of the search for materials for the literature as well as a list of documents used can be found in annex 1 to the current work.

3.1 Climate change impacts affecting migration patterns in Bangladesh

Generally, in line with the findings presented in chapter two, and as will be further pointed out below, different changes in the environment lead to different responses regarding migration patterns, also in the case of Bangladesh.

Results from studies of Bangladesh (Foresight, 2011, p. 81; Penning-Rowsell, et al., 2012 , p. 14) show that long-term or permanent changes in the environment such as riverbank erosion and salination tend to lead to long-term migration. Contrary, storms and floods generally do not lead to permanent migration, as the environmental effects of these impacts generally are temporal. However, not only the type of impact but also the distance of migration has an impact on the duration of the same. For example, Kartiki (2011) studied the effects on migration after the cyclone Aila that struck Bangladesh in 2008 and found the resulting migration to be mainly short-distance and temporal. It is however, Kartiki argues, likely that long-distance migration could result in more permanent resettlement (2011, p. 31).

To mention some direct impacts from climate change on migration patterns within and from Bangladesh, Sharma and Hugo write that the three main impacts will be sea-level rise resulting in coastal flooding and inundation, riverbank flooding and cyclones/typhoons (2009, p. 5). These impacts are in turn related to higher temperatures and increased precipitation. The latter impact has also been pointed out as likely to impact Bangladesh with seasonal variability (Hassani-Mahmooeia & Parris, 2012, p. 2; Walsham, 2010, p. 19). Temperature and precipitation changes in turn negatively impact the agricultural sector (Walsham, 2010, p. 20). Studies of the impacts of *desertification* in the Asian context, including Bangladesh, show that desertification leads to both internal and international migration (Leighton, 2009, p. 330).

According to a literature review by Walsham[8], *Cyclones* are likely to increase in frequency and gravity in Bangladesh as a result of climate change. Existing evidence regarding migration caused by storms and cyclones show that these events are likely to cause sudden and temporal displacement. Therefore, in the case of cyclones, Walsham argues, disaster risk reduction could prove especially effective (2010, p. 11f). Some disaster management strategies are already in place in Bangladesh, and a comparison between the numbers of people killed from cyclones in Bangladesh in 2007 and 1970 shows that substantially fewer people were killed in 2007, which could arguably partly be explained by increased resilience among populations (Foresight, 2011, p. 54).

Salt-water intrusion is already a threat to coastal communities in some areas of Bangladesh. Walsham argues that adaptation options exist, such as changing agricultural practices, however "[…] *major shifts in livelihoods will not only have an impact on the economy of these areas, they will affect every dimension of life, including the social and cultural sphere. Taken together, this represents a major challenge for future policy*

[8] Walsham did a comprehensive literature review covering climate change impacts on migration patterns in Bangladesh for the IOM. The literature review consisted of materials from a vast variety of sources including from academia, NGOs, national- bi and multinational organisation, as well as information from the government of Bangladesh. (Walsham, 2010)

towards those regions" (Walsham, 2010, p. 18). According to Walsham's conclusion, salt-water intrusion seems to provide an example of climate change effects difficult to adapt to.

According to Walsham's (2010) findings *Riverbank erosion* is also already a threat for people living along Bangladesh's rivers. However, though it is challenging to predict future impacts from river erosion, it is believed that an increase in monsoons from climate change might accelerate problems related to riverbank erosion. According to the review, families living near riverbanks usually have to relocate several times during their lifetimes. Furthermore, riverbank erosion is believed to lead to long-distance and long-term displacement. However, Walsham argues, even though migration due to riverbank erosion in most cases can be described as 'voluntary' in some cases the changes are so severe and sudden that people or even entire communities are displaced (2010, p. 13f).

Floods are, according to several studies, yet another example of environmental hazards that are already part of living in Bangladesh (Findley & Geddes, 2011, p. 146; Walsham, 2010, p. 9; Kartiki, 2011, p. 11). Floods impact life in Bangladesh in several ways. Fieldwork carried out after floods in Bangladesh in 1996 and 2005, including interviews, focus groups and meetings show that not only the direct impacts of lives lost, but also livelihoods and infrastructure are problematic (Findley & Geddes, 2011). The water masses also carry sand and dirt, spread diseases and bury farmland. The water sweeps away seeds and agricultural materials, thereby threatening not only current but also future harvests (Findley & Geddes, 2011, pp. 146-148).

Case studies in Bangladesh show that, as flooding cycles both erode and add land, many displaced people stay nearby in the hope of returning after the flood, or to relocate to land formed elsewhere through the process of sedimentation (Black, et al. 2011b). This is however not always possible as sedimentation is a slow-process and new land does not always form in connection to eroded areas (Black, et al., 2011b, p. 442).

Similarly, Walsham's (2010) review shows that *Coastal erosion* is an on-going process in Bangladesh, which can be both a sudden- as well as a slow-onset event. Coastal erosion is a complex phenomenon and the impacts on migration are not always clear. In some areas land has actually been gained through the process of sedimentation rather than lost, however the new land is often not as good as the old agricultural land. Furthermore, as in the case of flooding cycles, land gained is often not in close connection to areas lost and relocation therefore complicated. Also, as the areas currently at risk change over time, it is hard to predict where land is under threat of being lost due to coastal erosion (Walsham, 2010, p. 15f).

Coastal erosion is predicted to increase due to *sea-level rise*, as well as floods, saltwater intrusions and storms (Walsham 2010, p. 17). Predictions of future sea-level rise points at different scenarios, however sea-level rise due to climate change is likely to have an impact on Bangladesh (Findley & Geddes, 2011, p. 146; Walsham, 2010, p. 17).

Walsham (2010, p. 17), however, disagrees with predictions estimating high numbers of mass-migration due to sea-level rise, as a rise in sea-level is not predicted to happen over a night but gradually. Therefore adaptation measures can be taken and these could significantly change the number of people directly threatened. If adaptation actions are

being taken, Walsham argues that mass-migration as a result of sea-level rise is "highly unlikely" (2010, p. 18).

McAdam & Saul write that there exists an academic consensus that Bangladesh will be severely affected by climate change, including sudden- as well as slow-onset events (2010, p. 6). However, it is challenging to isolate climate change related factors from others also impacting on the decision to migrate, as Bangladesh is a country that has always been affected by different types of natural disasters leading to displacement (McAdam & Saul, 2010, p. 8). To decide whether for example a flood is caused by man-made climate change or a natural event is thereby problematic.

In this line, Naik brings yet another perspective to the nature of migration due to natural disasters by pointing out that although natural disasters are "assumed" to lead to temporal displacement, this is hard to generalise; it is hard to define between different types of migration (2009, p. 282f). Thus, whether or not natural disasters lead to temporal or another type of migration is hard to conclude.

Hence, several already existing environmental problems and natural hazards are likely to increase in intensity and/or frequency. Some impacts seem easier to handle, as they are already commonplace in Bangladesh, while others may force people to relocate; this is the topic for the next section.

3.2 How climate change impacts affect migration patterns within and from Bangladesh

Several studies from Bangladesh show that impacts from climate change in most cases lead to internal migration, especially resulting in an increased urbanisation (McLeman, 2011, p. 24; Hassani-Mahmooeia & Parris, 2012, p. 2; Sharma & Hugo, 2009, p. 9; Black, et al., 2011b, pp. 442, 445; Ahsan, et al., 2011, p. 164). Ahsan, Karuppannan and Kellet (2011) describe the trend as dramatic and argue that the reason cannot be explained solely by natural growth of urban areas and traditional rural to urban migration. External factors, such as climate change impact, are seen as contributing to this trend (Ahsan, et al., 2011, p. 165f). Contrary, Leighton (2009) describes the evidence for an increased urbanisation as conflicting after reviewing several studies. However, Leighton does point out some indications that urbanisation is in Bangladesh one effect after floods in particular (Leighton, 2009, p. 330). In this line, The National Adaptation Plan of Action (NAPA) of Bangladesh, referred to by Martin, highlights that water intrusion leads to damaged crop cultivation and in turn to urbanisation in the search for alternative livelihoods (Martin, 2009, p. 362).

As shown in the previous section, many environmental hazards likely to increase in intensity and/or frequency due to climate change, are already affecting the Bangladeshi population. In this line, several authors point out that local migration can be a coping-strategy after natural disasters and point out Bangladesh as an example of how populations have learned how to live with natural disaster by temporarily evacuating to safer ground (Kniveton, et al., 2008, p. 74f; Naik, 2009, p. 284; Foresight, 2011, p. 14; Penning-Rowsell, et al., 2012 , p. 11). Several researchers point out that the lack of full-year employment as a result of environmental hazards often result in cyclic migration within Bangladesh to temporarily seek employment in other areas (Walsham, 2010, p. 13; Findley & Geddes, 2011, p. 148; Black, et al., 2011b, p. 443; Penning-Rowsell, et al., 2012 , p. 12; McAdam, 2011b, p. 12). Due to increasing impacts from climate change, cyclic migration is believed to increase as well (Foresight, 2011, p. 81).

Hassani-Mahmooeia and Parris conducted a quantitative analysis employing an agent-based model using data from Bangladesh district-level, including indicators such as: "*Incidences of extreme poverty, socioeconomic vulnerability, demography, and historical drought, cyclone and flood patterns*" (2012, p. 14). Hassani-Mahmooeia's and Paris' result predicts changes in demography over Bangladesh. Due to drought and floods, internal migration towards the east and northeast districts, which are less prone to be affected, is likely to increase. In numbers, Hassani-Mahmooeia and Paris predict from three to ten million new migrants until 2050 (2012, p. 14).

Though most existing evidence from the literature about Bangladesh included in this review shows that CCIM will result in local migration within the Bangladeshi borders some indications of cross-border migration can be found. For example, Black, Kniveton and Schmidt-Verkerk point out that the neighbouring country of India offers higher salaries and better living-conditions, as well as strong social and cultural ties, making it an attractive destination (2011b, p. 445). Several international migration pathways from Bangladesh, especially to India, exist already. However, the lack of data, makes it hard to

estimate the number of international migrants from Bangladesh (Sharma & Hugo 2009, p. 9; McAdam & Saul 2010, p. 11). If this is a general problem it cannot be excluded that international migration is in fact bigger than anticipated.

Another factor explaining cross-border migration from Bangladesh is that Bangladesh has traditionally been a labour sending country (Walsham, 2010, pp. 28-30; Black, et al., 2011b, p. 442). Black, Kniveton and Schmidt-Verkerk show that most international permanent resettlement is to the UK or the US and that short-term migration abroad, mostly to the Middle East and Southeast Asia, has increased (Black, et al., 2011b, p. 442). Furthermore, areas most prone to experience climate change related hazards are situated close to the Indian border and increased cross-border migration can therefore, according to Walsham, not be excluded, though Walsham stresses that most migration is likely to be internal (2010, pp. 28-30). Another explanatory factor for international migration is that many migrant destinations within Bangladesh are already vulnerable. Though it is, Black, Kniveton and Schmidt-Verkerk (2011b) argue, difficult to estimate it can also not be excluded that if climate change impacts increase migration to these destinations, these areas will be further degraded. This in turn could result in a growth of international migration, as migrants might be forced to relocate once again, due to the degraded environment at the first destination (2011b, p. 445).

Some writers also highlight positive effects from international migration. For example, cross-border migration can result in remittances sent back, which contribute to the country's GDP, as well as transfer of knowledge and technology (Walsham, 2010, p. 8; Black, et al., 2011b, p. 442). In this line, Sharma and Hugo argue that most migration will be internal and that international migration is likely to be of a different nature, mostly undertaken by well-off, high skilled workers: "*In most cases, international migration will manifest as a pragmatic* livelihood strategy *rather than as a plea for formal international legal 'protection' from the State harm or State failure in Bangladesh itself*" (Sharma & Hugo, 2009, p. 14).

3.3 How vulnerabilities related to climate change impacts in Bangladesh affect migration patterns

Generally, mega-deltas, such as the Ganges-Brahmaputra in Bangladesh are especially vulnerable to climate change impacts (Kniveton, et al., 2008, p. 27; Walsham, 2010, p. 8). Specifically, the low-lying delta of Bangladesh is exposed to combined risks of tropical storms, seasonal flooding, subsidence and sea-level rise (McLeman, 2011, p. 24; Kartiki, 2011, p. 24f; Kniveton, et al., 2008, p. 6; Sharma & Hugo, 2009, p. 4; McAdam & Saul, 2010, p. 4; Hassani-Mahmooeia & Parris, 2012, p. 2; Gray & Mueller, 2012, p. 6000). Kartiki writes that although the most vulnerable people to climate change impacts are living on low-lying islands, deltas such as those in Bangladesh will have the most people affected, due to their large populations (2011, p. 24f). Indeed, the high population density in Bangladesh has by several researchers been pointed out as one of the explanations behind Bangladesh's vulnerability to climate change impacts (McLeman, 2011, p. 24; Kartiki, 2011, p. 24f; McAdam & Saul, 2010, p. 4; Sharma & Hugo, 2009, p. 11; Reuveny, 2008, p. 5).

Also, main livelihoods in Bangladesh are found within the agricultural sector, highly dependent on natural resources, making the country vulnerable to changes in the environment (Kartiki, 2011, p. 24f; Hassani-Mahmooeia & Parris, 2012, p. 2; Sharma & Hugo, 2009, p. 5f; Walsham, 2010, p. 7; Black, et al., 2011b, p. 445; Salauddin & Ashikuzzaman, 2012, p. 55). In this context, Walsham (2010, p. 7) points out some contesting trends. For example, the population increase has declined and even though the rural sector is still the largest, its dominance has decreased. Furthermore, fewer people are living in direct poverty, though many people are still considered to be poor. Disaster preparedness has increased, but as a result of increased population, more people are exposed to environmental hazards (Walsham, 2010, p. 8).

Kartiki (2011) lists a number of factors making Bangladesh vulnerable to impacts from climate change. These include resource dependency, poor housing conditions and water scarcity, which become even more critical in cases of salt-water intrusion due to insufficient embankments - further weakened by extreme weather events (2011, p. 26). In the context of migration, individuals who do not believe that embankments will be improved are more prone to migrate, while sufficient emergency aid can decrease out-migration from affected areas (Kartiki, 2011, p. 31).

The links provided by Kartiki show how not only vulnerability due to environmental factors affect migration - CCIM arguably also needs to be considered in the wider spectrum of human and societal vulnerability.

3.3.1 How human and societal vulnerabilities affect climate change induced migration

Several writers argue that climate change will put extra pressure on a population already vulnerable due to other problems such as political and socio-economic instability. Climate change affecting natural resources that the population live from will in turn worsen underlying problems (McAdam & Saul, 2010, p. 7; Sharma & Hugo, 2009, p. 12; McAdam, 2011b, p. 10). In this line, several studies point out that Bangladesh is a developing country and does not have enough resources to protect itself against the upcoming challenge (Kartiki, 2011, p. 24f; Hassani-Mahmooeia & Parris, 2012, p. 1; Sharma & Hugo, 2009, p. 4; Faris, 2009, p. 92f; Salauddin & Ashikuzzaman, 2012, p. 55). Kartiki finds that although migration has long been a coping-strategy in Bangladesh, the impacts of climate change, along with the rise in population, has further triggered migration and put an extra burden on the population (2011, p. 28).

Another link regarding impacts from natural disasters and environmental hazards on migration found in several studies is that these impacts not always lead to displacement - one of the main reasons being lack of resources (Naik, 2009, p. 282f; Sharma & Hugo, 2009, p. 6; Walsham, 2010, p. 27; Foresight, 2011, p. 54)**.** Furthermore, information about migration as an available option is a determinant for migration. Due to lack of information, migration may not even be considered as an alternative coping-strategy (Kartiki, 2011, p. 31; Findley & Geddes, 2011, p. 150). Thus, the most vulnerable, and most in need of relocating from hazardous places, are the most unlikely to do so. Instead, better-off families are more likely to migrate as a response to climate change impacts in Bangladesh (Foresight, 2011, p. 84f; Kartiki, 2011, p. 31; McAdam & Saul, 2010, p. 11).

In this line another common conclusion from studies of CCIM in Bangladesh is that mostly well-educated people are likely to be attracted to move from rural areas to bigger cities, also internationally, although the latter is more uncommon as cross-country migration requires resources (Sharma & Hugo, 2009, p. 13f; Walsham, 2010, pp. 28-30; Black, et al., 2011b, p. 442). Due to lack of resources, very few poor people will move internationally and in general only the most affected by climate impacts and who also have links to the destination area as a safety net (McAdam, 2011b, p. 12). Generally, in cases where cross-border migration from Bangladesh does occur, social networks in the receiving areas, is an important pull-factor for migration (Foresight, 2011, p. 30; Leighton, 2009, p. 330; Sharma & Hugo, 2009, p. 11; Naik, 2009, p. 289; Kartiki, 2011, p. 32; Findley & Geddes, 2011, p. 155; Black, et al., 2011b, p. 443).

Penning-Rowsell, Sultana and Thomson (2012) find that most people have strong ties to their land and migration is often seen as the last alternative when all attempts to maintain a living in the home-area have failed. In this line evidence from Bangladesh suggests that *landless people* were more prone to migrate (Penning-Rowsell, et al., 2012 , p. 14). This link was found to be especially strong for rural to urban areas (Kartiki, 2011, p. 32). Especially female-headed families with little or no land were even more prone to migrate (2012, p. 60). Generally, women are pictured as more vulnerable to climate change impacts as men traditionally take the decision whether to migrate or not (Kartiki, 2011, p. 31; Walsham, 2010, p. 14; Penning-Rowsell, et al., 2012 , p. 14).

Fieldwork carried out after floods in Bangladesh in 1996 and 2005 shows that communities that were inundated the longest or hardest were not necessarily the one's that recovered the slowest, but those with the highest level of food insecurity (Findley & Geddes, 2011, pp. 146-150).

In this line Gray's and Mueller's (2012) quantitative study, using multivariate models, on the effects on migration from floods and crop-failure found that floods had very little effect on migration. Crop-failure however resulted in a lower rate of migration among households directly affected. Instead among households nearby, not yet affected but at risk, migration increased significantly (2012, p. 6002f). This result can thus be seen in line with indications that vulnerability does increase migration, but that the most vulnerable do not have the resources to migrate.

3.3.2 Vulnerability as a result of climate change induced migration

Following the examples provided above, vulnerability is linked to migration patterns in Bangladesh in several ways. While vulnerability in terms of e.g. landlessness can be a push-factor for migration, it can also lead to involuntary non-migration because of lack of resources to undertake relocation to safer ground. But vulnerability is not only a cause (or restraint) to migration; it can also be the result of CCIM.

For example, the impact of climate change on livelihood is a complex relationship. Studies from Bangladesh show that such impacts may force people to leave their land for a safer environment, thereby losing their permanent assets - their land and their savings - further increasing their vulnerability (Foresight, 2011, p. 84f). Another associated long-term negative impact is increased debt levels after natural disaster, as people might have

to sell all resources they have as well as taking loans to recover from the losses. However, this also puts them in an even more vulnerable situation (Findley & Geddes, 2011, pp. 146-150; Penning-Rowsell, et al., 2012 , p. 12). In this context Penning-Rowsell, Sultana and Thomson also found that dependency on external aid when all assets are lost or sold is in turn increasing vulnerability and a longer timeframe for recovering is needed (2012 , p. 11).

Another example is an increase in vulnerability after relocation to urban areas. Ahsan, Karuppannan and Kellet (2011) argue that while climate migrants might find alternative livelihoods in urban areas, and even create new jobs as they often are prepared to work for a very low salary, lack of housing puts migrants in a vulnerable position. This, in addition to low salaries, often make migrants dependent on charity and thereby placed under more social as well as economic stress (Ahsan, et al., 2011, p. 167f). Black, Kniveton and Schmidt-Verkerk (2011b) found that lack of housing for new-comers often results in illegal settlements, especially in slums, which increases vulnerability. Also, these areas lack security and the basic needs of human beings (2011b, p. 442). Walsham (2010, p. 25f) argues that significant challenges for maintaining human security is associated with urbanisation due to climate change impacts as urban areas, especially within the slum, are often unhygienic and under severe environmental pressure. Moreover, people displaced for longer periods often face food insecurity and health issues. The vulnerable position of being displaced and landless also raises other risks such as being exploited in several ways, including trafficking and especially women face the risk of physical and sexual harassments (Walsham, 2010, p. 26f).

In addition to the risks associated with living in slums, Penning-Rowsell, Sultana and Thomson (2012) found that most Bangladeshi migrants are unskilled and therefore have difficulties finding durable employment. Employments given often comprise hard physical work often resulting in health problems (Penning-Rowsell, et al., 2012 , p. 12).

The findings presented above show that migration due to climate change can lead to increased vulnerability. However, previous literature also presents examples of how resilience building could make people less vulnerable and less prone to being displaced. This is the topic for the next section.

3.3.3 Reducing vulnerability in the context of climate change induced migration

Surveys among populations affected by the cyclone Aila in 2008 shows that destruction of settlements as well as livelihoods were the most common reasons to migrate as well as lack of educational options for children in evacuation areas (Kartiki, 2011, p. 31). Also the fear of outbreaks of diseases and bad living conditions in the aftermath of a disaster are other push factors for migration (Kartiki, 2011, p. 31). Contrarily, Naik points out that people are psychologically able to stay when the first shock and fear after a natural disaster has diminished (2009, p. 282f)**.** For example, a study after the 2004 tornado in Bangladesh shows that displacement did not occur (Paul, 2005, p. 381f)**.** One possible explanatory factor for these contrasting evidences is the existence or absence of emergency aid. Emergency aid can decrease the likelihood of displacement after a natural disaster (Kniveton, et al., 2008, p. 74f; Walsham, 2010, p. 12). Another is the existence of community networks as well as the possibility to take micro-credits (Findley & Geddes,

2011, p. 149). Fieldwork, including focal-group discussions, carried out in areas prone to floods shows that community aid was more important for recovering after a disaster than external help (Penning-Rowsell, et al., 2012 , p. 10). However, if the shock is affecting an entire community, risk-sharing networks have likely been undermined (Gray & Mueller, 2012, p. 6004).

Indeed, results, presented under the Foresight project[9] (2011), from Bangladesh also show that the possibility to take micro-loans may decrease the rate of migration, as migration of parts of the family sending remittances is otherwise common as a way to recover from loss of income. However, in some cases, an increase in salary in another location still provides a more beneficial strategy (Foresight, 2011, p. 143).

3.4 Implications of climate change induced migration in Bangladesh

In the sections above, several links between vulnerability and CCIM were pointed out. While vulnerability is a cause for migration, migration in turn leads to increased vulnerability and thus a greater risk of having to relocate again. This section will further describe these links by looking at how conflicts and human security issues on the one hand contributes to increased vulnerability as a result of CCIM and how adaptation actions on the other hand could be used to increase resilience among affected populations.

3.4.1 Human security implications and conflicts

McAdam and Saul (2010) found some indications that migration, both internally within Bangladesh and internationally (especially to India) can result in security issues. The writers, however, argue that it is important not to overstate the gravity of these problems (2010, p. 17).

Sharma and Hugo (2009) point out religious insecurity for members of other religions than Islam and possible resulting conflicts as a driver for migration to India. However, Bangladeshis are not necessarily attracted to move to India. According to Sharma and Hugo, this can be explained by the risk of becoming part of the big Indian slum, as many Bangladeshis already are (2009, p. 10f).

McAdam and Saul (2010) also find some evidence that migration can increase terrorism and radicalisation of groups within the country. Relocation can lead to conflicts over resources, especially in relation to rural-urban migration and the inter-linked growing slums where little resources are available (McAdam & Saul, 2010, pp. 17-20). As pointed out above, CCIM is often rural to urban, putting urban areas under pressure. Ahsan's, Karuppannan's and Kellet's (2011) Results from surveys handed out to Bangladeshi residents relocated as a consequence of natural disasters show that most respondents migrated to urban areas in the search of alternative employments as farmland had been

[9] Foresight provides advices for the UK government on future issues. The two-year project on migration and environmental change comprised some 350 experts and stakeholders. The final findings were published in 2011. More information about the project can be found at <www.bis.gov.uk/foresight/migration>

destroyed. Especially after the cyclones SIDR and AILA in 2007 and 2009, the waves of migrants to urban areas were particularly large, as the cyclones made millions of people homeless. Ahsan, Karuppannan and Kellet point out challenges to the urban planning system from CCIM, including increased demands on housing and water supply as well as greater pressure on sanitation, healthcare and other services. The authors argue that the impacts from such migration-pressure, risk increasing urban poverty and put urban areas under significant pressure: "*Unforeseen levels of climate migrants affect orderly development of cities, urban land use, and urban economy*" (Ahsan, et al., 2011, p. 167).

In this line, Walsham (2010) points out that some studies suggest that sudden onset-events might result in mass-migration and thereby security issues in the receiving areas, especially in urban slums. Slow-onset events are in their nature not as dramatic but arguably forcing more people to relocate, in turn causing environmental stress in the receiving areas (2010, pp. 25-27). Faris describes a worst-case scenario of "sudden, cataclysmic flooding", which could result in tens of millions refugees in neighbouring countries (2009, p. 93). However, Gray and Mueller show that in some cases more and not less livelihoods can be found after an environmental disruption, as workers will be needed for restoration (Gray & Mueller, 2012, p. 6001).

McAdam and Saul further found some indications of increased border-tensions. For example the boarders of India have been increasingly securitised and some indications of increased conflicts, especially of ethnic nature and an increase of religious terrorism were also found (2010, pp. 21-26). Also, "*Nationalist political parties in India have frequently characterized Bangladeshi migrants as terrorist and jihadists*" (McAdam & Saul, 2010, p. 24). McAdam and Saul (2010) also note a growth in "anti-Indianism" on the Bangladeshi political scene. Thus, future security issues related to CCIM into India depends on several factors, including the development of national politics within Bangladesh as well as in India. McAdam and Saul further stress that international migration is likely to be gradual, temporal and mainly consist of wealthy Bangladeshis, not masses of immigrants suddenly trying to cross the border. Also, the relationship between India and Bangladesh in this regard has, according to McAdam and Saul, improved, which leads the writers to see on the security issue with "cautious optimism" (2010, p. 26).

Hence, future trends are difficult to predict, and depend on several factors such as the scale and nature of migration and which destination in India that will mainly be chosen by Bangladeshi climate change migrants.

3.4.2 Adaptation and coping-strategies

Walsham (2010, p. 26) argues that there is not necessarily a link between CCIM and insecurity, the relationship has to do with the responses taken to address the issue. Conflicts can be avoided if actions are taken to ease the migration and on how immigrants are being viewed and treated in receiving areas (Walsham 2010, p. 21). If migration is managed and actions are taken for increasing human security, migration from hazardous areas can be a good strategy for coping with environmental stressors and to address insecurity (Walsham, 2010, p. 26f).

Regarding international migration, McAdam and Saul proclaim a stronger focus on human dignity and development of strategies for out-migration in collaboration with Bangladesh's neighbouring countries to encourage migration that would also be economically favourable is a way to lessen the tension and to address human security issues in relation to CCIM (2010, p. 41f).

Regarding urbanisation, Hassani-Mahmooeia and Parris argue that bigger cities will have to be able to provide more non-agricultural livelihood opportunities to be able to cope with the increased pressure from migrants and decrease the risks of human insecurity and conflicts (2012, p. 15). In this context, Ahsan, Karuppannan and Kellet see a need for recognition of problems related to urbanisation and collaboration on different levels of decision-making, as climate change induced urbanisation is seen as a local problem but climate change in general is dealt with on the national level (2011, p. 170).

Several authors argue that CCIM in general should be part of a holistic adaptation strategy and that migration as a strategy to handle environmental hazards already is commonplace in Bangladesh (McAdam & Saul, 2010, p. 41f; Sharma & Hugo, 2009, p. 12; Walsham, 2010; Foresight, 2011, pp. 181-183). As resilience to climate change impacts is an important explanatory factor to changes in migration patterns in Bangladesh, the extent and success of adaptation strategies undertaken will partly decide the scope of the issue (McAdam & Saul, 2010, p. 9).

However, surveys among affected people after the cyclone Aila in 2008 show that migration was not seen as an adaptive strategy as no increase in resilience was felt (Kartiki 2011). Kartiki argues that in cases of extreme events, migration cannot be seen as an adaptation strategy as migration may not improve household's resilience, especially not if relocation results in lower income and/or conflicts (2011, p. 34).

Thus, Kartiki argues that migration cannot be seen as an adaptation strategy in the case of *extreme* events. The difference between strategies for different impacts is showcased by Findley and Geddes (2011). The writers explain migration after floods in Bangladesh as part of life, resulting in acute short-term displacement. When long-term migration due to environmental changes does occur, this can better be explained by poverty and underdevelopment, forcing people to leave their homes due to food insecurity, or as a long-term adaptation strategy by households or entire communities (Findley & Geddes, 2011, pp. 148, 155). Hence, migration as an adaptation strategy is not common as a response to floods, as also Kartiki's results suggest, and it could arguably be assumed to be the same for other sudden, extreme events. However if migration is planned to address *future* floods, it could arguably be seen as a way of adapting to climate change impacts.

Regarding the link between adaptation and migration, two strategies can be seen. One is to promote migration as an adaptation strategy, as McAdam and Saul and Walsham above argue. Another is to limit the need for migration by taking adaptation actions in vulnerable locations, thus increasing the population's resilience. Deciding between the two options is, however, not uncomplicated.

Hassani-Mahmooeia and Parris (2012) show that well-funded information is needed to take appropriate policy responses as the government might have to choose between increasing resilience in vulnerable areas, but risk making people stay in hazardous areas. On the other hand, using migration from hazardous areas as an adaptation strategy

increases the risk of putting migrating areas under high pressure (Hassani-Mahmooeia & Parris, 2012, p. 15). The results from the Foresight report (2011) show that the risk of promoting migration is increased pressure on other areas, and problems related to that, while the risk of undertaking local adaptation is to force people to stay in areas where they should not stay, trapping them there as the opportunities from migrating are slim. A concrete example from the Foresight project is the establishment of cyclone shelters. While shelters can reduce risks in Bangladesh today, providing shelters risks keeping people in vulnerable places, and shelters thus have to be robust enough to face not only current challenges, but also future challenges (Foresight, 2011, p. 54).

However, Penning-Rowsell, Sultana and Thomson (2012) find that a combination of approaches such as improving embankments, protecting mangroves and providing training to increase skills, is to be preferred. They argue that increasing people's resilience through local adaptation at the same time facilitate moving away if needed, as people would be more capable of doing so through decreased vulnerability (2012 , p. 13).

4. Theory meets reality in Bangladesh

In this chapter, theory meets reality when perspectives on CCIM are used to explain and elaborate the findings from the literature covering evidence from Bangladesh.

As an analytical tool, Felli's (2012) model, presented in section 2.6 was used. The model covers the two contesting perspectives, the climate refugee perspective and the climate migrant perspective. The material from Bangladesh was first summarised (see annex 3 to the current work) and then sorted into a table modified from Felli's original model (see annex 4 to the current work).

The aim of the analysis presented below is to reveal similarities and differences of the perspectives, as well as to showcase how the perspectives would explain and address different impacts and evidences of CCIM. The aim is not to try to point out which of the perspectives that is 'right', but rather to point out what implications it would bring to follow one perspective or the other.

4.1 Different types of climate change induced migration in the case of Bangladesh

The two perspectives view CCIM in contesting ways. The climate refugee perspective sees climate migrants as the proof of the failure of climate change policies, and the focus of actions undertaken should be on mitigation and reparation of losses. Contrary, the climate migrant perspective sees climate migration as an adaptation strategy, thus focusing on adaptation policies within climate change politics.

Generally it can be said that literature regarding CCIM in Bangladesh has identified all types of migration, but most dominantly different kinds of internal migration, especially circular, temporal and rural to urban. However, also cases of non-migration were pointed out as well as some indications of international migration. The lack of material regarding international migration was partly explained by the lack of data.

Most literature seems to rather fall within the climate migrant perspective as it was pointed out that migration in Bangladesh is already a coping-strategy to deal with the fact that the agricultural sector does not provide year-round work and many families therefore send one or several family members to urban areas to compensate for the lack of income from agriculture during parts of the year. This was also found to be a coping-strategy to address especially sudden-onset events. Furthermore, the possibility to plan migration as a response to slow-onset events was pointed out. Thus, two key points from the climate migrant perspective - that migration is part of human history and that it can be managed, were evident in the literature. This was especially clear regarding international migration, where the importance of cultural bonds and historical pathways, especially to India, as

well the picture of Bangladesh as a country which has long been known as a labour sending country, were presented as explanatory factors. Migration in this regard was described as a livelihood strategy.

A factor that more likely would be put forward by the climate refugee perspective is the nature of sudden onset events. Though evidence suggests that such migration in general does not result in long-term resettlement, such 'migration' would rather be termed 'displacement' and the action forced. Furthermore, the result is built on contemporary data, future climate change impacts are difficult to predict. Thus, if the intensity and frequency of sudden events would increase dramatically, it could arguably not be excluded that forced displacement from such events would be more long-term or long-distance than today. Also, regarding international migration, areas most vulnerable to climate change are located close to the borders of India, thus an increase in future cross-border migration cannot be excluded. Moreover, destination areas in Bangladesh are already suffering under degradation and with a further increase in immigration continued migration abroad seems likely. However, it should be noted that the review of materials collected from Bangladesh only to some extent predicts increases of negative effects from sudden-onset events. Furthermore, migration due to sudden events could be seen as an adaptation strategy, if migration is undertaken as a strategy to handle future risks.

Some findings from Bangladesh regarding the nature of migration are hard to explain using the perspectives. There seems to be a relatively high degree of uncertainty in the material, which makes it hard to choose the most appropriate strategy to address the issue, regardless of which perspective one stands behind. For example it was shown that different changes in the environment give different migration responses. Though the complexity of the link between climate change and migration is strongly emphasised within the climate migrant perspective, this emphasis gives no guidance when it comes to policy responses which may have to be taken, other than that more research would be needed. A concrete example is the link identified between adaptation actions and migration. Here it was shown that choosing between local adaptation and migration as an adaptation strategy is not uncomplicated. Both responses have pros and cons. Taking local adaptation actions could increase a population's resilience to such an extent that migration is no longer needed. However, local adaptation could also take away resources from the other option, to promote migration as an adaptation strategy, thus trapping populations in areas where they should not stay. If that happens, actions undertaken could instead be seen as the failure of adaptation.

4.2 Causes and underlying mechanisms of climate change induced migration in the case of Bangladesh

Regarding the view on causes and underlying factors explaining CCIM, one of the main differences between the perspectives is that while the refugee perspective sees the cause as climate change, the migrant perspective, stresses the importance of looking at resilience/vulnerability among affected populations for understanding what drives CCIM. Indeed, many factors making Bangladesh especially vulnerable to climate change were pointed out in the literature, for example the country's geographical position, lack of

adaptation measures and disaster preparedness in combination with high population density. Also, many underlying factors causing vulnerability and likely to increase by climate change were pointed out, such as poverty, underdevelopment, lack of land and poor housing. This could thus be seen as if many aspects of the nature of migration in Bangladesh are captured by the climate migrant perspective. Paradoxically, vulnerability as the cause of migration could only explain *forced* migration and not migration as an adaptation strategy. If migration would only be seen as an adaptation strategy, then vulnerability could not be an explanatory factor, as migration as an adaptation strategy sees migration as the best of available options, not a forced action. If sufficient adaptation actions are taken, there would be no climate refugees, only people who choose to live in other areas, as a strategic choice. This reasoning is however to take the perspectives to their extremes. It should be noted that Felli's model describes ideal types of the perspectives. When e.g. looking at the policy proposals presented in section 2.5 in this work, a more nuanced image is found. For example, Biermann and Boas proclaim, in line with the climate refugee perspective, protection of climate refugees under an international treaty. However, they also propose a holistic view of adaptation actions, including planned relocation programmes, as long as these do not jeopardise the protection of affected populations (Biermann & Boas, 2010, pp. 77-82), a view that can be associated with the climate migrant perspective. Similarly, Brown, who in line with the climate migrant perspective stresses the need for seeing migration as part of a holistic adaptation strategy, also stresses the need for international recognition of the issue (2007, p. 29), a statement that captures one of the key features from the climate refugee perspective – to address CCIM on an international level.

Nevertheless, the different perspectives have different views on vulnerability. How does the climate refugee perspective explain Bangladesh's vulnerability? The logical answer seems to be that it explains vulnerability as a cause of climate change impacts. Thus, in this view, vulnerability as a consequence of climate change is separated from non-climate change caused vulnerability. Though the difference might not be very different to the people concerned, policy-wise there is a big difference as climate change caused effects are the result of industrialisation and should therefore be compensated by the actors causing climate change. This issue will be further elaborated in section 4.4 below.

Regarding the decision to stay or to leave, the literature provides several explanatory factors. Generally, these factors are difficult to categorise as the failure of adaptation or migration as an adaptation strategy for two reasons. First of all, empirical evidence is contesting. Some works cited indicate for example that emergency aid did exist and that this in turn led to a possibility for affected populations to stay or only temporarily relocate. Other studies found the opposite result. Secondly, most factors can be seen as both. For example, the possibility to take micro-loans could be described as a proof for successful adaptation to climate change hazards, while the non-existence of such loans would be seen as the failure, or non-existence, of adaptation.

Also, evidence indicates that most long-distance migrants are well-off and well-educated people. This latter point however, from my understanding, could also fall within the climate refugee perspective as this could suggest that people with few assets would not be able to strategically *migrate* but would rather be displaced as a consequence of environmental changes and hazards resulting in loss of livelihoods and resources. On the

other hand, evidence from Bangladesh points to how the lack of resources instead makes people less likely to relocate at all, as they have no resources to finance a move to safer ground. In other words: Forced *non*-migration, a phenomenon that the climate refugee perspective does not take into account. However, trapped populations, arguably rather show the failure of mitigation and adaptation, than migration as an adaptation strategy. From the climate migrant perspective it is argued that adaptation actions could lessen vulnerability, but whether or not this is doable does the evidence from the literature review not provide an answer to.

Other vulnerabilities also difficult to separate are those leading to migration such as unemployment, destruction of settlements and landlessness. While migration caused by these vulnerabilities could be seen as an adaptation strategy; a way to improve one's situation, it could also be described as the failure, or non-existence, of mitigation and adaptation measures.

Many direct impacts from climate change were also described in the literature. These include for example sea-level rise, disruptions in regular precipitation patterns and increased temperatures. However, the literature also quite clearly points out the difficulty of separating climate change impacts and 'normal' changes – changes that would have occurred also without the impact from anthropogenic climate change. Also, many impacts from climate change are since long already part of living in Bangladesh and several writers argue that populations have already learned how to cope with these impacts.

When trying to foresee the future, one can today never be sure which path is right to follow. It instead comes down to the view of science and ultimately, to politics. This was especially clear in the case of coastal erosion, where empirical evidence cannot tell whether or not this phenomenon will have increasingly negative or positive impacts due to climate change.

4.3 Consequences of climate change induced migration in the case of Bangladesh

From the literature review, some empirical evidences that the climate migrant perspective would put forward as a consequence of CCIM were found, for example transfer of money and other resources such as technology and knowledge. Other examples are less clear, but show the importance of context when discussing CCIM, in line with the focus of the perspective. For example, regarding conflicts and climate migration it was stated that the importance of conflicts as a consequence of migration depend on the context of the receiving area, but also on the development of internal political movements.

One specific finding more in line with the view of the climate refugee perspective is the trend of an increased securitisation of the Indian borders to protect from inflows of immigrants. Such a trend better fits to the storyline 'barbarian invasion', than to 'humanity on the move', as the purpose is to keep people out, rather than to promote migration as a lucrative process.

The literature regarding consequences associated with CCIM reviewed in this work mainly displays migration as a *failed* adaptation strategy. One example is the indication

that rural to urban migration results in social and economic stress, leads to urban poverty, resource conflicts and a non-sustainable development of urban areas. Even if migration is undertaken with the aim of being an adaptation strategy it can lead to increased vulnerabilities through for example having to take loans or sell all assets to be able to migrate, or in the case of rural to urban migration, risks associated with living in slums as a result of lack of housing. Increased vulnerability could force migrants to relocate again – a trend that could arguably be described as the failure of migration as an adaptation strategy.

This however, based on the material analysed, only suggest that seeing migration as the failure of adaptation is the best description of the phenomenon *today*. The literature review does not provide many examples of actions actually being put in place to increase the resilience of people relocating to urban areas; instead many proposals of undertaking such and other adaptation actions were suggested as a way of *addressing* climate change impacts.

When it comes to consequences of CCIM, the perspectives are overlapping. Both perspectives argue that CCIM could lead to severe, negative consequences such as conflicts and environmental degradation. The difference is that the climate migrant perspective claims that these effects are possible to avoid. If migration is properly managed, CCIM could even bring positive effects. The climate refugee perspective on the other hand focuses on the need to avoid CCIM by undertaking strong mitigation actions. As the literature overall did not provide much specific empirical evidence on existing efforts to manage CCIM in Bangladesh, merely the need to do so, adaptation actions cannot yet be evaluated, using this material, and it cannot be claimed that negative consequences of climate change impacts could not be avoided through climate management. Future experiences will show if the adverse effects of climate change on migration are possible to 'adapt away', or not.

4.4 Addressing climate change induced migration in the case of Bangladesh

When it comes to policy responses to CCIM, the climate refugee perspective focuses on mitigation and reparation actions while the climate migrant perspective focuses on capacity and resilience building. The perspectives focus on different types of regulation on different levels. The climate refugee perspective focuses on a state level and on international security and law, proposing a new international regime or treaty, while the climate migrant perspective focuses on the local and individual level, using a human security and human rights approach and instead promotes soft laws, policy diffusion and internalisation of CCIM in domestic policies.

Bearing in mind that empirical evidence from Bangladesh does not present many concrete examples of adaptation actions addressing CCIM, not surprisingly most of the strategies proposed to address negative impacts include adaptation actions. Examples given are suggestions that bigger cities will have to adapt to increasing inflows of people from rural areas, an increased cooperation between levels of decision-making to design suitable

adaptation plans as well as mainstreaming planned migration not only as an adaptation strategy but also as a way of addressing human insecurity. Furthermore, several writers were found to promote the idea of migration as part of a holistic approach, comprising for example migration as a planned, long-term strategy to avoid future risks. Also, many examples on how to increase capacity and resilience were given. Examples include micro-loans, community networks and the direction of migration to areas where workforce is needed. All these suggestions are in line with the climate migrant approach of focusing on adaptation policy instead of mitigation and to manage migration in an efficient way as in planning migration to areas where labour-power is needed.

These proposals also hold several similarities with some of the policy proposals presented in chapter two. For example, Warner (2010), the IOM (2009) as well as Brown (2008) all promote the importance of strengthening adaptation to climate change as a way to address CCIM, including migration management. Another similar approach between these three specific proposals is to mainstream climate change policies with e.g. development policies as well as to increase cooperation and communication between levels. In the case of Bangladesh, mainstreaming actions to address CCIM with other actions could mean a more efficient use of resources, for example regarding emergency aid. Following Warner's proposition regarding a platform to exchange good practices and lessons learned, more efficient use of adaptation actions and how to adapt actions after context could be a way forward. Moreover, as Bangladesh is often pictured as one of the states that will be most affected by climate change impact, other regions could arguably learn from the experience of Bangladesh.

I argue that the main gap found in policy proposals from the climate migrant perspective is that though many concrete examples were given, how these actions would be put in place was left unanswered, taking the degree of poverty in Bangladesh into account. While the climate refugee perspective argues that funding from developed countries will be needed and should be provided, the climate migrant perspective is more unclear in that regard. One possible answer in line with the climate migrant perspective is increased cost-effectiveness. If e.g. migration is undertaken in a planned way, both sending and receiving areas could benefit from this. I am however left wondering to what extent it is likely that such planned migration strategy will be possible, especially in the world of today where borders are not opened and people not free to move as they wish. I am also left wondering if such a strategy is morally sound. Seeing the world as an open area of demands and resources does allow for an efficient use of resources. Here, however, the resources are human beings and though some probably would be happy to move away from hazardous areas to other areas where labour-demands are high, I find it unlikely that this will always be the case. As the literature review showed, most people have strong connections to their land and often chose to return after natural disasters. I find it especially unlikely to be positively received among affected populations if this would mean to constantly be 'on the move', as the climate migrant storyline suggests, and to relocate time after another depending on the demand of workforce.

The only proposal found that could also be linked to the climate refugee perspective is the need to collaborate with neighbouring countries to encourage migration and to lessen tension, as the climate refugee perspective argues that problems associated with CCIM should be addressed on a state/international level through an increased taking-in of

climate refugees from other countries. On the other hand, in this proposition migration is planned and could thereby also be described as an adaptation strategy. Since the materials used covering CCIM were mainly recent, the lack of suggestions of mitigation or reparation actions could also be explained by the recently growing focus on adaptation to climate change.

Comparing the case of CCIM in Bangladesh with some of the general proposals presented in chapter two some similarities can be drawn to the climate refugee perspective. Examples include Biermann and Boas (2010) as well as Docherty and Giannini (2009) proposals and to some extent also Williams (2008) proposal on regional cooperation. Applying these on the case of Bangladesh would mean that CCIM in Bangladesh would be recognised by the international community. Moreover, funding for adaptation actions would be provided by the international community. Also, depending on which suggestion to follow, more or less of the affected Bangladeshis would also be entitled to protection under international law or under regional frameworks. However, in the case of trapped populations the proposed solutions do not provide protection. Moreover, in the case of IDPs, the proposals apply contesting approaches. Following Biermann and Boas (2010, p. 67) proposition, IDPs would be included. Following Docherty and Giannini (2009, p. 350), they would not. In the case of Bangladesh the literature review suggests that whether IDPs are included or not would make a big difference, as most migration is thought to be internal. Another gap that I see in these specific policy recommendations has to do with the implementation of the proposals. For example Biermann and Boas write that climate refugees would be able to resettle to host-states willing to take them in (2010, p. 75). I am however left wondering what would happen if states are not willing to take these people in. Furthermore, taking into account the resistance of states in the international climate change negotiations under the UNFCCC, is it reasonable to think that states would agree on a topic as contested as migration is in general? To answer this question Williams' suggestion seems to lie somewhere in between the climate refugee and the climate migrant perspectives, as Williams does argue that international cooperation seems unlikely at this stage, but could perhaps be realistic if cooperation starts on a regional level (2008, p. 522).

4.5 Summing up: Climate change induced migration and the case of Bangladesh

One of the most striking result from the analysis of CCIM in Bangladesh is that even though many authors promote migration as an adaptation strategy and the possible solutions to a range of problems from changes in the environment to exploitations of new-comers to the slum from adaptation, the state of today seems to be rather pointing at the failure of climate change adaptation policies, than as a successful adaptation strategy. Following this result the question that needs to be answered to decide what actions to put in place is whether or not this finding is the result of the failure of adaptation, or the non-existence of adaptation actions. In a simple way it could be argued that if adaptation has failed and adaptation anyway will not be sufficient to address the adverse effects of climate change, then the remaining policy response would be to take very strong

mitigation actions to try to limit the damage as much as possible. If adaptation actions instead have not been employed, then such actions would have to be put in place to be able to evaluate their effectiveness. As long as adaptation actions are not undertaken, it is not possible to decide to what extent such actions would be able to address problems associated with CCIM. The review of empirical evidence from Bangladesh suggests that adaptation actions have not, to a large extent, been undertaken. This conclusion is based on the fact that most authors writing within the field promote adaptation as a policy response. If adaptation actions were already put in place and proved non-effective, then such proposals would seem unnecessary.

Could it in fact be that the main difference between the two perspectives is that while the climate migrant perspective promotes adaptation actions, the climate refugee perspective does not believe in the success of such actions? Indeed, the climate migrant perspective does come out as more positive in the sense that it points out benefits from migration, while the climate refugee perspective rather focus on negative aspects such as conflicts.

In a way the perspectives do not stand so far from each other as one might first think. They do recognise and address the same issue. They differ in their focus and the aspects of the issue that they stress. I have argued that one of the main gaps when applying a climate migrant perspective is the lack of how resources would be given to undertake the actions proposed. The climate refugee perspective addresses this gap by proclaiming the need for international protection, compensation and funding. I have further argued that the main gap when applying a climate refugee perspective is what could perhaps be described as a lack of recognition of what is achievable in the world of today, as well as the non-consistency in addressing internal displacement. These gaps are addressed by the climate migrant perspective by focusing on the complexity of CCIM, including the many types of migration and the many depending causes and effects, as well as promoting soft laws and a holistic strategy. This is an approach that I see more likely to be well-received within international climate negotiations, taking the reluctance to commit to binding international climate treaties into consideration. Would it then not be possible to merge these perspectives together, as they address each other's gaps? I believe that such a conclusion would be convenient but not achievable. The climate refugee perspective stresses the need for funding and compensation, but it is unclear who would be entitled to these resources. By establishing a workable definition; a definition with clear boundaries, the holistic approach of the climate migrant perspective is lost. Some people will be included, but others excluded. Vice versa, by promoting a holistic approach and soft laws, the strength of commitment by the international community that the climate refugee perspective promotes would be lost and resources difficult to claim as no actors are obliged to take responsibility.

Another convenient solution for addressing CCIM would be to find a middle-way: To take both mitigation and adaptation actions, just in case. In the best of worlds this would be possible. However, and as the literature review covering research on the case of Bangladesh shows, resources are limited and to be able to decide which action that is the most cost-effective cannot be underestimated.

5. Conclusions

This chapter starts with a brief summary of the findings presented in the current work. Next, a discussion on how a way forward regarding CCIM could be pictured will be given, including some thoughts regarding future research.

5.1 Summary

Perspectives on CCIM and main debates were presented in chapter two. From the literature review at least four perspectives were found: The maximalist/alarmist, the minimalist/sceptical, the climate migrant perspective and the climate refugee perspective. It should however be noted that, due to the disagreement over definitions and the on-going debate within the field, other perspectives could be identified.

Main debates:

- The role of climate change adaptation in the field of CCIM: Should migration due to climate change be seen as an adaptation strategy or as the failure of mitigation and adaptation actions?
- Definitions: Should people undertaking CCIM be called migrants, refugees or displaced people? Are they forced to relocate or are they voluntarily migrating?
- Type of CCIM: Is CCIM likely to follow historical patterns and remain internal, or will the impacts lead to international mass-migration?
- Causes: Is climate change a main driver of migration or can underlying factors such as underdevelopment better explain the existence of CCIM?
- Addressing CCIM: Should climate change motivated migrants be protected under the existing refugee regime, a new international treaty or rather through soft laws and adaptation actions?

In chapter four, the two contesting perspectives, the climate migrant and the climate refugee perspectives were elaborated on empirical findings from Bangladesh. Regarding policy recommendations the climate refugee perspective proclaims the recognition of climate refugee by the international community, including protection under an international regime. The perspective also stresses the importance of reparation of and compensation for losses due to CCIM. Addressing CCIM needs resources, both institutions as well as human resources as in e.g. experts as well as finances from e.g. an international fund provided by the developed world.

The climate migrant perspective instead sees migration as part of a holistic adaptation strategy, including soft laws and a bottom-up perspective. In this vein, collaboration is needed to increase cost-effectiveness and efficiency, through e.g. planning of migration to areas where workforce is needed.

Regarding similarities and differences between the policy recommendations, the main point, I argue, comes down to the view on adaptation. Both perspectives do stress the importance of adaptation actions, the difference lies in the extent to where one believes that adaptation actions can take us. The climate migrant perspective seems to see adaptation, in the sense of capacity building, as key. This can thereby take the form as both local adaptation and migration as adaptation. The climate migrant perspective does not see migration as an adaptation strategy and not only adaptation actions to decrease vulnerability need to be undertaken, also reparation and compensation to the affected populations should be provided.

Main gaps in the climate migrant perspective's policy recommendations include how adaptation actions would be financed and whether it is possible and morally sound to fully apply migration as an adaptation strategy to address CCIM.

Main gaps in the climate refugee perspective's policy recommendations include the lack of consideration of the political will for an international treaty to protect climate refugees and how to address the issues of trapped populations and IDPs.

5.2 The way forward

To conclude this work it would be easy to say that the question is complex and in need of further investigation. Though this, I believe, is true I also think that, considering the complex nature of the issue that the literature review revealed, a fair and objective definition of climate refugees/migrants/displaced people, is impossible to make and further research will therefore *always* be needed. For example, determining the extent of CCIM depends on the efforts made in the fields of climate change mitigation and adaptation. Thus, the number of expected climate migrants, if even possible to predict, will constantly fluctuate. Furthermore, as future predictions build on models, an exact answer will never be given. Models gives a simplistic picture of a world in miniature, a model will never be able to incorporate the entire world and every dependent and interdependent variable. One can come close to reality, but a model will never be the reality. Moreover, modelling the world also depends on how we see the world. Following some thoughts from discourse theory, the world we see around us differs depending on the lenses we wear. Discourses shape the society and determine available policy-options. Possible policy-actions might not even be recognised as options, simply because they fall outside of the picture of the society we can imagine, and our understanding.

Bearing this in mind, another point that I would like to stress is the perhaps obvious, but seemingly often forgotten, fact that if asking different questions to different types of materials and empirical findings, one is consequently likely to get different answers. By saying this I would like to argue that the climate change and migration debate might not be as divided as thought of at first glance. For example, the maximalist/alarmist perspective tries to provide an answer to what might happen in the future, using different models and predictions. The minimalist/sceptical perspective on the other hand instead looks at what has already happened, using another set of empirical data that tries to describe and understand the links. However, they both, more or less explicitly, argue that taking adaptive measures will reduce the risks associated with CCIM.

It is also quite clear from the literature review that migration can even be put forward as a good strategy for adapting to a changing climate, but not always. Losses and damages due to climate change are unavoidable, simply because climate change is already part of the everyday life of many people and actions have so far not been adequate.

Furthermore, it would be ignorant not to also include the emotional stress that migration brings. Even though moving to another city, region or country can provide good opportunities for everyone involved, the migrant as well as the receiving area, this is not always the case. Failed immigration policies can be found in many different places all around the world, as well as racism and xenophobia. Where immigrants do not have the same opportunities and are treated in a negative way. Though I believe that much can be achieved from bringing forward the positive sides of human mobility, the costs for the people involved should not be ignored and needs to be firmly addressed. Though it might be politically attractive to support migration as a planned adaptation strategy, as the strategy is illustrated as a win-win situation for sending as well as receiving areas, the political gain will not be as high if the illustration is an illusion. To get a realistic picture of the implications of the strategy I would like to propose some questions for further research. Questions that I would suggest to focus on include: What happens after migration? Does relocation decrease vulnerability? If not, what could be done and what resources would be needed to decrease negative effects? More generally this work found many proposals for adaptation actions but little evaluation on their effectiveness. Therefore I would also propose further research regarding the effectiveness of adaptation actions in the context of CCIM, including local adaptation as well as migration as an adaptation strategy.

Even though one finding from this study is that the debate regarding CCIM seems to follow the more general climate change debate in that it today puts more emphasis on adaptation actions, than before, this turn is not consistent everywhere. For example the maximalist/alarmist view was very much present even at the most recent COP, as previously described. How come, despite so much criticism, the alarmist view of CCIM still remains and is still cited? One thought is that it is simply because the narrative is still a useful tool for shaping the public opinion. Going back to the brief description of discourse theory presented in section 1.2.1, discourses can be described as shaping our society and the importance of a certain discourse as the extent to which it impacts the space of available policy options. From my understanding this means that if a discourse is successful, as in shaping the society, successful discourses also tell us something about which policy recommendations that are likely to be implemented. In this case this would mean that if the alarmist/maximalist view is still successfully shaping our society, the space of available policy recommendations would likely include different kinds of boarder protections to protect from international mass-migration. A further elaboration on the strength of different discourses is outside the scope of this thesis. However, with this thought I would like to bring forward two points. First I would like to stress the importance of further research on perspectives and discourses of CCIM, and to highlight the value in extending analyses to include more views, including the alarmist/maximalist perspective despite its argued disappearance within the academics. What I believe the debate of different perspectives has and will contribute to, is to point out different aspects and to showcase how complex the link between climate change and migration is. By

doing so, international politics have a better overview and could build in some kind of flexibility to the process, allowing for revising the decision with new findings, according to the state of climate change mitigation and adaptation measures undertaken. In this vein the importance of continuing the debate on CCIM within academia cannot be understated, as it looks like the world sooner rather than later will have to decide upon a workable definition. As already cited, the COP, for instance, decided during its last meeting that by the end of the year 2013 a decision regarding loss and damage and an international mechanism regulating this issue, will be taken.

Second, I would like to highlight the importance in adapting contemporary policy proposals to the current state of affairs.

One important point that I do find that the climate migrant perspective implicitly brings out by arguing that CCIM should be dealt with on a national or local level is how far international negotiations can take us and what agreements are realistic to expect. Taking into consideration that climate negotiations in general are not easy and straight forward and the difficulties of agreeing on even the most basic issues, addressing CCIM is not for the faint hearted. Observing the international climate change negotiations closely, from the UNFCCC secretariat as well as from COP 18, made me realise that this is not a question about finding the best way forward – it is a question about acting now and to act in a way that is possible today, not in the future. Migration in the context of climate change is not just a question of protection of affected and vulnerable populations. It is a question about resources and about power. Though I strongly believe that it is unfair that the ones having very little to do with causing the problem have to pay the price, it is important to be realistic when suggesting new policies and to take into account existing power-structures. Rather than suggesting how we should do in the best of worlds, we should focus on actions that are actually possible. People suffering under the effects of climate change do not benefit from illusionary visions. A first step would indeed be to recognise the issue at all and to provide resources to build resilience. Though this, I find, is unlikely to be enough, it is a start. If a process has started it is more likely to continue. In this vein, maybe one way is to also see that some things are actually already being done, through e.g. development aid. This way, actions get credit for the benefits they bring and could hopefully motivate further actions.

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Annex 1. Chapter 3: Literature

Literature to chapter 3: Result from title words searches in Google and Google Scholar

Limitation 1: Words in titles included: Bangladesh, migration and climate *or* environment

Limitation 2: Time of publication: 20080101-20121212

Limitation 3: Only lieterature published in research journals, books and reports were included. Hence, videos and articles in other media such as blogs and newspapers were excluded.

- Kartiki, K., 2011. Climate change and migration: a case study from rural Bangladesh. *Gender & Development,* 19(1), pp. 23-38.
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  Comment: This material was included in the literature review, but not cited.
- Walsham, M., 2010. *Assessing the Evidence: Environment, Climate Change and Migration in Bangladesh,* Dhaka: International Organization for Migration Regional Office for South Asia.
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  Comment: This material was included in the literature review, but not cited.

Additional literature to chapter 3: Key words search in LUB search

Limitation 1: Keywords (anywhere in the text) included: Bangladesh, migration and climate change

Limitation 2: Time of publication: 20080101-20121212

- Black, R., Kniveton, D. & Schmidt-Verkerk, K., 2011b. Migration and Climate Change: Towards and Integrated Assessment of Sensitivity. *Environment and Planning,* 43(2), pp. 431-450.
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Comment: This article was excluded from the review as it addresses migration of fishes, not human mobility.

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  Comment: This article was excluded from the review as it includes no references to the statements made. Furthermore it only briefly mentions climate change.
- Faris, S., 2009. The Last Straw. *Foreign Policy,* Jul/Aug(173), pp. 92-93.
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Annex 2. Felli's original model

This annex includes the original separation of the climate migrant and the climate refugee perspectives, as in the article published in 2012. The difference towards the table displayed in section 2.6 is the order of the rows to better fit the order of the chapters in the current work.

Table Annex 2: Felli's original model

Two competing discourses		
	Climate refugees	**Climate migrants**
Climate policy	Mitigation	Adaptation
View of migration	Failure	Adaptation strategy
Nature of migration	Forced	Voluntary/distinction not useful/continuum/'grey zone' Environmental migration is part of human history Manageable/to be managed
Responsibility	Climate change, produced by Northern countries	Vulnerability (individualization of the responsibility or displacement on the 'victims' or its territory)
Consequences of responsibility assignation	Climate change mitigation Reparation (funding for adaptation to climate change, taking-in of climate refugees…)	'Capacity' building of vulnerable countries Building 'Resilience' of vulnerable population
Consequences of migration	Environmental degradation in the receiving territory	If properly managed: new resources, remittances, knowledge transfer If left unmanaged: disruptions, degradation, violence
Institutional level	States International security International law	Individuals/communities Human security Human rights
Form of the law	New international convention or treaty	Soft laws, internalization in domestic policies, policies diffusion
Storylines	'Sinking islands', 'barbarian invasion'	'Humanity on the move'
Uses of 'climate refugees/migrants'	To underline the human consequences of climate change To underline the responsibilities of Northern countries	Replacement of mitigation policy by adaptation policy Promoting the 'migration management' and the institutional reform agenda As a source of labour-power in the North

Source: Felli 2012, p. 9

Annex 3. Summary of Chapter 3: Climate Change, Migration and Bangladesh

This annex covers a summary of the findings from the literature presented in Chapter 3. The summary below was categorised into Felli's (2012) model (see Annex 5 below) and used as the baseline for the analysis presented in chapter 4 above.

3. 1 Climate change impacts affecting migration patterns in Bangladesh

- Different changes → different responses
    - Sudden onset events: short-term and short-distance
    - Slow onset events: long-term and long-distance (can be planned!)
    - Long distance migration → long-term/permanent resettlement
- Higher temperatures - Regional variability→negative impacts on agriculture
- Changes in precipitation - Regional variability →negative impacts on agriculture
- Decertification/drought
- Cyclones: will increase, already part of living, leads to sudden and temporal displacement, disaster risk reduction can be effective
- Salt-water intrusion is already a threat but likely to increase and the impacts on livelihoods can be severe
- Floods: will increase, already part of living, people try to resettle on new land from sedimentation
- Coastal erosion: on-going process. Sudden or slow process. Hard to predict
- Increase in monsoons → increase in riverbank erosion. Hard to predict and already part of living
- Sea-level rise → increase in floods, salt-water intrusion and worsen the gravity of storms. Slow-process – adaptation possible
- Difficult to separate climate change impacts from 'natural' changes
- The kind of migration that climate impacts bring, as well as to what extent migration is voluntary, is hard to say

3.2 How climate change impacts migration patterns within and from Bangladesh

- Internal
    - Most CCIM is and is likely to remain internal
    - Increased urbanization
    - Local migration
        - Evacuation
        - Already common coping-strategy

    - Circular/short-term migration
        - to find alternative livelihoods
- International
    - There exist already several international migration pathways from Bangladesh, especially to India.
        - Cultural bonds
        - Social networks
        - Better income
    - The lack of data makes it hard to estimate the number, thus international migration could be bigger than anticipated.
    - Area's most prone to experience climate change related hazards are situated close to the Indian border
    - Destination areas for CCIM within Bangladesh are already vulnerable → international migration
    - Bangladesh has long been known as a labour sending country.
    - Transfer of money (remittances), knowledge and technology are important benefits from international migration
    - Most people migrating are likely to come from the wealthier part of the population and international migration will manifest as a pragmatic *livelihood strategy*

3.3 How vulnerabilities related to climate change impacts in Bangladesh affect climate change induced migration

- Geographical position and nature
- High population density
- Dependence on natural resources for livelihoods
- Lack of adaptation measures/disaster preparedness

3.3.1 How human and societal vulnerabilities affect climate change induced migration

- Underlying factors such as socio-economic instability and poverty already makes the population vulnerable to environmental hazards and climate change is likely to increase vulnerability
    - Poverty → no resources to relocate
        - Typically only well-off people and/or people with social networks undertake international migration
    - Unemployment
    - Destruction of settlements
    - Destruction of livelihoods
    - Landlessness
    - Gender
    - Lack of information about the option of migrating

3.3.2 Vulnerability as a result of climate change induced migration

- Risks associated with urban living, especially in slums
- Bad living conditions in evacuation areas/fear of outbreaks of diseases in evacuation areas (included in section 3.3.3, author's comment)
- Poor educational options for children in evacuation areas (included in section 3.3.3, author's comment)
- Landlessness
- High debt levels
- High dependency on external aid

3.3.3 Reducing vulnerability in the context of climate change induced migration

- Existence of emergency aid
- Possibility to take micro loans
- Community networks
- Better pay and more jobs elsewhere
- Sending remittances

3.4 Implications of climate change induced migration in Bangladesh

3.4.1 Human security implications and conflicts

- Religious insecurity
- Terrorism and radicalization within the country
- Conflicts over resources, especially in relation to rural-urban migration and thereby growing slums where little resources are available.
  - Increased challenges for orderly development of cities, urban land use and urban economy → urban poverty, food insecurity and health problems. Risk of being exploited, including trafficking and harassments
- Conflicts are especially likely in cases of sudden events resulting in mass-migration
- However, slow-onset events could result in more people displaced and thus environmental stress in the receiving areas.
- The boarders of India have been increasingly securitized, to protect from immigrants
- Ethnic conflicts and religious terrorism
- "Anti-Indianism" on the Bangladeshi political scene increases the likelihood of ethnic conflicts between Bangladeshi immigrants and Indians. Thus, future security issues related to CCIM into India will also depend on the development of national politics within Bangladesh.
- The degree to which migration result in security issues dependent on the context of the area to which region migration takes place as well as the scale and nature of migration (sudden or gradual)

3.4.2 Adaptation and coping-strategies

- Conflicts can be avoided if actions are taken to ease the migration, such as:
    - stronger focus on human security/dignity
    - develop strategies for out-migration in collaboration with Bangladesh's neighbouring countries to encourage migration that would also be economically favourable is a way to lessen the tension
    - Planned migration can be a way to address insecurity
    - Preparing urban areas for increased immigration
    - Recognition of problems related to urbanization in different levels of decision-making and collaboration between levels
- Migration should be part of a holistic approach to climate change adaptation
- Migration is already a coping-strategy to handle environmental impacts
- Evidence of migration as an adaptation strategy are somewhat contesting and depends on e.g. resources in the receiving area as well as the impact in question. Migration as a response to disasters is not common, however if migration occurs as a way of addressing future risks, it could be seen as adaptation to climate change impacts
- Two links between adaptation and migration, both with pros and cons:
    - As an adaptation strategy: Risking security implications
    - Adaptation to take away the need of relocation: Risking trapping populations

Annex 4: Categorisation of the findings from the literature review

This annex comprises the categorisation into Felli's (2012) model of the findings from the literature review covering climate change impacts on migration in the case of Bangladesh, presented in chapter 3, using the summary presented in annex 3 above.

Some factors are duplicated to either show the difficulty of categorising the factor, or to display that some factors fit under several key points. For example the factor 'emergency aid' can be explained as a 'Consequences of responsibility assignation', while the lack of emergency aid can be described as a cause of CCIM.

Key points for the perspectives	**Perspective**	
	Climate refugees – climate change induced movement as the failure of mitigation and adaptation measures	***Climate migrants – climate change induced movement as a strategy for adaptation***
Definition	**Refugee**	**Migrant**
View of migration	**Failure**	**Adaptation strategy**
Nature of migration (4.1)	**Forced**	**Voluntary/distinction not useful/grey zone** **Environmental migration is part of human history** **Manageable/to be managed**
Different changes different responses: - Long distance migration long-term/permanent resettlement; The kind of migration that climate impacts bring, as well as to what extent migration is voluntary, is hard to say Two links between adaptation and migration, both with pros and cons: - As an adaptation strategy: Risking security implications; - Adaptation to take away the need of relocation: Risking trapping populations. Increased urbanization	Sudden onset events: short-term and short-distance The lack of data makes it hard to estimate the number, thus international migration could be bigger than anticipated. Area's most prone to experience climate change related hazards are situated close to the Indian border Destination areas for CCIM are already vulnerable → international migration	Slow onset events: long-term and long-distance Most CCIM is likely to remain internal Local migration: - Evacuation; -Already common coping-strategy. Circular/short-term migration: -To find alternative livelihoods. Indicating for increased international migration was found: -There exist already several international migration pathways from Bangladesh, especially to India; -Bangladesh has long been known as a labour sending country Most people migrating are likely to come from the wealthier and well

		educated part of the population and international migration will manifest as a pragmatic *livelihood strategy*
Responsibility (4.2)	**Climate change, produced by Northern countries** Vulnerabilities affecting CCIM – ***the failure of mitigation and adaptation*****:** -Poverty → no resources to relocate. Typically only well-off people and/or people with social networks undertake international migration - Sending remittances - Unemployment - Destruction of settlements - Destruction of livelihoods - Landlessness - Gender - Momentum 22 *Factors impacting on the decision to stay* **- *Failure of mitigation/adaptation*** - No emergency aid - No possibility to take micro loans - No community networks - Lack of information about the option of migrating *Climate change related causes* - Coastal erosion: on-going process. Sudden or slow process. Hard to predict	**Vulnerability (individualization of the responsibility or displacement on the 'victims' or its territory)** *Why Bangladesh is vulnerable to climate change impacts* -Geographical position; - Dependence on natural resources for livelihoods; - Lack of adaptation measures/ disaster preparedness; - High population density. Vulnerabilities affecting CCIM: Underlying factors such as socio-economic instability and underdevelopment already makes the population vulnerable to environmental hazards and climate change is likely to worsen vulnerability: -Poverty → no resources to relocate. Typically only well-off people and/or people with social networks undertake international migration - Unemployment - Destruction of settlements - Destruction of livelihoods - Landlessness - Gender *Factors impacting on the decision to migrate* **- *migration as an adaptation strategy*** **-I**nformation about the option of migrating - Sending remittances - Better pay and more jobs elsewhere - Cultural/historical bonds - Social networks - Better income in other areas *Climate change related causes* - Floods: will increase, already part of living, people try to resettle on new land from sedimentation - Cyclones: will increase, already part of living, sudden and temporal displacement, disaster risk reduction can be effective - Increase in monsoons → increase in riverbank erosion. Hard to predict and already part of living

	- Higher temperatures – seasonal variability →negative impacts on agriculture - Changes in precipitation-seasonal variability →negative impacts on agriculture - Decertification/drought - Salt-water intrusion is already a threat but likely to increase and the impacts on livelihoods can be severe	- Sea-level rise: increase in floods, salt-water intrusion and worsen the gravity of storms. Slow-process – adaptation possible -Difficult to separate climate change impacts from 'natural' changes - Underlying factors such as poverty/socio-economic instability already makes the population vulnerably to environmental hazards and climate change is likely increase vulnerability
Storylines (4.3)	**'Sinking islands', 'barbarian invasion'**	**'Humanity on the move'**
Consequences of migration (4.3) Increased challenges for orderly development of cities, urban land use and urban economy, urban poverty, food insecurity and health problems. Risk of being exploited, including trafficking and harassments Terrorism and radicalization of groups within the country Ethnic conflicts and religious terrorism Conflicts over resources, especially in relation to rural-urban migration and thereby growing slums where little resources are available. Conflicts are especially likely in cases of sudden events resulting in mass-migration However, slow-onset events could result in more people displaced and thus environmental stress in the receiving areas.	**Environmental degradation in the receiving territory, which could result in violent conflicts** The boarders of India have been increasingly securitized, to protect from immigrants *Vulnerability as a result of CCIM –* ***failure of mitigation and adaptation*** -Risks associated with urban living, especially in slums -High debt levels -Landlessness - Fear of outbreaks of diseases in evacuation area/bad living conditions in evacuation areas - Poor educational options for children in evacuation areas - Dependency on external aid - Sending remittances	**If properly managed: new resources, remittances, knowledge transfer** **If left unmanaged: disruptions, degradation, violence** Transfer of money (remittances), knowledge and technology are important benefits from international migration. The degree to which migration result in security issues dependent on the context of the area to which region migration takes place as well as the scale and nature of migration (sudden or gradual) "anti-Indianism" on the Bangladeshi political scene increases the likelihood of ethnic conflicts between Bangladeshi immigrants and Indians. Thus, future security issues related to CCIM into India will also depend on the development of national politics within Bangladesh.
Climate policy (4.4)	**Mitigation**	**Adaptation**
Institutional level (4.4)	**States** **International security** **International law**	**Individuals/communities** **Human security** **Human rights**
Form of the law (4.4)	**New international convention or treaty**	**Soft laws, internalization in domestic policies, policies diffusion**
Uses of 'climate refugees/migrants' (4.4)	**To underline the human consequences of climate change** **To underline the responsibilities of Northern countries** **To strengthen refugee/migration laws in receiving countries**	**Replacement of mitigation policy by adaptation policy** **Promoting the 'migration management' and the institutional reform agenda** **As a source of labour-power in the North**

Consequences of responsibility assignation (4.4)	**Climate change mitigation** **Reparation (funding for adaptation to climate change, taking-in of climate refugees…)** To develop strategies for out-migration in collaboration with Bangladesh's neighbouring countries to encourage migration that would also be economically favourable is a way to lessen the tension Evidence of migration as an adaptation strategy are somewhat contesting and depends on e.g. resources in the receiving area as well as the impact in question. Migration as a response to disasters is not common, however if migration occurs as a way of addressing future risks, it could be seen as adaptation to climate change impacts	'**Capacity' building of vulnerable countries** **Building 'Resilience' of vulnerable population** To develop strategies for out-migration in collaboration with Bangladesh's neighbouring countries to encourage migration that would also be economically favourable is a way to lessen the tension Evidence of migration as an adaptation strategy are somewhat contesting and depends on e.g. resources in the receiving area as well as the impact in question. Migration as a response to disasters is not common, however if migration occurs as a way of addressing future risks, it could be seen as adaptation to climate change impacts *Reducing vulnerability in the context of CCIM* - ***successful adaptation:*** - Existence of emergency aid - Possibility to take micro loans - Community networks Preparing urban areas for increased immigration Recognition of problems related to urbanization on different levels of decision-making and collaboration between levels Migration should be part of a holistic approach to climate change adaptation Conflicts can be avoided if actions are taken to ease the migration: Stronger focus on human security; Planned migration can be a way to address insecurity.

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