Climate change is not a threat to our national borders

A study on policy experts' perception on climate change – human migration nexus

By

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Abstract

As a consequence of wide range estimation of people to be displaced by 2050 because of climate change, one of the policies options is international security. However, the policymakers are far from being completely understood the complex process of climate change and migration (Upadhyay et al., 2015: 411). The combination of intellectual engagement is needed to put the issue concerning expertise to interface between science and politics (Hukkinen, 2016). This thesis explored how policy experts envision the relationship between climate change and human migration. The policy experts were nominated by structured expert nominee process. They were from the research partners of the two Ministries within the area of climate change and human migration. Seven semi-structured interviews were conducted with the policy experts. Besides, fourteen documents were analyzed from national and European research institutes. A qualitative data analysis shows that the policy experts reach a consensus that defining climate refugee remains impossible. Indeed, it is complicated to identify environmental from other factors of migration. In other words, the policy experts criticize the large estimation of refugees. Thus, the policy experts conceive climate change to be not a threat to our national borders and question the international security.

Keywords: Climate refugee; climate change; human migration; policy expert; international security, issue advocates

Preface

"The sons of Adam are limbs of each other,
Having been created of one essence.
When the calamity of time affects one limb
The other limbs cannot remain at rest.
If you have no sympathy for the troubles of others,
You are unworthy to be called by the name of a Human."
Sa'adi

Though this Master track was often a lonely road, this thesis would not come to life without the support of many people to whom I am endlessly grateful.

This gratefulness first and foremost goes to Ringo Ossewaarde. Ringo inspired me by believing in me and by giving me a chance to discover my potential. All the support he gave me and the way he guided me through all the ups and downs have made this thesis a great experience. I want to express thankfulness to Ariana Need as well. Ariana helped to have a fresh look at my work, to provide valuable observations and feedback, and to question myself further.

I also thank all the respondents for their great support, time, and willingness to provide essential information that has been crucial for the thesis. Without the enormous support and assistance from all the collaborators, I would not have been able to put this report in your hands.

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It has been a privilege to work together with all the people involved during the research period and a great learning experience for me.

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List of abbreviations

AIV	Adviesraad Internationale Vraagstukken (Advisory Council on International Affairs)
DGBEB	Directorate-General for Foreign Economic Relations
DGES	Directorate-General for European Cooperation
DGIS	Directorate-General for International Cooperation
DGPZ	Directorate-General for Political Affairs
CAVV	Commissie van advies inzake volkenrechtelijke vraagstukkenAdvisory (Advisory Committee on Issues of Public International Law)
FEEM	Fondazione ENI Enrico Mattei
IIASA	Internal Institute for Applied System Analysis
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
KNMI	Koninklijk Netherlands Meteorologisch Instituut (The Royal Netherlands Meteorological Institute)
NGO	Non-governmental Organization
PBL	Planbureau voor de Leefomgeving (Netherlands Environmental Assessment Agency)
PIK	Potsdam Institute for Climate Impact Research
RAWOO	Raad voor het Wetenschappelijk Onderzoek in het kader van Ontwikkelingssamenwerking (Netherlands Development, Assistance Research Council)
UNFCCC	United Nations Framework Convention on Climate Change

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Chapter 1: Introduction

Warming of the climate system is absolute (IPCC, 2014). The atmosphere and ocean have warmed, the amounts of snow and ice have declined, the sea level has risen, flood, droughts and more frequent severe weather events have happened (IPCC, 2014; Newland, 2011). Among other impacts on the natural system, the water crisis is the greatest risk facing societies globally over the next decades (International Water Association, 2016; World Economic Forum, 2016). Already more than 40% of the global population are affected by water scarcity, families face the lack of foods and famine, people are forced to migrate, and conflicts arise (International Water Association, 2016). One well-known recent study confirms that drought contributed to the conflict in Syria (Kelley, Mohtadi, Cane, Seager, & Kushnir, 2015). The number of Syrian Arab Republic refugees has been to approximately 4 million people (United Nations, 2016). Indeed, this process has already begun. As for the numbers, a wide range of 25 million to 1 billion people has been estimated to be displaced by 2050 (IOM, 2008; Myers, 2001; Stern, 2007). Policies have been implemented to reduce the number of refugees, such as development aids or at least thought including international security. The debate on environmental migration has been sharpened and has acquired both political and scientific implications that must be addressed, especially given the increasing urgency in global climate change predictions (Oliver-Smith, 2012).

The potential link between climate change, migration, and conflict has been widely discussed and is increasingly viewed by policymakers as a security issue (Burrows & Kinney, 2016). Based on the remark that the former President of the United States had at the Glacier conference in 2015, climate change could trigger multiple conflicts around the globe (Obama, 2015). However, the policymakers are far from being completely understood the complex and vital process of climate change and migration (Upadhyay et al., 2015: 411). The combination capable of intellectual engagement is needed to put the issue concerning expertise to interface between science and policy (Hukkinen, 2016). The competing positions point to the dilemmas that scientist often face in their interactions with policymakers, as well as to the tension between science and policy making in general (McNie, 2007). According to Wildavsky (1979), scientific experts should communicate objective and accurate knowledge to politicians (Spruijt, Knol, Torenvlied, & Lebret, 2013). However, not only different viewpoints on content but may also differences of opinion on the role of scientific experts shape their policy advice (Davies et al., 2014). Several scholars have discussed the various potential roles of experts in the interplay between science and policy. Pielke described the different roles that experts can fill when interacting with policymakers in highly uncertain and politicized context (Pielke Jr., 2007). The little existing research investigates whether policy experts, who connect science with policy, relate climate change to a security threat, if not, how they perceive climate change - human migration nexus. Therefore, the research uncovers the various viewpoints of policy experts, as well as their roles in interaction with policymakers.

1.1. Climate change – human migration nexus

The climate change – migration nexus is discussed very controversially among scholars and policymakers in the last years. The relationship between climate change and migration is complex (Perch-Nielsen, Bättig, & Imboden, 2008; Science for Environment Policy, 2015). From one of its first report, the IPCC (1990) warned about the impact of climate change on human migration. From then on, the climate change – human migration nexus has been understood in various ways, namely as victims or security threat, as adaptive agents, and as political subjects (Bettini, Louise Nash, & Gioli, 2016). The frame of security in term of 'climate refugees' has been very influential in academic, advocacy, and policy areas (Bettini et al., 2016). For example, various conflicts in different parts of the world, such as in Syria have been associated with climate change (Kelley et al., 2015). There is "a connected path running from human interference with the climate which leads to severe drought, agricultural collapse, and mass human migration" (Kelley et al., 2015: 3245). However, if drought considers being as an important cause of the Syrian conflict, it is an overly simplified way (Stockholm International Water Institute, 2016). The environmental changes, such as drought can cause climate refugee indirectly through impacts on economic, social, and political factors (Science for Environment Policy, 2015). Indeed, some researchers argue that the environment can be a primary cause, but others criticize that the exact way in which the explanation of factors that push people to migrate is limited. Environmental drivers may contribute to migration decisions but never determine migration, since migration decisions are always the result of a far more complex set of structural conditions, such as labor markets, land tenure, and political context (Biermann & Boas, 2012). Therefore, climate change influence human on migration decision through various drivers. Linked to this debate, is the question of how policymakers discuss the climate change – human migration nexus.

There can be no doubt that politicians have also manipulated the issue of causality for different purposes (Oliver-Smith, 2012). Some politicians use climate refugee to generate support for anti-immigrant policies, with the triage or lifeboat ethic that is covertly associated with that perspective (Oliver-Smith, 2012). Others, such as former US Vice President Al Gore, use the topic of millions of unfortunate environmental migrants rushing over the US borders to generate support for stabilization of greenhouse gases and other forms of climate change mitigation (Oliver-Smith, 2012). Last but not least, General Tom Middendorp believes that the subject of climate change is no longer reserved for nature conservationists and tree snipers, global warming is a real threat to our safety (Brill, 2016). Overall, policymakers increasingly view the potential link between climate change, migration, and conflict as a security problem (Burrows & Kinney, 2016). In Europe "environmental migration is already an issue that demands some attention" (Science for Environment Policy, 2015). Therefore, unlike academics, the politicians focus on security threat of climate change which has a significant influence on migration decision. As science knowledge, experts, evidence, and policy-making have linked (Baekkeskov, 2016: 396), this thesis focus on how policy experts envision the climate change - human migration nexus. But which

policy experts are included in this thesis.

At least two ministries work on climate change - human migration nexus in the Netherlands including the Ministry of Environmental and Infrastructure and the Ministry of Foreign Affairs (see Appendix I and II). First, the Netherlands Environmental Assessment Agency (PBL) is an agency of the Ministry of Environmental and Infrastructure. PBL is the national institute for strategic policy analysis which generates independent research in the fields of the environment, nature, and spatial planning. The research is solicited and unsolicited that is independent and scientifically sound in direct collaboration with various types of research partners, such as universities, national research institutes, and European research institutions. Second, the Advisory Council on International Affairs (AIV) of the Netherlands is an umbrella organization. The agency advises the government and Parliament on foreign policy, particularly on issues relating to human rights, peace, security, development cooperation and European integration (AIV, 2017). The AIV produces advisory reports on its initiative or at the request of the government or Parliament on various issues, such as climate change and migration. All reports are presented to the relevant members of the government as well as to the House of Representatives and Senate (AIV, 2017). In most cases, one of the government members in question are the Minister of Foreign Affairs (AIV, 2017). One of its partners is Clingendael (Clingendael, 2017). The requests for advice, the reports, and the government responses are all made public (AIV, 2017). The partners of the two ministries are the focus of this thesis. Their general information can be found in Appendix III.

1.2. Research objective

Migration is a very context-specific process (Upadhyay, Kelman, Mishra, Shreve, & Stojanov, 2015). “Context here refers to inclusivity of various interacting factors such as environmental, social, political, and developmental” (Upadhyay et al., 2015: 411). There is also no question that politicians have also manipulated the issue of causality for a variety of motives. It is not the first time that politics has misused science (Oliver-Smith, 2012). The political support is required to adapt to climate change, this support should not be through recognizing ‘climate refugee’ as the result of climate change (White, 2016). In fact, various authors explain an effect of climate change on human migration in different context. It is binding on climate and migration researchers to clarify issues of causality when discussing the complexity and interrelationships of drivers in the displacement of populations (Oliver-Smith, 2012). However, the policymakers are far from being completely understood the complex and vital process of climate change and migration (Upadhyay et al., 2015: 411). Therefore, the thesis aims at find to make sense of the world of expert debates in the field of climate change - human migration nexus. With this research objective, it is expected to at developing an interpretation of what the differences in policy experts’ perceptions on the significance of climate change - human migration stem from, particularly by constant attention to their policy advice, especially international security. Moreover, this research project, which

initially intends to be a theory-oriented research may be give information that can be very useful in practice. Since the study reveals the perception of experts on the relationship between climate change and human migration, it is helpful for the Dutch scientific research organizations that their primary task is to fund scientific research. They can be alert and be able to recognize the wrong applications of climate change – human migration nexus. "This is called the practical relevance of the project" (Verschuren & Doorewaard, 2010: 34).

1.3. Research questions

With regards to the Research Scope as well as Research Objective, I formulated the following central research question from the knowledge gap:

> *"How do policy experts envision the relationship between climate change and human migration?"*

Besides this question, three sub-questions were formulated. By responding to these sub-questions conducted for the thesis, specific attention continuously will be paid to the policy experts' advice. First, it is important to determine what various policy experts mean by climate change and human migration. The first sub-question to be answered is:

> *1. How do policy experts define climate change and human migration?*

By answering this sub-question, policy experts' definition of climate change and human migration in the light of 'climate refugee'. Besides, the policy experts' advice for climate refugee will be revealed. Once it is evident what policy experts mean by climate change and human migration it is important to investigate how policy experts relate climate change with human migration. An important question coming with this is what the differences are between various policy experts' perception. The second sub-question therefore is:

> *2. How do policy experts explain the relationship between climate change and human migration, and what are the differences between policy experts' perception of climate change - human migration nexus?*

By answering this sub-question, the knowledge of policy experts on climate change – human migration nexus will be revealed, and subsequently the complexity of the relationship between climate change and human migration will be discussed. Also, the differences between the policy experts' perception will be revealed. After it has become apparent the differences on the content of climate refugee, as well as climate change – human migration nexus, it is also important to look at the policy experts' role within environmental policy. The final sub-question therefore is:

> *3. What is the role of policy experts within environmental policy?*

After discussing the term 'climate refugee' and climate change – migration nexus, the final sub-question reveals the role of experts. This sub-question will be analyzed and answered within the first and the second sub-questions. The reason is that to discuss right away whether the policy experts' advice comes from the differences in viewpoint on the content (climate refugee or climate change – human migration nexus) or their interaction with policymakers. Overall,

differences in policy advice not only stem from different viewpoints on content but may also arise from differences of opinion on the role of scientific experts in providing policy advice (Davies et al., 2014). I expect to answer the central question with these three sub-questions.

1.4. Research approach

The thesis is a qualitative research. Second, this qualitative research is a combination of empirical and desk research. Therefore, a set of necessary steps comes with these two decisions, including the method of data collection and method of data analysis. The method of the data collection is through conducting interviews and analyzing documents. The way in which the interviewees and materials are selected is an essential part of a qualitative research. Besides, the ways in which the data and the literature are going to be processed to answer the three sub-questions (Verschuren & Doorewaard, 2010). First, gathering data by interviewing policy experts and using document analysis is used to define climate change and human migration by shedding light on climate refugee. Second, the differences among policy experts' views on climate change – migration nexus will be explained. Finally, the aim of the final sub-question is to developing a line of thought that explains what the differences of the policy experts' advice on the climate change – human migration means. Thus, a qualitative research will be generated through the content analysis to answer the central research question.

1.5. Research outline

The thesis is structured as follows. After setting the research questions, these questions are explored from the theoretical perspective. The theoretical framework chapter has three main sections. The climate change and human migration will be defined first, especially in the light of 'climate refugee'. Second, the discussion will proceed as well to reveal the relationship between climate change and human migration. I include two schools of thought to theorize the central issue, policy experts' perception of climate change – human migration nexus. Since climate refugee is the concern of the thesis, it is expected that these two categories provide a useful insight into the possible views of policy experts. Third, the role of policy experts within environmental policy will be explained. This chapter ends with concluding remarks. The third chapter, methodology, has five sections. Starting with providing some information about the research design. It continues by examining the method of data collection, which explains using a structured expert nominee process and the information that is already known will be utilized. After clarifying the method of data analysis, the research quality indicators will be discussed. The concluding remarks ends the chapter. In chapter four: data analysis, the main findings from the conducted interviews and analyzed documents will be presented. After each section of findings, these results will be combined, analyzed, and discussed according to the theoretical framework. Subsequently, the answer to the three sub-questions will be provided. Finally, I conclude the thesis by answer to the central research question, discussion, limitations, and policy implication.

Chapter 2: Theoretical framework

In this chapter, the foundation is established to find an answer to the research question. The analytical support sets two concepts that are relevant to this thesis and are in need of further explanation. The concepts are climate refugee and policy experts. Having these concepts explained and discussed makes it possible to examine how various policy experts envision the relationship between climate change and human migration. This chapter contains three sections. In the first section, the conceptualizing 'climate change' and 'human migration' will be presented which leads to introducing the concept of climate refugee. Besides, I discuss the relationship between climate change and human migration in different contexts, including economic, social, political, demographic, and environmental. Furthermore, the link between climate change and human migration will be set out by applying the concept of 'climate refugee' to discuss two schools of thought. Using these two categories enable to reveal the position of various experts within climate change – human migration nexus discussion. The second section begins with conceptualizing policy experts. This part continues with defining different roles of policy experts, specifically within environmental policy. In the last part, I sum up the key theoretical insights that are generated in the chapter that are necessary for the initial research idea.

2.1. Climate change – human migration nexus

Climate change brings the risk of serious negative impacts on environmental, including extreme events such as drought, heat waves, floods, storms, and wildfires and slower onset impact, such as changing rainfall patterns, sea-level rise, decreased soil fertility, and others (Burrows & Kinney, 2016: 443). These changes have been well verified (Scarlett, 2011). However, the results show that previous calculations of the increase in global drought are overestimated (Sheffield, Wood, & Rode, 2012). Besides, land degradation is a result of a combination of agricultural practices, extreme weather events and climate change (Black, Adger, Arnell, Derconet & Geddes, 2011). Climate changes may both increase and decrease rates of migration (Burrows & Kinney, 2016). In the case of slower onset impact, such as sea-level rise, the overall connection between climate change and migration is stronger because sea-level rise is caused to a large extent by climate change (in contrast to floods) (Perch-Nielsen, Bättig, & Imboden, 2008). But, rapid-onset extreme environmental events such as floods, tsunamis, landslides, earthquakes, wildfires and volcanic eruptions are well-known triggers of displacement (Black et al., 2011). These movements tend to be relatively short distance and are usually within a state (Black et al., 2011). Following reoccurring flooding events, people tend to be either relocated or migrate on a permanent or semi-permanent basis (Warner, Hamza, Oliver-Smith, Renaud, & Julca, 2010: 20). It is important for operationalization to consider which types of migration are being altered to discussing how climate changes influence on movement decision (Burrows & Kinney, 2016).

The current literature on climate change and migration revolves around themes of "climate refugees", "environmental refugees", or "climate change refugees" (Upadhyay et al., 2015: 396). These concepts will be used interchangeably in the thesis. There is also an important distinction between 'migration' assumed to be voluntary and movement for the purpose of seeking refuge (forced migration) (Geddes A., Adger, Arnell, Black, & Thomas, 2012b). It is mainly accepted that the El-Hinnawi brought the term 'environmental refugee' into public debate in 1985 (Morrissey, 2012). El-Hinnawi defined environmental refugees as "people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and triggered by people) that jeopardized their existence and/or seriously affected the quality of their life" (El-Hinnawi, 1985: 4). Biermann and Boas define 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: rise in sea level, extreme weather events, and drought and water scarcity" (Biermann & Boas, 2012: 292). International displacement following an environmental disaster is more significant for small countries or islands or where events occur in border areas where more than one state is affected (Black et al., 2011). In fact, a precise definition of 'climate refugees' does not so far seem to exist (Baldwin, 2015: 3-4). Therefore, I investigate whether the policy experts can define climate refugee, if so, how they explain the relationship between climate change and human migration.

To start writing on the relationship between climate change and human migration, referring to the literature on "climate refugees" is used as starting point (Morrissey, 2012: 36; Upadhyay et al., 2015). In particular, the context of the increasingly urgent political debate around environment and migration/asylum, research has attempted to find whether or not environmental change can generate or force human migration (Morrissey, 2012). Compounding the complexity of socio-ecological systems and the often intertwined causal drivers of migration, the failure to reach a consensus definition of environmental migration has further impaired efforts to diminish the uncertainty that surrounds the issue (Gemenne, 2011). "If the past provides any insights into what may happen in the future, most people prefer to stay and deal with the environmental problem by implementing adaptation techniques, especially when faced with slow-onset, longer-term environmental events" (Koubi, Spilker, Schaffer, & Bohmelt, 2016: 152), such as changing rainfall patterns and decreased soil fertility. However, according to the recent study, severe drought leads to agricultural collapse and mass human migration in Syria (Kelley et al., 2015). A large-scale estimation of environmental migration to occur in the future have also been widely criticized by various scholars (Black et al., 2011; Gemenne, Barnett , Adger, & Dabelko, 2014; McLeman, 2011) due to two reasons. First, figures are usually based on the people exposed to increasing environmental risks, and not on the people expected to migrate (Koubi et al., 2016). Second, these studies do not account for different levels of vulnerability to environmental change and potential adaptation strategies (Koubi et al., 2016). Therefore, there

is enormous uncertainty about how many people will move and where they will move to (Abel, 2013). Related to this debate, is the question of how authors relate climate changes to migration.

It is common to build a debate on climate change migration in two schools of thought, namely 'maximalist' and 'minimalist' (Mayer, 2014) or 'proponents' and 'critics' of the 'climate refugees' (Morrissey, 2012). The 'maximalist' school is dominated by environmental scholars and has been prospered through the release of striking estimates and predictions of the number of 'environmental refugees' (Mayer, 2014). Maximalists argue that the natural environment is easily distinguishable from the social, political, and economic context (Morrissey, 2012: 4). Maximalist argues that it is possible to distinguish whether that migration is 'forced' or 'voluntary' based on the decision-making process of the migrant, and thus whether the title 'environmental refugee' is appropriate (Morrissey, 2012). On the contrary, the 'minimalist' school is led by migration experts, and they highlight the complex ways through which environmental change may cause, or prevent, different norms of migrations (Mayer, 2014). They focus on the complicated interaction between ecological and social systems and thus question the assumption of a direct causal link between environmental change and migration (Morrissey, 2012). They separate 'migrants' from 'refugees' by distinguishing between forced and voluntary migration, which they see as determined by the nature of environmental change (Morrissey, 2012). Minimalist believe that identifying someone in the present as a climate migrant remains impossible (Baldwin, 2015). Therefore, the two school of thought have differences of idea on climate change and migration.

In summary, Maximalist understand the climate change and human migration as simple, but minimalist considers the interaction as complex. Beside, maximalists believe that assigning someone as 'environmental refugee' is possible, but minimalists stress on the complexity of distinguishing 'environmental refugee'. At this point, a description of five drivers of migration (see the left side of Figure 1). The drivers, filtered by personal/ household characteristics (micro) and barriers and facilitators (meso) (see the right side of Figure 1).

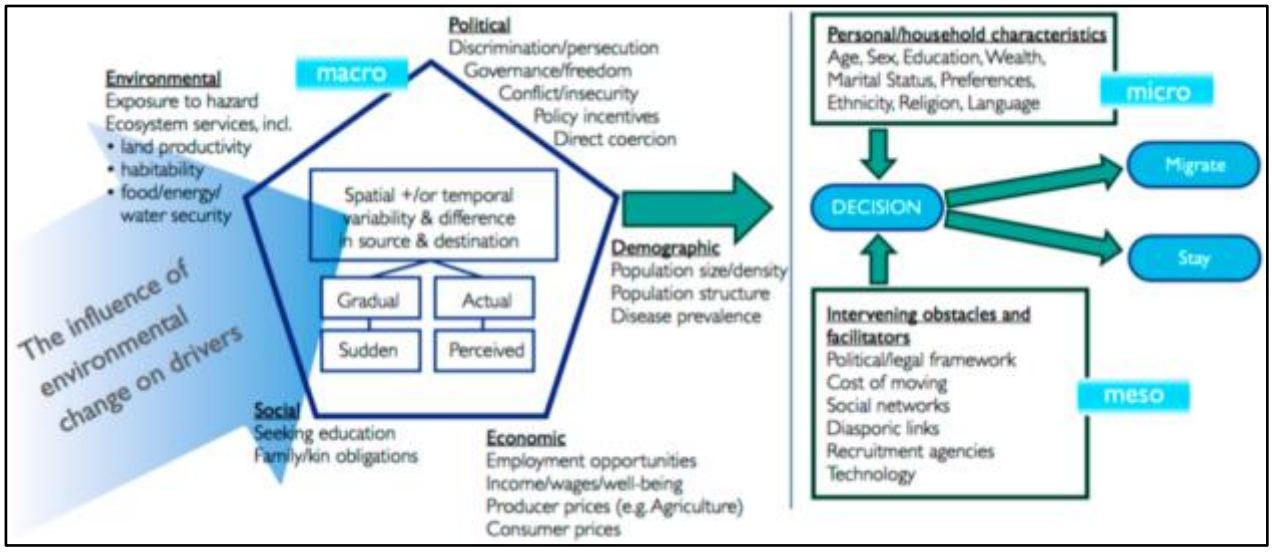

Figure 1: The conceptual model for drivers of migration (Black et al., 2011: S5).

First, the availability and stability of, and access to, ecosystem services are the three primary mechanisms by which livelihood and well-being are manifest in particular localities, most starkly in resource-dependent economic systems dominated by agriculture or fisheries (Black et al., 2011). Conventional narratives posit that displacements will inevitably occur under climate change (Warner, Ehrhart, de Sherbinin, Adamo, & Chai-Onn, 2009). Rapid-onset events and slow-onset environmental dynamics may trigger displacement and mobility, the specifics of the response (Black et al., 2011). Rapid-onset extreme environmental events such as floods, tsunamis, landslides, earthquakes, may be trigger short distance displacement (Black et al., 2011). The earthquake has strongly shaped social and economic exchange and population movements between the towns of L'Aquila's province due the strength of pre-existing ties, flows, and relationships (Ambrosetti & Petrillo, 2016). However, there is already evidence that the inhabitants of small islands are more resilient to sea level rise, such as in Isla Batasan in the Philippines (Yamamoto & Esteban, 2017). "In multiple cases, positive environmental conditions—such as high land quality—instead appear to facilitate migration, including local, internal, and international population movements" (Gray & Bilsborrow, 2013: 1237). It is argued that in certain circumstances these direct and indirect impacts of climate change on human security may in turn increase the risk of violent conflict (Barnett & Adger, 2007). On a fundamental level, if we acknowledge that actors faced with environmental stress make decisions strategically, then we can see that violence is generally a poor response to resource scarcity, given the alternatives (Salehyan, 2008: 3). The relationship between resource scarcity and violent conflict is uncertain (Ide, 2015: 69). It depends on social, demographic, economic, and political drivers that interact with climate variability and change where all of these are very location-dependent (Burrows & Kinney, 2016).

Second, political drivers have some direct effects on migration. Migration within and between states is constituted by governance systems and their characteristic features, particularly the inequalities of wealth and opportunity embedded within the global politics of unequal development (Payne, 2005). Environmental change can interact with deteriorating livelihoods and the breakdown of social and political systems in ways that force people to move within states (internal displacement) (Geddes et al., 2012b). Most obviously, the breakdown of governance can lead to the emergence of forms of conflict beyond acceptable levels, trigger a decision to move or lead to displacement (Black et al., 2011). According to Selby & Hoffmann (2012), who analyzed the relationship between environmental scarcity, conflict, and migration through comparative analysis of water–migration–conflict linkages in Cyprus and in Israel, the West Bank, and Gaza. They found little evidence to support the view that water scarcity can lead to conflict or migration (Selby & Hoffmann, 2012). However, political reasons do not significantly increase the likelihood of migration (Koubi et al., 2016: 8). There is no simple and straightforward relationship between conflict and migration, and no identifiable 'tipping point' in the level or degree of conflict, beyond which migration occurs (Black et al., 2011: S6). Rather than seeing

environmental change as triggering large-scale migration with potentially destabilizing effects on governance systems, the connections and resultant challenges are more complex (Geddes et al., 2012b).

Third, the effect of demographic drivers on migration is most likely to be seen through interaction with other drivers, particularly economic (Black et al., 2011). It is not the presence of large numbers of people in a region per se that will trigger outmigration, but rather the presence of a vast number without, for example, access to employment or livelihood opportunities. The propensity to migrate is also generally higher amongst younger people, so the demographic characteristics of a source region will influence who moves in response to economic drivers. The specificity of migration is grounded in the connections that develop between places as a result of histories and cultures of migration (Black et al., 2011).

Fourth, economic drivers have direct effects on both internal and international migration (Black et al., 2011). The environmental change can drive migration, although its effects are likely to be observed through its interaction with and effects on these other systems, particularly economic drivers (Geddes et al., 2012b: 963). The study of the causes and consequences of famine has been reversed by economic and political theories of why and how they occur, not least through Sen's (1982) study on the subject, which demonstrated that famines have political roots and are overwhelmingly caused by failures of entitlement to food and resources than with their absolute scarcity (Gemenne et al., 2014). According to Koubi et al. (2016: 8), the social and economic reasons significantly increase the likelihood of migration.

Fifth, social drivers of migration include family and cultural expectations. Migration networks can be formal through the operation of agencies, or more informal through family networks (Black et al., 2011). Past migration and its direction can, therefore, be a good predictor of future migration. New social media and communications technologies have the potential to reduce the social and psychological costs of migration and provide images and representations of destination countries (Black et al., 2011). According to Koubi, whether a household member has already migrated does not have a significant effect on migration decision (Koubi et al., 2016). Household composition and social networks shape households' use of migration as a livelihood strategy in the face of environmental stress (Hunter, Luna, & Norton, 2015). Furthermore, the balance of water demand and supply is shaped by relevant trends in social livelihoods and networks (Link, Scheffran, & Ide, 2016).

Besides to macro drivers of migration, the scale and direction of movement is linked to the personal circumstances of migrants, such as wealth, gender, and education (Black et al., 2011). The distance that people move will be linked to the social, physical, and financial resources that they possess (Geddes et al., 2012b: 953). Through interaction with other drivers, as potentially leading to movement towards and not away from risk and also having the potential to destroy household resources and make migration more difficult with the attendant risk of trapped populations (Geddes, Adger, Arnell, Black, & Thomas, 2012a: 1079). Especially where slow onset

environmental change occurs, poor individuals, e.g., day laborers and temporary workers may become 'trapped' because they cannot diversify their livelihoods, or they do not have the resources and capacity to migrate (Koubi et al., 2016: 11). However, the influence of wealth and income on migration is even less clear (Perch-Nielsen et al., 2008). Migration is also a highly gendered process (Geddes et al., 2012b: 956). According to Massey et al, (2007), evidence from Nepal shows that men frequently respond to these risks by migrating, but that this option is much more difficult for women (Geddes et al., 2012b). Also, according to Gray and Mueller, in Ethiopia there was an observed increase in male labour migration in response to deterioration in land quality as a form of income diversification, but a reduction in female migration because of reduced capital to fund marriage migration (Geddes et al., 2012b). However, gender does not have a significant effect on migration (Koubi et al., 2016: 8). Furthermore, it was found that the probability of migration was about twice as high among respondents with high levels of education as contrasted with those with primary school (Ocello, Petrucci, Testa, & Vignoli, 2015). Also, in Mali and Senegal higher levels of education changed peoples' livelihood strategies, thus changing the environment–economic link (Van der Land & Hummel, 2013). Thus, migration (Black et al., 2011) and impacts of climate change, especially drought (Sheffield, Wood, & Rode, 2012) depends on local context.

Without the doubt, migration is a complicated decision. It is a very context-specific process (Upadhyay et al., 2015). Various interacting drivers influence migration decision, such as environmental, political, demographic, economic, and social (Black et al., 2011; Upadhyay et al., 2015: 411). Many scholars stress on the complexity of climate change – human migration nexus (Black et al., 2011; Gray & Bilsborrow, 2013; Ocello et al., 2015; Warner et al., 2010). As the result of the complexity of this relationship, various scholars have widely criticized a large-scale estimation of environmental migration to occur in the future (Black et al., 2011; Gemenne et al., 2014; Piguet et al., 2011). In addition to the five drivers of migration, there are household characteristics and obstacles/ facilitator that influence on migration decision. Therefore, I use the five macro drivers as well as macro, and meso drivers of migration. With the help of this theoretical framework, it is possible to reveal how the policy experts relate climate change to migration decision. Subsequently, to discuss the differences between policy experts view the relationship. Therefore, I discuss the two schools of thought in the following sections.

Referring to maximalist approach, one of the maximalist scholars is El-Hinnawi. He argues that the environment can be a primary driver and focused on climate change as a particular environmental driver leading to migration (El-Hinnawi, 1985). They tend to understand the link between changes in the physical environment and human migration as the only causative and direct (Morrissey, 2012). Some 'proponent' accounts only offered a description of how particular environmental changes will generate household stress, assuming that migration will present as inevitably from there. Moderate 'proponent' accounts, define this, arguing for the relevance of what they term 'common sense models' – 'common sense', referring to the

assumption of migration as an inevitable consequence of vulnerability (Morrissey, 2012). Maximalists acknowledge the important role played by poverty in shaping vulnerability to climate-related stress, but fail to provide any account of the historical and contemporary processes structuring both the production and reproduction of poverty. Instead, poverty is just explained away as the natural and inevitable state of a pre-industrial society (Morrissey, 2012). It is only from naturalized poverty and vulnerability that population growth can be highlighted as the variable with the most predictive power. Thus, this explanation generally ignores to analyze the internal differentiations in wealth and power within less industrialized societies, take no account of technological innovation in local production systems, and seek no account of how historically specific, socio-political events have acted (and continue to work) in (re)producing poverty and structuring inequality (Morrissey, 2012). Therefore, maximalists fail to include micro and meso drivers of human migration in details. Since environmental experts support the maximalist approach, it is worth exploring how they tend to protect the environment.

Environmental experts discuss that environmental protection comes into sight to be dependent on two features in the 'maximalist' literature. The first is to cast human mobility as a problem, and the second is to present this issue as occurring on a scale. The existence of 'environmental refugees' was used to suggest that significant changes in the physical environment were taking place. Since such change was conceived as a shift away from some idealized, climax equilibrium, it was thought to be inherently problematic and as such the 'environmental refugee' became typical of an environmental problem. The second sense in which the 'maximalist' literature casts 'environmental refugees' as a problem refers to their representation as a social issue. This is achieved in two ways. One way focuses on the vulnerability of migrants, presenting 'environmental refugees' as a humanitarian problem; while the second way focuses on security and stability, casting environmental refugees as problematic in receiving areas (Morrissey, 2012). Explicit evidence of how such narratives might be manipulated is referred to as a 'greening of hate' (Morrissey, 2012). Writing on the security threat posed by 'environmental refugees', plays into other long-standing anti-immigrant narratives that connect migrants with crime, violence, and disease (Morrissey, 2012). The second argument is to "present the 'environmental refugee problem' as occurring on a scale which would make it impossible to address in any palliative fashion" (Morrissey, 2012: 41). We, therefore, have the 'environmental refugee' cast as both an environmental and a social problem, as well as being both the result of a problem and an issue in and of itself.

Environmental sustainability and international security experts supported this approach (Mayer, 2014). First, environmental sustainability experts are interested mostly in the roots of environmental migration, either regarding environmental protection or of human resilience. In fact, they often focus on 'climate migration' as a sub-issue circumscribed to instances of environmental migration that are attributed to anthropogenic global environmental change. It builds on 'responsibility' and 'climate justice' from which a duty to cease the harming conduct

and to repair the injuries is inferred. This is the call for framing climate refugee as a matter of responsibility touched deep-rooted (Mayer, 2014). Second, international security experts promote the support of national defence capabilities broadly understood, ranging from the military to border-control technologies, and intelligence. “They argue that environmental migration may give rise to illegal movements, international criminality, terrorism, and conflicts” (Mayer, 2014: 31). These actors call for preventive action, including investment in strategic partnerships with transit countries, border-control technologies, and reinforcement of military presence overseas (Mayer, 2014). The security argument is rooted in strong emotions – fears – that compel immediate action (Mayer, 2014). Regarding the linkages between 'environmental refugees' and anti-immigrant or anti-asylum sentiment, the concern is based on the manner in which 'maximalist' literature plays into the general notion of states being overwhelmed and overrun by immigrants (Morrissey, 2012). Overall, the maximalist approach has been very influential in literature, and the success and questionable character of this method are witnessed by the frequency with which violence and conflict in several parts of the world are associated with environmental change (Bettini et al., 2016).

But focusing on violence and conflict can cause two main issues. First, focusing on conflict leads to see a worsening environmental situation as mechanically leading to displacements, without any consideration of local particularities, history, or culture (Piguet, 2013). Second, the risk of overplaying the hand of nature and downplaying the role of policies or politics (Oliver-Smith, 2012; Piguet, 2013; Salehyan, 2008). As the result of blaming nature, governments and development agencies avoid their responsibility towards the population (Oliver-Smith, 2012)**.** The climate change-security-conflict nexus further needs to be embedded into wider political, societal, economic, and cultural structures and discourses (Link, Scheffran, & Ide, 2016). Other essential drivers need to be taken into consideration that also directly influence resource availability and personal human well-being (Link, Scheffran, & Ide, 2016). The link between climate and migration is hard to be limited to conflict (political indicator) (Burrows & Kinney, 2016). Recent results have clearly demonstrated that the migration–environment connection is complex and shaped by micro, meso, and macro influences (Hunter, Luna, & Norton, 2015). “We must turn a similarly critical eye to the second pathway – the potential for migration to increase the risk of conflict” (Burrows & Kinney, 2016: 7-8). The literature surrounding migration and conflict increasingly suggests that climate change and climate-related migration will not cause conflict independent of other important political and economic drivers (Burrows & Kinney, 2016). Thus, we need also to discuss the minimalist approach.

The minimalists highlight the complex ways through which environmental change may cause, or prevent, different norms of migrations (Mayer, 2014). They critique the maximalist position as static, deterministic, arguing that the relationship between environmental change and migration is neither linear nor direct (Hunter, Luna, & Norton, 2015). These include declines in agricultural productivity leading to food shortages, water scarcity, and competition for resources

in the context of climate change (Burrows & Kinney, 2016). It is also important to consider that increased resource competition can further exacerbate the potential for migration to lead to conflict (Burrows & Kinney, 2016). Migration might further intensify this competition and could thereby result in conflict as the inequalities increase between those in control of resources and those who do not have access (Burrows & Kinney, 2016). In many parts of the world, climate change does not constitute an immediate threat to national security at present (Gemenne et al., 2014). The areas that depend more on the environment (agriculture) will see an environmental migration (Burrows & Kinney, 2016). This highlights the importance of local context in determining how important environmental drivers may be as drivers of migration (Black et al., 2011; Burrows & Kinney, 2016). Mallick and Vogt found that migration rates were much higher in lower socioeconomic segments of Bangladeshi society after Cyclone Aila due to lack of income (Burrows & Kinney, 2016). In contrast with Bangladesh, natural disasters that occurred in the United States in the 1920s and 1930s found that flood events were not associated with increases in out-migration due to governmental support (Burrows & Kinney, 2016). Similarly, migration was relatively limited after the 2004 Indian Ocean tsunami because of rapid humanitarian response. Overall, minimalist argue that climatic change, together with parallel developments of growing populations, water-related inequalities, the role of government and economic development, have the potential of increasing out-migration to critical levels.

International assistance and protection of forced migrants are two policy options from experts who supported this approach (Mayer, 2014). International assistance discusses environmental migration through the notions of 'disaster' and 'human vulnerability', adopting languages of rights and development, but also more specifically of 'disaster risk-reduction' and 'resilience' (Mayer, 2014). This is a broad group of independent agents, with significant differences in particular between the purely humanitarian actors and those working on development activities. Both frame 'environmental migration' as a 'disaster,' although humanitarianism aims at responding to urgent needs following a catastrophe, whereas development aims at reducing the risk of, or recovering from, such as disaster. Humanitarian advocates have been able to gather considerable funds to respond to a natural disaster, but they have been less successful in triggering resources for long - term policies (Mayer, 2014). Also, the protection of forced migration focus on the discourse on 'environmental' or 'climate refugees' and significantly strengthens previous arguments for the protection of 'economic refugees' (Mayer, 2014). The arguments revolve around the analogy between environmentally induced forced migrants and refugees as people in need of international protection (Mayer, 2014). The global role has the responsibility in assisting affected people who are facing the disasters by either responding for essential needs or reducing the risk disaster. Forced migration arguments are used on various types of vulnerability, specifically those that are related to forced displacement. Therefore, environmental drivers may contribute to migration decisions but never determine migration, since migration decisions are always the result of a far more complex set of structural

conditions, such as labour markets, land tenure, and political context. (Mayer, 2014)

Overall, to reveal the various viewpoints on the climate change – human migration nexus, I discussed the two schools of thought. The maximalist (environmental experts) and the minimalist (migration experts) have different viewpoints on the relationship between climate change and human migration. On the one hand, environmental experts focus on simplicity of distinguishing environmental from other drivers of migration. As a result, environmental experts focus on environmental sustainability and international security policies. On the other hand, migration expert stresses that distinguishing environmental from other drivers of migration is complex. Migration experts advise international assistance and protection of forced migration policies. The differences in policy advice not only stem from different viewpoints on content but may also arise from the different role of experts in providing policy advice (Spruijt et al., 2016). The first part of Spruijt et al. (2016), who believe that having the different viewpoint on content leads to the differences in policy advice was discussed. In the next section, the different roles of policy experts which might result in different policy advice will be examined.

2.2. Role of policy experts within environmental policy

Today more than ever, almost all the major policy issues are deeply complex or have specific technical attributes. Policy fields that are associated with environmental protection and sustainable development (Dunlop, 2014) and asylum policy that is highly contested policy area are characterized by uncertainty, offering considerable scope to use knowledge to justify policy preference (Boswell, 2008). The uncertainty leads actors to create flexibility that allows international institutions and commitments to change over time (Thompson, 2010). Scientific, evidence-based information, and knowledge is not only necessary (Ingold & Gschwend, 2014) for the way to effective policy (Baekkeskov, 2016) but also enhance the quality of decision (Ambrus, Arts, Hey, & Raulus, 2014). Research on environment and migration is politically volatile, and indeed vulnerable to misuse and misrepresentation, but despite that, it must be taken absolutely seriously because the potential outcomes are severe (Oliver-Smith, 2012). Science is defined as the systematic pursuit of knowledge (Pielke Jr., 2007). Academic science that was emerged in 19th century focuses on excellence and originality in a self-regulated process-the peer review process. However, the post-academic science which begins in the 1980 is characterized by an increasing competition for research funds (national or international) which are mostly project-dependent distributed (Bornmann, Haunschild, & Marx, 2016). The objective of post-academic science "is not scientific excellence and theory-building as such but rather the production of a result that is relevant and applicable for the users of the research; in other words, the result should be socially relevant, socially robust and innovative" (Bornmann, Haunschild, & Marx, 2016: 1478). For example, the use of scientific evidence by policymakers depends on whether the negotiations are conducted on the technical level by civil servants or on the political level by politicians (Rietig, 2014). Politicians tend to engage in political use of the expert input to underpin their political

objectives on the political level (Rietig, 2014). If the knowledge is incomplete or highly uncertain, discussions about the position of experts in the policy process are likely to occur (Spruijt et al., 2013).

Policy shaped by experts and non-elected policy entrepreneurs (Radaelli, 1999). As Weber (1946) and Weiss (1982) claimed, "experts, science, evidence, knowledge, and policy-making have long been linked" (Baekkeskov, 2016: 396). Integrating scientific and political process related seems challenging because it requires information that are often not well met through the independent production of scientific knowledge alone (Sarewitz & Pielke Jr., 2006). One solution might therefore be the direct involvement of scientist within the political decision-making processes (Ingold & Gschwend, 2014). For example, through instruments, such as randomized controlled trials and systematic reviews of research, specialized and highly trained professionals can identify effective solutions to real public problems (Ingold & Gschwend, 2014). In turn, such experts can show and tell public policy-makers and stakeholders what the best 'solution' is to a given public 'problem' (Baekkeskov, 2016). As Weiss (1995) indicated, the primary function of information in the policy process is providing awareness into heart of social problems, the researchers also began to operate with a much broader definition of policy knowledge (Daviter, 2015). The concept of policy experts is conceptualized as a highly trained scientist who involve in policy process. In addition, when scientists engage with decision makers and the public, it is important to discuss their roles and responsibilities (Pielke Jr., 2007). Pielke described the different roles that experts can fill when interacting with policymakers in highly uncertain and politicized contexts by means of a typology (see Figure 2). Pielke distinguishes two types of political context, namely 'tornado politics' and 'abortion politics' (Pielke Jr., 2007). The importance of knowledge in decision making, and the types of knowledge that are important for decisions, are the function of political context (see Table 1) (Pielke Jr., 2007: 40). These experts who believe their role is primarily to conduct research are likely to present their research questions and results differently than do scientists who believe policy-relevant knowledge (Spruijt et al., 2013). Pielke distinguishes four roles: the pure scientist, the science arbiter, the issue advocate, and the honest broker of policy alternatives (Pielke Jr., 2007).

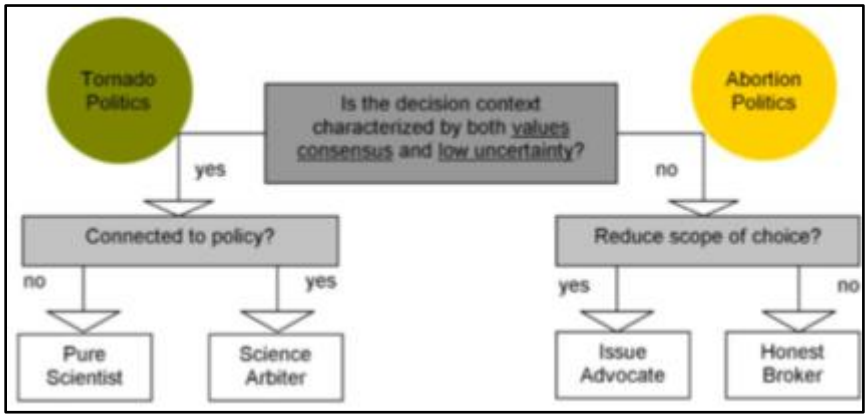

Figure 2: Flow chart illustrating the logic of roles for scientist in policy and politics (Pielke Jr., 2007: 51)

Tornado Politics	Abortion Politics
Evaluation	Rationalization
Used to help assess decision alternatives	Used to help justify decision commitments
Comprehensive	Selective
Rational	Emotional
Logical	Narrative
Enlightenment	Power
Technocracy	Pluralism

Table 1: Roles and characteristics of information in decision-making (Pielke Jr., 2007: 43)

Pielke called the first role as 'the pure scientist.' The 'pure scientist' focuses on research with absolutely no consideration for its use or utility, and thus in its purest form has no direct connection with decision-makers (Pielke Jr., 2007). Furthermore, the autonomous scientist are sources of pure scientific knowledge and is characterized by a belief in the strict separation of science and policy (Spruijt et al., 2013). The autonomous scientist reflects the belief that science must contribute to society but that it should do so without intense deliberation between scientists and policymakers (Spruijt et al., 2013). However, the minute experts engaged with public and policy, they are not a pure scientist (Pielke Jr., 2007). Pielke believes this role does not exist in the real world. In the real world, grant applications and funding comes with expectations of impact and relevance (Haas, 2004; Pielke Jr., 2007). The context of an application becomes the interesting topic which decides on funding (Bornmann et al., 2016). Science has become extremely politicized in the area of sustainable development, the use of science is mediated and thus possibly distorted by the political goals of potential users (Haas, 2004). This discussion leads to a review of the second role.

The second role, 'the science arbiter', supports a decision maker by providing answers to questions that can be addressed empirically, that is to say, using the tools of science (Pielke Jr., 2007). Spruijt et al., call this role 'the pragmatist'. The pragmatist emphasized that scientific information is often used as a strategic resource in ideological debates and highlights the opinion that a scientific expert can choose how to present scientific knowledge to policymakers (Spruijt et al., 2013). They believe that it is their duty to maintain continuous dialogue with policymakers, and they are very interested in political debates surrounding their research (Spruijt et al., 2016). They strongly agree that scientific research should contribute to the solving of societal problems for a particular political agenda (Spruijt et al., 2016). Thus, science must be engaged with decision-makers and seeks to participate in the decision-making process (Pielke Jr., 2007). They believe that interaction between science and policy is inevitable and necessary (Spruijt et al., 2013). As a result, this role does not support minimization of the range of choices available to the policymakers opposite of pure scientist and believe that there should be a strict separation between science and policy. Linked to this discussion is the question of who supports the idea

that there should not be strict separation between science and policy.

The third role is 'issue advocate'. They believe that there should not be strict separation between scientists who conduct research and policymakers who build policies on that research (Pielke Jr., 2007; Spruijt et al., 2016). The key point is the formal engagement between experts and decision makers (Pielke Jr., 2007). Similar to pure scientist issue advocate supports the minimization of the range of choices available to the policymakers (Spruijt et al., 2013). However, Fernandez indicates that scientists could contribute in several capacities according to their skills and preferences, never underestimating the power of being a good example to change discourses and practices (Fernández, 2016). However, the science arbiter is opposite to elements of issue advocates and pure scientist (issue advocate supports the minimization of the range of choices available to the policymakers) (Spruijt et al., 2013). The process of doing research as well as advising policymakers based on that research is not purely objective and value free (Spruijt et al., 2016). The 'politicization of science' means the use of the systematic pursuit of knowledge as a means of bargaining, negotiating, and compromising in pursuit of a desired end (Pielke Jr., 2007). The existence of policy-oriented researchers is essential for successful science-policy links (Hukkinen, 2016). But who connects knowledge with policy without being biased, or politicized.

Fourth, the defining characteristic of the honest broker is a desire to clarify, or sometimes to expand, the scope of options available for action. Pielke often use the examples of travel websites like Expedia as examples of honest brokers in action. Sometimes people get caught up on the word "honest" here -- what is important is the commitment to clarify the scope of possible action so as to empower the decision maker (Pielke Jr., 2007). Spruijt calls this role as 'the proactive experts' because they think that all options should be presented to policymakers (Spruijt et al., 2013). Sometimes honest brokers are unnecessary in a political setting, for instance, when advocacy groups collectively cover the scope of available choice. But sometimes policy making would benefit from greater clarity on choice, or even the invention of choices previously unseen (Pielke Jr., 2007). They most strongly agree that policymakers are best supported when experts are transparent about their personal preferences with regards to policy alternatives and their motivation behind these preferences (Spruijt et al., 2016). However, instead of honest brokers of alternatives and bridging agents, the importance of being open and reflexive about these choices and values should be emphasized so as to avoid risks of influencing politics on the selection of both work teams and problems, and of acting as stealth advocates (Fernández, 2016).

In summary, the differences in policy advice may also arise from the different role of experts in providing policy advice (Davies et al., 2014). The four type of roles were discussed. First, the pure scientists believe that they must contribute to society without intense deliberation between scientists and policymakers (Spruijt et al., 2013). Second, the science arbiter agrees that scientific research should contribute to the solving of societal problems for a particular political agenda. They have formal contact with decision makers. Third, the issue advocates believe there should not be a strict separation between scientists who conduct research and policymakers.

They have continuous dialogue with policymakers. Fourth, the honest broker clarifies the scope of possible action so as to empower the decision maker. They think that they should present all options to politicians. Thus, after discussing the term 'climate refugee' and climate change – migration nexus, and identifying the difference, the final sub-question reveals the role of experts. Subsequently, to examine whether the difference in policy advice stems from different viewpoints on content or may also arise from the different role of experts.

2.3. Concluding remarks

Research has aimed to find whether or not environmental change can force human migration, particularly there is a difficult political debate around environment and migration (Morrissey, 2012). In this chapter, I conceptualized two concepts. First, the idea of 'climate refugee' was introduced. 'Climate refugees' is defined 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: rise in sea level, extreme weather events, and drought and water scarcity" (Biermann & Boas, 2012: 292). Besides, the ideological positions of the maximalist and minimalist approaches were discussed to clarify the different viewpoints of experts on climate refugee, as well as climate change – human migration nexus. The maximalist and minimalist believe identifying someone as climate refugee remains possible and impossible, respectively. The link between climate change and migration was set out by applying the macro, micro and meso drivers of migration. The maximalist stress on the simplicity of recognizing environmental drivers from other drivers of migration. However, the minimalist focus on the complexity of the climate change – human migration nexus. Not least but last, the various viewpoints on policy advice regarding climate refugee examined.

Second, this theoretical framework paid attention to the various roles of policy experts. The policy expert is a scientist who involves in the policy process. Pielke distinguishes four roles of policy experts. These functions include the pure scientist, the science arbiter, issue advocate, and the honest broker. This theoretical perspective provides an insight to investigate whether the differences in policy advice stem from different views on content (climate refugee, climate change – human migration nexus) or the role of experts. The role of experts will be discussed right away after analysing the content of climate refugee and climate change – human migration nexus. The reason is to analyze whether the policy experts' advice comes from the differences in viewpoint on the contents or their interaction with policymakers. Overall, the knowledge provided in this theoretical framework can be used in this research to answer the research question on how policy experts envision the relationship between climate change and human migration in chapter four. I expect to at developing an interpretation of what the differences in policy experts' perceptions of the climate change - human migration nexus mean. The following chapter, chapter three, will discuss the methodology.

Chapter 3: Methodology

The aim of this chapter is to outline the research methodology and to determine the path to obtaining the relevant knowledge to answer the research question (Lucassen & olde Hartman, 2007). Since the collection of data can be done in various ways, this chapter includes methods for data processing and data analysis. This chapter has five sections. First, I explain the research design. The second part involves the strategy for gathering data. This section consists of criteria for nomination of experts, setting up interviews, and interview questions. Third, I describe my plan to analyze the data. Here I explain how I seek to perform my content analysis and provide the coding scheme based on the theories that were discussed in the previous chapter: the theoretical framework. Furthermore, the research quality indicators will be presented. The last and final section summarizes the important chapter points.

3.1. Research design

The research has a qualitative approach. The aims to provide an explanation on how policy experts envision the relationship between climate change and human migration. Besides, the qualitative data for this research is related to climate refugee, climate change - human migration nexus, as well as policy experts' role in providing advice. Furthermore, developing an interpretation whether the difference in policy advice stems from the different viewpoints on contents or different roles of policy experts or both. The qualitative data were obtained by conducting semi-structured interviews and the document analysis. I conducted the semi-structured interviews with the research partners of the Ministry of Environmental and Infrastructure and the Ministry of Foreign Affairs. The two ministries were chosen because of two reasons. The first reason for choosing these ministries is because they perfectly meet the both sides of the issue: climate change and human migration. The second reason is that of the overall aim of this research which is to investigate the perception of policy experts who connect policymakers as well as research. Furthermore, keeping in mind that methodological considerations are led by the selected theoretical framework and the importance of choosing policy experts concerning data collection. The method of data collection will be justified in the next section.

3.2. Method of data collection

The method for the nomination of experts, interview questions and document analysis will be explained in this part. I used a structured expert nominee process to obtain a list of prospective experts to participate in interviews. An overview of the experts' nomination and participation process can be found in Figure 3 (on the next page). Firstly, the Scopus digital search engine was used to identify the 50 most widely authors on environmental and migration policies in the Netherlands. I limited the search to the 2006-2016 period to find experts who have recently

published on these topics. Therefore, the 50 most published authors were found in the area of the environmental and migration policies were included in this search engine. It was assumed that these authors are aware of the latest discussion in this field. Secondly, an email was sent to these 50 experts with a request to nominate three to five subject matter (climate change - human migration nexus) specialists (sample of an email can be found in Appendix IV). All the nominated experts were needed to be based in the Netherlands and required to understand English sufficiently. In total 40 authors responded and nominated 15 experts. However, 11 of them were within the scope of this research: the research partners of the two ministries (73% of nominated experts were within the framework of this study). An invitation email was sent to the 11 experts to participate in the research (sample of email can be seen in Appendix V). If experts did not respond to the first email, other two reminders were sent by email. After these reminders had been sent, non-respondents received a follow-up email where they were asked to demonstrate their reason for not participating. In total seven experts participated in this research (91% response date).

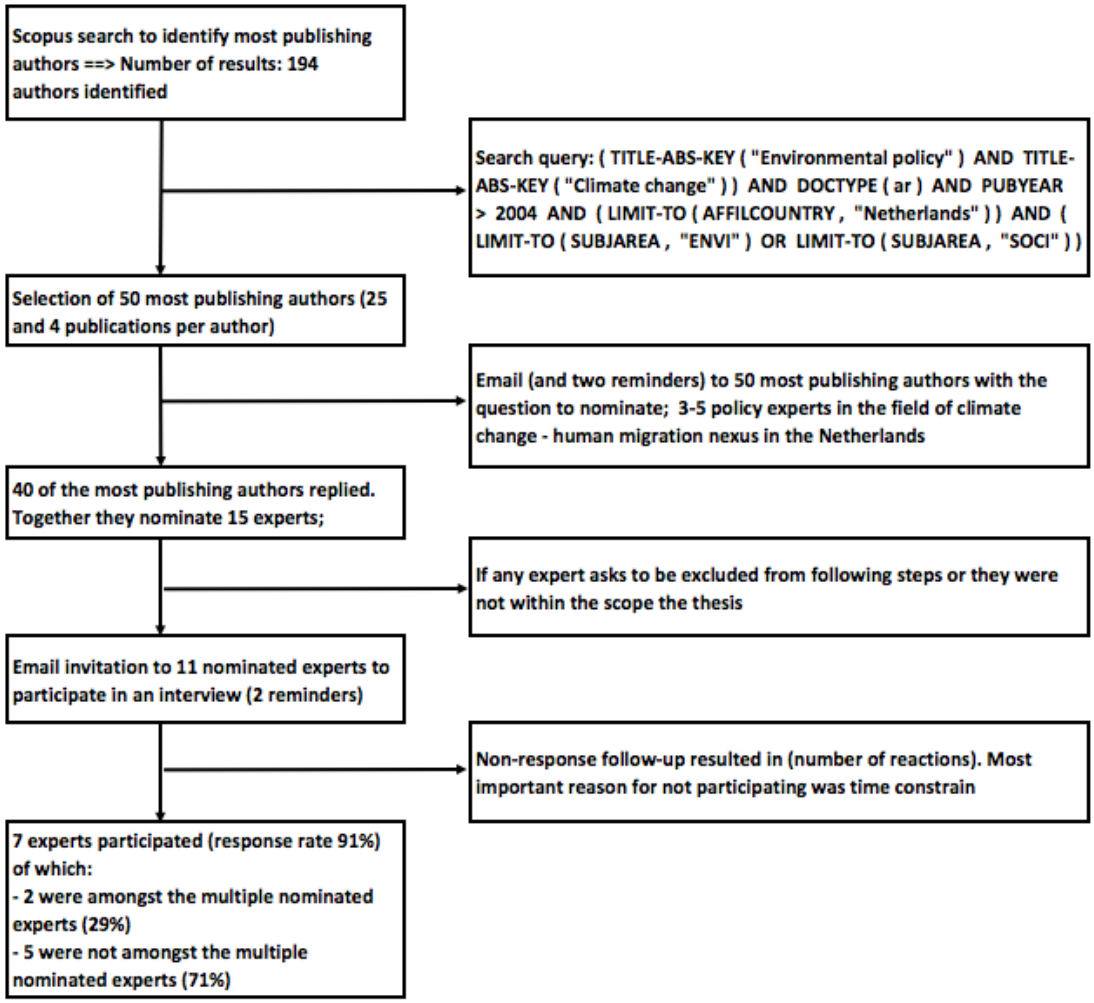

Figure 3: Flow diagram outlining the expert nomination and selection process, adapted from: (Spruijt et al., 2016: 3)

Seven in-depth interviews investigated the policy experts' perception on climate change - migration nexus. The interviews are necessary because in social science research the primary sources of information are individuals (Verschuren & Doorewaard, 2010). The respondents in this study were subjected to a semi-structured interview. I chose the semi-structured interview because it gives the interviewees the opportunity to speak up and talk about their perceptions and experiences. With the design of a semi-structured interview, the interviews took place with the help of a list of open questions (topic list). It indicated the issues that were discussed and provided direction to the discussion to ensure that all relevant issues were addressed. The issues that were discussed in the interview were based on the topics discussed in the literature review as explained in Chapter 2. The main themes included climate refugee, climate change – human migration nexus, climate refugees' problems and solutions, and the experts' interaction with policy. Since it is the aim of a semi-structured interview to make the respondents talk freely, each topic consists of 1-3 open questions to stimulate the respondents to discuss the issues (see Table 2). With interviews there was no do-over, there was only one chance to conduct the interview right. The interviews with the respondents were face-to-face (two interviews), via Skype (four interviews), and via telephone (one interview). The test interview was also done to see whether or not all topics were covered with the topic list. The duration of an interview took around forty minutes to one hour. The overview on interviewed transcript can be found in Appendix VI.

Research questions	Topic list	Interview questions
1. How do policy experts define climate change and human migration?	A. What climate change is, and who are the environmental refugee	1. How do you perceive 'climate changes'? and which one has the most serious influence on migration? 2. What are the advantage and disadvantages of migration as an strategy for climate change adaptation? 3. How 'environmental refugee' can be defined?
2. How they explain the relationship between climate change and migration, and what are the differences?	B. Ways that climate change infuence on migration decision/ simple or complex	4. Can you explain what factors can influence on migration? please provide some examples? 5. How do you distinguish environmental from other factors migration? 6. How would you identify somebody as 'environmental refugee'?
	C. Possible problems caused by environmental refugees	7. Which problems can be caused by environmental refugees?
	D. Possible solutions for environmental refugees/ prevention or protection	8. How do you look at the solutions of environmnetal refugee?
3. What is the role of policy experts within environmental policy?	F. The context and type of interaction with policy makers	9. Can you explain the characteristics of the information in your decision-making? 10. How do you describe your interaction and relation with policy makers?

Table 2: Overview on interview topic list and interview questions

Another category of sources is including documents that may provide information or knowledge for a research project. Since already different studies have been performed within climate change – migration nexus, including them enrich the quality and trustworthiness of the research result. Although the interviews can give a real insight into the perception of policy experts from university partners and national research organization, the in-depth information is missing from PBL, AIV, and their European partners. Therefore, fourteen documents are an excellent addition to collect possible information, which is available online from PBL and AIV as well as their partners. The following documents have been used (see Table 3).

PBL and its partners	
1	The report of Fondazione ENI Enrico Mattei (FEEM), which is titled 'Migration and Climate Change in Rural Africa. February 11, 2015'
2	The report of Fondazione ENI Enrico Mattei (FEEM), which is titled 'Development, Climate Change Adaptation, and Maladaptation: Some Econometric Evidence. September 2015'.
3	The report of International Institute for Applied Systems Analysis (IIASA), which is titled 'the human core of the shared socioeconomic pathways: Population scenarios by age, sex and level of education for all countries to 2100. 7 June 2014'.
4	The report of International Institute for Applied Systems Analysis (IIASA), which is titled 'Women, Weather, and Woes: The Triangular Dynamics of Female-Headed Households, Economic Vulnerability, and Climate Variability in South Africa.
5	The research article of International Institute for Applied Systems Analysis (IIASA), which is titled 'Universal education is key to enhanced climate adaptation. 28 November 2014'.
6	The research article of International Institute for Applied Systems Analysis (IIASA), which is titled 'Social Participation and Disaster Risk Reduction Behavior in Tsunami Prone Areas. 2014'.
7	The report of Postdam Institute for Climate Impact Research (PIK), which is titled 'THE IMPACT OF CLIMATE CHANGE ON COSTS OF FOOD AND PEOPLE EXPOSED TO HUNGER AT SUBNATIONAL SCALE. No. 128. 2015'.
8	The research article of Netherlands Environmental Assessment Agency (PBL), which is titled 'Environmental drivers of human migration in drylands - A spatial picture. 11 December 2014'.
9	The background studies of Netherlands Environmental Assessment Agency (PBL), which is titled 'Food Security in Sub-Saharan Africa: An Explorative Study. 2012'.
10	The scientific support to policies of EACH-FOR, which is titled ' Environmental Change and Forced Migration Scenarios. 14 May 2009'.
AIV and its partners	
11	The advisory letter from Adviesraad Internationale Vraagstukken (AIV), which is titled 'Climate Change and Security'. No. 14, January 2009'.
12	The advisory letter from Adviesraad Internationale Vraagstukken (AIV), which is titled 'The Protection of Civilians in Armed Conflict'. No. 102, July 2016'.
13	The research report from Clingendael, which is titled 'Terra Incognita: land degradation as understanding threat amplifier. January 2014'.
14	A book chapter from Clingendael, which is titles 'Climate change'.

Table 3: Overview on list of used documents

3.3. Method of data analysis

The research data were collected through seven interviews and fourteen documents. The content analysis is the method of data analysis. Content analysis is a widely used qualitative research technique (Hsieh & Shannon, 2005). After transcription of all the interviews and reading the documents, they were analysed using a coding frame. All codes are coming from the interviews' transcripts, and documents were brought together in one single coding frame. This coding frame consists of five main topics which are all categorized in sub codes. The main themes of the coding frame have been marked with a colour in the following way:

1. Purple: The concept of climate refugee
2. Red: The policy experts' advice
3. Green: The macro drivers of migration
4. Blue: The micro and meso drivers of migration
5. Grey: The role of policy experts

In Appendix VII an example of the coding process is added. At the side-line of the interview transcriptions and documents, the kind of sub code which categorized this main topic and piece of (interview) text has been defined in a comment. After that all the collected codes have been reported in a clarifying scheme, which is able to recognize pattern recognition. When using the coding frame, important concepts can be identified in the data, such as climate migration, climate change – migration nexus, and the role of policy experts. Finally, the concepts and categories were linked to each other and to the existing literature. The results of this led to a description of the main concepts and an answer to the research question. A directed approach to content analysis is categorized as a deductive use of theory and it can provide predictions about the variables of interest or about the relationships among variables, thus helping to determine the initial coding scheme or relationships between codes (Hsieh & Shannon, 2005).

3.3.1. The concept of climate refugee

The first coding scheme covers the concept of climate refugee. The concept of 'climate refugee' is derived from the conceptualization of Biermann & Boas. Biermann and Boas defined '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: rise in sea level, extreme weather events, and drought and water scarcity" (Biermann & Boas, 2012: 292). With the help of this conceptualization, three dimensions have been recognized to identify someone as climate refugee. A climate refugee is someone who (1) is facing different impacts of climate change, (2) make the decision to move, and (3) make this decision immediately or in the near future. First, the impact of climate change implies slower onset impact and extreme events dimensions of climate change. According to Burrows & Kinney (2016), these changes includes drought, heat waves, floods, storms, wildfires and, changing

rainfall patterns, sea-level rise, decreased soil fertility, and others. The climate changes affect migration decision with three codes: (a) Rise in sea level, (b) Extreme weather events, and (c) drought and water scarcity. Second, people who have been forced to (a) leave their traditional habitat are refugee (El-Hinnawi, 1985). Third, the movement is (a) immediately because seriously affected the quality of their life or (b) in the near future because climate changes jeopardized their existence. With this coding, it is intended to reveal how policy experts envision the climate change and migration in the light of 'climate refugee'. Thus, for every feature of the climate refugee concept, codes have been developed and put into categories (see Figure 4). The figure provides an overview of the three features (in purple) and the respective codes (in white)

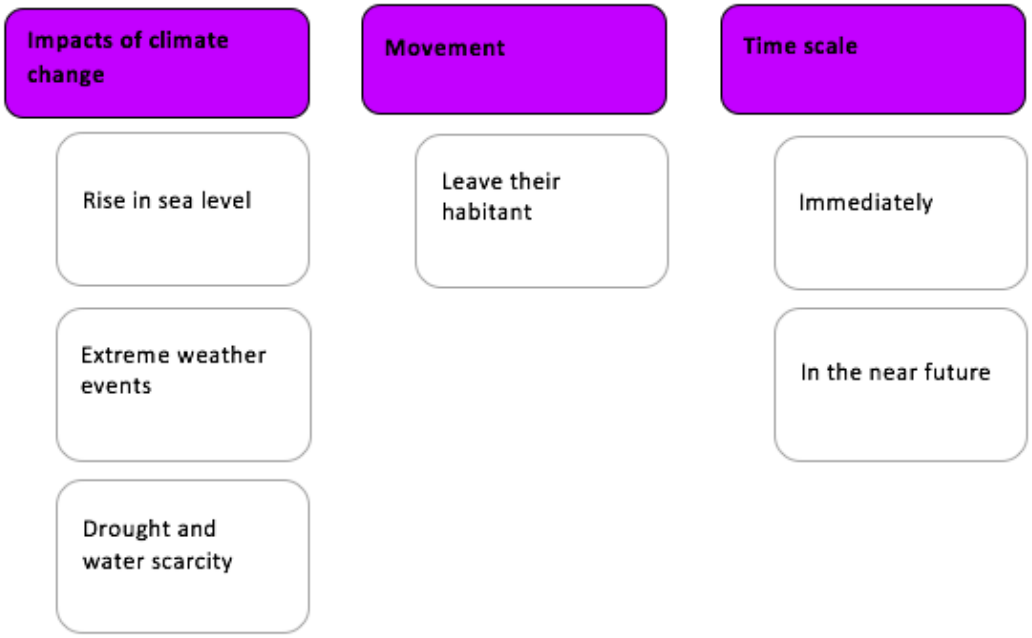

Figure 4: Coding scheme, The concept of climate refugee, Source: Own compilation

3.3.2. The policy experts' advice

The second step is the way that various policy experts discuss the solutions of climate refugee, which is derived from the two schools of thought, namely 'maximalist' and 'minimalist'. Maximalist are environmental experts, which includes (1) environmental sustainability experts, and (2) international security experts. The minimalist are migration experts. These experts consist of (3) international assistant experts, and (4) protectors of forced migration. The four categories, which are used to examine the various problems of environmental refugee. Each expert advice two different policy advice. The environmental experts advise (a) responsibility, and (b) climate justice. The international security experts advise (a) border-control technology, and (b) military. Third, international assistants advise (a) disaster risk reduction, and (b) resilience. Finally, the protector of forces migrant advises (a) responding to essential needs, and (b) international

protection. Thus, for every feature of the theoretical concepts, codes have been developed and put into categories (see Figure 5). The figure provides an overview of the four features (in red) and the respective categories (in white).

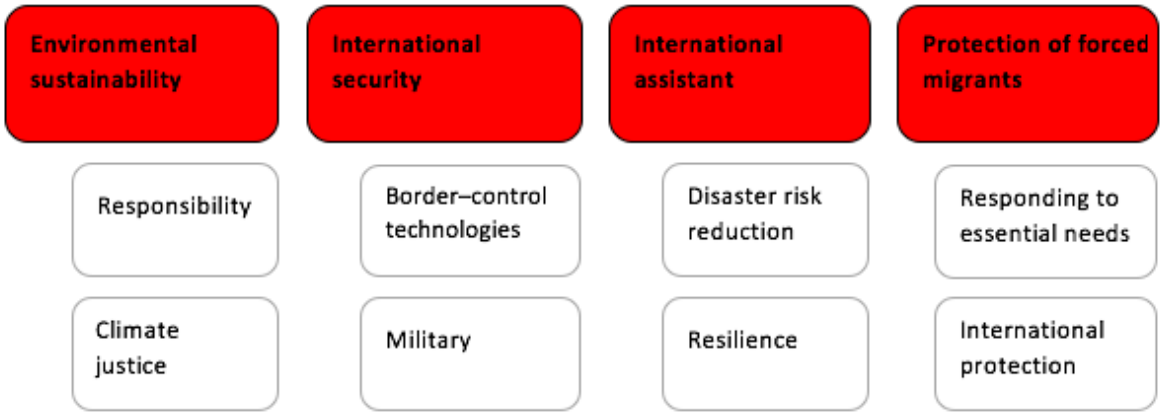

Figure 5: Coding scheme, The policy experts' advice, Source: Own compilation

3.3.3. The macro drivers of migration

The third step is to reveal the relationship between climate change and migration. The conceptual model of migration drivers of Black et al. was used to explain the relationship between climate change and human migration. Macro driver contains five indicators: (1) environmental, (2) political, (3) demographic, (4) economic, and (5) social. First, the environmental driver is divided into four codes: (a) risk to be harmed, (b) productivity of land, (c) food/ energy/ water scarcity, and (d) habitability. Second, the political driver is divided into four codes: (a) discrimination/ persecution, (b) governance/ freedom, (c) conflict/ insecurity, and (d) policy incentives. Third, the demographic driver is coded as follows: (a) population and (b) disease control. Fourth, the economic driver includes four codes: (a) employment opportunities, (b) income/wage/ wellbeing, (c) producer price, and (d) consumer price. Finally, the social driver is divided into two codes: (a) seeking education, (b) family obligation. For example, formal education reduced vulnerability to environmental stressors and as a result reduced migration for economic reasons (Van der Land & Hummel, 2013). For example, Mallick and Vogt found that migration rates were much higher in lower socioeconomic segments due to lack of income. In addition, the areas that depend more on the environment (agriculture) will see more environmental migration (Burrows & Kinney, 2016). Overall, with this coding, it is intended to reveal how policy experts relate climate change with migration in the context of macro indicators. For every features of the theoretical concepts, codes have been developed and put into categories (see Figure 6). The figure provides an overview of the five drivers of migration (in green) and the respective categories (in white).

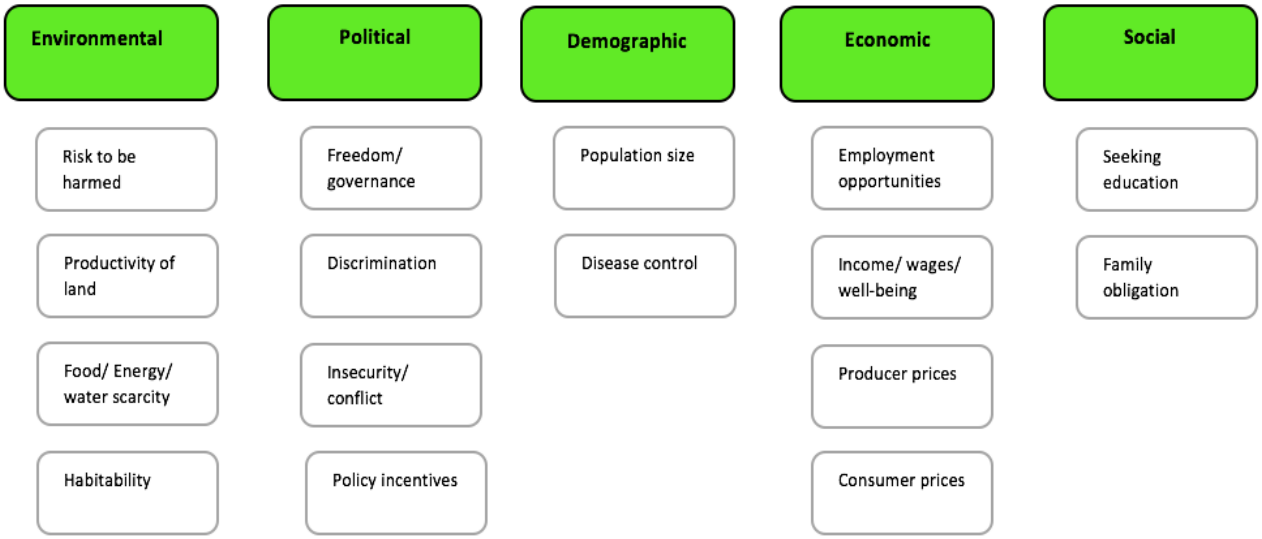

Figure 6: Coding scheme, The macro drivers of migration, Source: Own compilation

3.3.4. The micro and meso drivers of migration

In this paragraph, the micro and meso driver are coded. The conceptual model of migration drivers of Black et al. (2011) was used to explain the relationship between climate change and human migration. Micro driver includes eight (1) household characteristics and meso driver includes six (2) obstacle or facilitators of migration. Actually, these two different drivers represent significant filters as to whether people move or not in any particular case (Black et al. 2011). The micro driver includes personal or household characteristics of migrants. Households' characteristics is divided into eight codes: (a) wealth, (b) age, (c) sex, (d) education, (e) ethnicity, (f) marital status, (g) language, and (h) religion. According to Geddes et al. (2012b), the distance that people move will be linked to the social, physical, and financial resources that they possess. In addition to the micro drivers, meso drivers is divided into six codes: (a) social network, (b) technology, (c) cost of moving, (d) diasporic link, (e) legal framework, and (f) political framework. For example, the choice of destination is affected largely by distance from the place of origin (most migration occurs over short distances), availability of jobs and housing, family and social networks, and immigration policies in the new location (Morrissey, 2012). As Black et al. (2011) mentioned: underlying these fine-grained details of location and temporal scale, the drivers, filtered by barriers and facilitators, will manifest themselves in different spatial and temporal patterns of migration in a variety of ways, depending on local context. Overall, the perception of policy experts is revealed relate climate change to migration decision in the context of micro and meso drivers. For every feature of the theoretical concepts, codes have been developed and put into categories (see Figure 7). The figure provides an overview of the two drivers of migration (in blue) and the respective categories (in white).

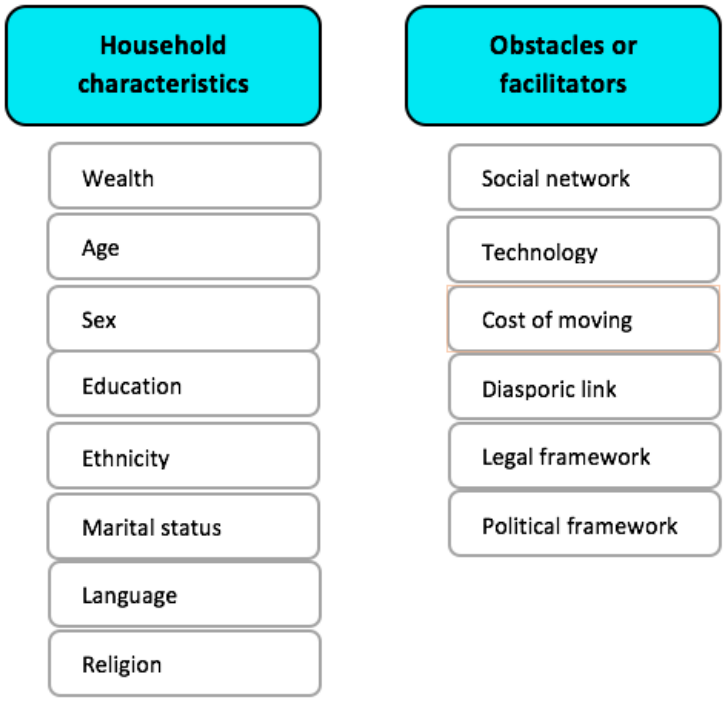

Figure 7: Coding scheme, The micro and meso drivers of migration, Source: Own compilation

3.3.5. The roles of policy experts

The last step is determining the role of policy experts which was derived from Pielke typology. Pielke described the different roles that experts can fill when interacting with policymakers in highly uncertain and politicized contexts. These categories consist of (1) pure scientist, (2) science arbiter, (3) issue advocate, and (4) honest broker. Pielke distinguishes two types of political context, namely 'tornado politics' and 'abortion politics. The importance of knowledge in decision making, and the types of knowledge that are important for decisions are the function of political context. Pure scientist is divided into five codes: (a) evaluating, (b) using methods, (c) being logical, (d) being comprehensive, and (e) being autonomous. Second, science arbiter has the first four characteristics as a pure scientist but she/he believes that it is their duty to maintain continuous dialogue with policymakers, and they are very interested in political debates surrounding their research (Spruijt et al., 2016). Third, issue advocate is also divided into five codes: (a) justifying, (b) exercising power, (c) being narrative, (d) being selecting, and (e) having formal engagement. The key point is the formal engagement between experts and decision makers (Pielke Jr., 2007). Finally, the honest broker has the first four characteristics as issue advocate but what is important is the commitment to clarify the scope of possible action so as to empower the decision maker (Pielke Jr., 2007). Overall it is intended to reveal the role of policy experts in relation with climate change and migration. For every feature of the theoretical

concepts, codes have been developed and put into categories (see Figure 8). The figure provides an overview of the four policy experts roles (in grey) and the respective categories (in white).

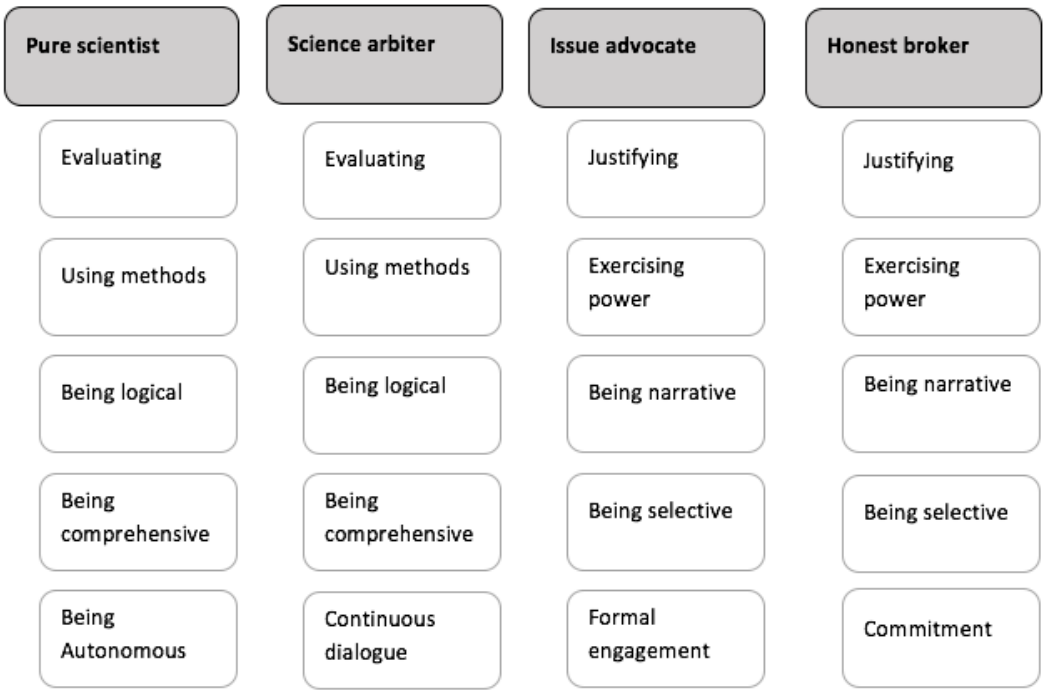

Figure 8: Coding scheme, The roles of policy experts, Source: Own compilation

3.4. Research quality indicators

The quality indicators for a qualitative research can be divided into three indicators: reliability, replication, and validity.

3.4.1. Reliability

To enhance the reliability of the report, the interviews were audio taped and transcribed directly after each interview. In addition, the same interview topic list was used in every interview and the topics were defined and explained carefully to the interviewees to make sure interviewees interpret the questions in the same way.

3.4.2. Replication

During the research all the decisions, process and further actions were explained and written down. The process of nomination of experts, the topic list for interviews, the coding process, were added so if the research needs to be replicated by another researcher, they know how it was done.

3.4.3. Validity

I applied two validation techniques. The first strategy to increase the validity of the study is the way that the research participants were selected. Participants were chosen by the structured

nomination of experts to make sure that they represent the range of experiences that the research has been examining. Second, all the available/ online documents within the scope of the study from the two Ministries' partners were used to establish the view of them on the issue.

3.5. Concluding remarks

In this research, an answer will be given to the three sub-questions, as well as the main question by making use of the qualitative data. The policy experts who cooperate with the two ministries were studied. Seven policy experts were nominated by the structured nominee process. The respondents in this study were subjected to a semi-structured interview. Besides, a content analysis was done by making use of fourteen documents which were published. Furthermore, the data has been coded by the method of open coding and all selected parts of the transcript were analysed and transmitted to an Excel spread sheet: axial coding. This coding frame consists of five main topics which are all categorized in sub codes. The motivation to answer the main research question contains answering the three sub-question: 'climate refugee', 'climate change - migration nexus', and 'role of policy experts' with reference to the codes that are revealed in the coding scheme.

First, the aim is to reveal how policy experts define climate change and migration in the light of climate refugee. It seems this concept does not exist so far and the policy experts do not have consensus on the concept. Therefore, the theoretical concept is separately examined as 'impacts of climate change', 'movements', and 'time scale'. Accordingly, the impacts of climate change are analysed to reveal the policy experts' view on the impacts of climate changes on migration decision. In addition, the type of the movement and time scale are other aspects of climate refugee. Thus, the concept of 'climate refugee' will be investigated from policy experts' points of view including policy experts' advice. Second, the goal of examining 'climate change – human migration nexus' is to reveal the views of policy experts' on the relationship between climate change and human migration. Therefore, the relationship between the concepts is investigated as 'social', 'environmental', 'political', economic', 'demographic', 'household characteristics', and 'obstacle and facilitators of migration'. Accordingly, the research is constructed to analyze the differences between policy experts' perception of climate change – human migration based on these drivers. Finally, the characteristics of policy experts' knowledge in generating advice and the context of policy experts' interaction with policymakers is investigated. By giving an answer to each sub-question which have been conducted for the research, it will be possible to give an answer to the main research question: how policy experts envision the relationship between climate change and migration. The greater purpose of this research is to contribute to the understanding of how the differences in policy experts' perceptions on the significance of climate change - human migration nexus come.

Chapter 4: Data analysis

In a world plagued by stress and uncertainties, struggle, everyone from environmental and migration researchers, and experts to policymakers want to know why and how climate change affect human migration. The policymakers are far from completely understanding the complex and vital process of climate change and migration (Upadhyay et al., 2015: 411). As science, knowledge, experts, evidence, and policy-making have been linked (Baekkeskov, 2016: 396), this thesis seeks to explore how policy experts envision the relationship between climate change and human migration. Especially, to know whether the differences in policy advice stem from the various viewpoints on content or the different roles of policy experts in interaction with policymakers. Before starting to write, there are questions of why is this research worth writing? What's the contribution that the thesis is hoped to make? The most valuable contribution to the ongoing discussions on climate change – human migration derives from the suffering of vulnerable people, and it is not because of only climate change. This chapter consists of answers to the three sub-questions. The first sub-question aims at revealing how policy experts define climate change in the context of migration by shedding light on the concept of climate refugee. The second sub-question attempts to provide insights in how various experts relate climate change to human migration decision, as well as revealing the differences between perception of policy experts. These differences include macro, micro, and meso drivers of migration. The third sub-question aims at uncovering the role of policy experts. This sub-question will be discussed and analyzed within the first and the second sub-questions. The reason is that to consider right away whether the policy experts' advice comes from the differences in viewpoint on the content (climate refugee or climate change – human migration nexus) or their interaction with policymakers. Particular attention continuously will be paid to the policy experts' advice. These parts include findings from the conducted interviews and analyzed documents. The results are analyzed and discussed concerning the theoretical framework. Finally, the chapter ends by providing an answer to each sub-question.

4.1. The counterintuitive climate refugee

The current literature on climate change and migration revolve around themes of climate refugee (Upadhyay et al., 2015: 396). Unlike migration, environmental experts argue that it is a straightforward process to title somebody as environmental refugee. Because the natural environment is easily distinguishable from the non-environmental drivers of migration (Morrissey, 2012). As the result of this, it can be predicted that an enormous number of people will move within and between states which requires international security. The frame of security already in term of 'climate refugees' has been very influential in policy areas (Bettini et al., 2016). Furthermore, if climate refugee is found appropriate, the users of this concept put the blame on nature rather than on the social causes of it (Oliver-Smith, 2012; Piguet, 2013; Salehyan, 2008).

To investigate which policy experts and to what extent they are certain to justify climate refugee, this section consists of three parts. First, it is argued how the policy experts define climate change in the context of migration to find whether they focus on a particular climate change or not. Second, it is discussed how policy experts believe on the complexity of the relationship between climate change and human migration to define somebody as climate refugee. Besides, I reveal the policy advice for climate refugee. Third, this section includes the interaction of policy experts with policymakers. With the aim of these steps, the critical insight is to develop an interpretation of whether the differences in policy experts' advice stem from the various viewpoints on the concept of climate refugee or from their interaction with policymakers. At the end of the section, the key results will be presented in the bullet points.

Migration decision has been an essential choice for human experience for a long time. People forced to displace, or they move voluntarily as the result of climate change. The concern here is whether climate change causes people to move across borders, or whether migration is within borders for a short period. During the conducted interviews, research participants answered to an open question, which allowed them to mention how they define and perceive climate change in the context of migration. Respondent four who has migration - development expertise said that climate change apparently put an issue. He added vulnerability and did not include any particular impact of climate change. He said that some parts of the world are more vulnerable than others, especially those places where global warming is substantial. Besides, respondent two who has the environmental expertise and works at a university said that she works based on daily realities rather than impacts of climate change. Respondent one who has the environmental knowledge and works at a migration institute mentioned that she focuses on land degradation, food, and water scarcity associated with climate change.

Indeed, it was observed that the policy experts are unable to deny the concerning evidence on climate change. It was not difficult to recognize that some policy experts focused on a particular type of climate change when they were asked to explain it in the context of migration, while others did not mention any specific impacts. Because it was clarified earlier by Morrissey (2012), who said that the maximalist scholars offer a description of how a specific environmental change will generate migration. The minimalist scholars do not focus on any definite impact of climate change. However, it was complicated to acknowledge that expertise did not show whether experts follow a particular approach. The environmental and migrations scholars support minimalist approach, but there is a tendency among migration and environmental institutes to focus on a particular climate change, and maximalist approach leads these institutes. It seems different sectors instead of expertise have approached this issue from various viewpoints. By contrast with Mayer (2014), migration and environmental experts follow minimalist school and maximalist schools respectively. Overall, some policy experts do not focus on any particular impacts of climate change and others include land degradation, food, and water

scarcity. Related to this discussion, is the question of how these experts explain the complexity of climate change - human migration nexus in light of climate refugee.

I observed that these narratives struggled to talk about what scholars call climate refugee – the people who are forced to migrate because of climate change. This term gets a lot of attention, as for the numbers, a broad range of 25 million to 1 billion people has been estimated to be displaced by 2050 (Stern, 2007). In a world filled with this prediction of the numbers of climate refugees; is the question of whether the policy experts talk about climate refugee quickly, or they face difficulty in defining the concept.

As data were collected and analyzed, it was recognized that without exception the people who were interviewed were struggling with describing the concept of climate refugee. There were stories about not possibility of defining this concept. Respondent two mentioned that it was difficult to give an answer to this question. Besides, it is possible to determine climate refugee for only one situation. Respondent three and one claimed that they could imagine if it comes to the small developing state that is disappearing as the result of the sea-level rise, migration is more visible and also more important because they lose their nations. Furthermore, some interviewees described it as an inappropriate concept. Overall, it was obvious that it is not always the migration experts who struggle with climate refugee, but also environmentalist face difficulty in defining this concept. Below are two of visible reactions that I got from two respondents.

> "Oh, it is very difficult to answer, it is very difficult to say that recognizing someone as environmental refugees." (Respondent one, Page: 75, Line: 28)

> "There is a resistance of labeling of climate change and migration as climate change refugees on top of the other problems." (Respondent seven, Page: 87, Line: 15)

Still, the experts nowadays find it difficult to explain this concept. However, the idea of climate refugee has been a growing topic of study since El-Hinnawi brought the term climate refugee into public debate in 1985 for the first time. According to the current literature, climate change and migration revolve around themes of "environmental refugees", "climate refugees" or "climate change refugees" (Upadhyay et al., 2015: 396). It can be interpreted that the relationship between climate change and human migration is far more complicated than it thought. Climate refugee is described 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: rise in sea level, extreme weather events, and drought and water scarcity" (Biermann & Boas, 2012: 292). Obviously, this definition does not include any destination, either national or international. Lets' see whether it would be possible to define climate refugee and include destination from the interview data and document analysis. It is

remarkable that the policy experts stress on the complexity of defining somebody as a climate refugee. As findings show, the policy experts believe identifying someone as climate refugee remains complicated. This finding is in accordance with previous research by Hunter & Luna (2015), who agree that this shift from simplistic conceptual linkages fuelling the environmental refugee debate indicates how far the field has come.

After the complexity of defining climate refugee emerged from the data, it is time to look back to the literature review to notice what other researchers had written about the compound nature of climate change - human migration nexus. Interestingly, several studies wanted to develop frameworks that go beyond the somewhat straightforward observation that people living in areas that experience adverse consequences of environmental change may be forced to migrate, such as land degradation, declining land productivity, increased flood or storm hazard or sea-level rise (Black et al., 2011). According to Perch-Nielsen et al., (2008), who explained that in the case of sea level rise, the overall connection between climate change and migration is stronger because sea level rise is caused to a large extent by climate change (in contrast to floods). Also, it has been shown to an individual flood event people will be displaced on a temporary basis, generally during the flood emergency period. Following reoccurring flooding events, people tend to be either relocated or migrate on a permanent or semi-permanent basis (Warner et al., 2010: 20). According to respondent seven:

> "Flooding in Bangladesh is not a problem as such and it becomes a problem when it happens more often and longer and people lose land because of it." (Page: 87, Line: 21)

Thus, it can be concluded that it is firstly uncertain to know to what extend flood occurs as the result of climate change. Second, people will displace rather than migrate as the result of flood. Furthermore, the positive environmental conditions – such as high land quality and positive rainfall shocks – appear to facilitate migration, including local, internal, and international population movements (Gray & Bilsborrow, 2013: 1237). However, the result shows that the policy experts find this process complex. The complexity revealed also challenges in the idea of a simple, unidirectional link between environmental drivers and migration (Ocello et al., 2015). The complexity and nonlinearity of these effects also make clear that no single theory or narrative can easily explain all environmental influences on migration (Gray & Bilsborrow, 2013). The process of movement and migration is usually subject to a complex set of push and pull forces, where push forces relate to the source area while pulling drivers are related to the destination (Warner et al., 2010). Recent studies have clearly demonstrated that the migration–environment connection is complex and shaped by micro, meso, and macro influences (Black et al., 2011; Hunter, Luna, & Norton, 2015).

At first, it was expected that difficulty of explaining climate refugee that was observed in the research would lead to a very straightforward conclusion – climate change is not a core

component of migration. According to the data, both environmental and migration experts stress that it is complex to identify someone as climate refugee. Baldwin (2015) mentioned that migration experts believe that identifying someone in the present as a climate migrant remains impossible. This finding does not support the maximalist approach which is dominated by environmental experts (Mayer, 2014) and believes identifying someone as climate refugee is possible (Morrissey, 2012). Although some of the interviewed experts do perceive movement as a result of rising sea level on a small island, which pushes people to migrate. Proponents of climate refugee define this as the 'common sense models' – 'common sense', referring to the assumption of migration as an inevitable consequence of vulnerability (Morrissey, 2012). As findings show, it remains impossible to title a person as 'climate refugee' for slow-onset climate changes. Even it is hard to distinguish somebody as 'climate refugee' for extreme weather events, such as flood and earthquake. As Ambrosetti (2015) showed that the earthquake has strongly shaped social and economic exchange and population movements between the towns of L'Aquila's province due the strength of pre-existing ties, flows, and relationships.

But it emerged from the interviews quickly that climate refugee meant something to some experts. Here is how climate refugee is defined based on the research interviews:

> *Climate refugee is a person who lives on a small island and has to leave his/ her habitat immediately because of sudden alternation in their natural environment related to only one of climate changes: the sea-level rise.*

In other words, this definition argues that people are only forced to move as the result of the sea-level rise. Thus, it remains ambiguous whether population will move nationally or internationally as the result of slow-onset climate change, such as sea-level rise. Unlike what Black et al., (2011) said, international displacement following an environmental disaster is more significant for small states or islands (Black et al., 2011). By contrast, there is already evidence that the inhabitants of small islands are more resilient to sea level rise, such as Isla Batasan in the Philippines (Yamamoto & Esteban, 2017). Without doubt, it can be interpreted that the policy experts believe that the large estimation of climate refugee is questionable and climate change – human migration associated with high uncertainties. The reason is that there is a complex relationship between climate change and human migration. As Black et al. (2011) and Sheffield, Wood, & Rode (2012) pointed out, migration and drought, respectively, depends on local context. Indeed, various scholars have widely criticized extensive evaluation of environmental migration to occur in the future (Black et al., 2011; Gemenne et al., 2014; Piguet et al., 2011). This result contradicts with multiple studies that have estimated a significant number of people will be displaced as the result of climate change by the end of 2050 (IOM, 2008; Myers, 2001; Stern, 2007). Thus, there is an enormous uncertainty about how many people will move and where they will move to (Abel, 2013). Here are what FEEM and respondent seven mentioned:

> "Future climate change scenarios are fundamentally uncertain." (FEEM, 2015: 11)

> "The climate change and its impacts are not clear, and even the models themselves may not be true anymore with the climate change." (Page: 86, Lines: 1-3)

During the interviews, the discussion was continuing with the interviewees who were struggling with defining climate refugee. Because of the agreement on the difficulty of defining the concept, it is unusual if their advice and the ways that they dealt with this concept would be very different. However, they answered surprisingly in very different ways, including reducing CO2, creating more justice between global North and global South, international security, and protection of forced migrants. The findings show policy experts advise four types of solutions. This finding is in line with Mayer (2014), who distinguishes four normative enterprises that compete to use similar notions in the pursuit of different goals. First, some experts believe that the cause of the problem should be solved: reducing CO2. This frame is the call for framing of this issue as a matter of responsibility touch deep-rooted (Mayer, 2014). Second, some experts advise international security. These policy experts use this framing to put the issue on political agenda and push international cooperation to do something about the climate change. Since these experts focus on security threat of climate refugees, and the security argument is rooted in strong emotions – fears – that compel immediate action (Mayer, 2014). The first is to cast human mobility as a problem, and the second is to present this issue as occurring on a scale (Morrissey, 2012). Here is what respondent one said:

> "The problems with environmental refugee would be the same problem as with other international migrants." (Page: 75, Line: 29)

In other words, defining environmental refugee is not only impossible but also is a problem which generates fear. To prevent this, these experts advise international security. As various scholars mentioned, one way that the climate change – human migration nexus has been understood is victims or security threat (Bettini, Louise Nash, & Gioli, 2016). However, this finding was unexpected because these policy experts cannot define climate refugee, except for the sea-level rise which does not generate a large number of refugee. Indeed, this impact does not generate international migrants, but people may move within borders. It can be interpreted that the policy experts advise international security because there want to prevent human migration and it has nothing to do with climate change discussion. Third, it is interesting to note that many policy experts include international assistance during the interviews and in documents. This advice might be ineffective. Humanitarian advocates have been able to gather considerable funds to respond to a natural disaster, but they have been less successful in triggering resources for long

term policies (Mayer, 2014). Respondent seven mentioned in some cases that international assistance such as development aids are helpful.

> "The most efficient development aid that I have seen has been very long term commitments with little money." (Page: 87, Line: 29)

In sum, development aids are other options, but there are not always useful. Fourth, the protection of displaced people was framed by some policy experts and focus on forms of the vulnerability of migrants. As Mayer (2014) mentioned, forced migration arguments are used on various types of vulnerability, specifically those that are related to forced displacement. Thus, four kinds of policy advice were observed, and I expected that the policy advice does not stem from the concept of climate refugee. Instead, the interaction between experts and politicians might be its root. As Davies et al. (2014) mentioned, not only different viewpoints on content but may also differences of opinion on the role of scientific experts shape their policy advice. This idea leads to discuss the third sub-question: what the role of policy experts is.

So, what do the differences in policy advice mean? The persons who were interviewed talked about their interaction with policymakers. Some experts have formal communication with policymakers. While others just reply to ad hoc requests and few of them try to provide all possible options to decision makers. It was observed the three policy experts' roles: the science arbiter, the issue advocate, and the honest broker of policy alternatives. Finding the three roles is in line with Pielke Jr. (2007), who believe that as soon as scientists involve with politics, they are not the pure scientist (Pielke Jr., 2007). This finding confirms previous literature, Spruijt et al., who calls science arbiter as the pragmatist. The pragmatists use scientific information as a strategic resource in debates (2016). Besides, an issue advocate believes that there should not be a strict separation between scientists who conduct research and policymakers. This finding is in line with the politicization of science which means the use of the pursuit of knowledge as a means of bargaining, negotiating, and compromising in pursuit of the desired end (Pielke Jr., 2007). For example, the potential link between climate change, migration, and conflict has been widely discussed and is increasingly viewed by policymakers as a security issue (Burrows & Kinney, 2016). It seems these experts who believe their work is in the world of policymakers, will stress on international security. Finally, honest brokers think that they need to present all the possible options to policymakers. Therefore, they offer different policy choices rather than focusing on a particular one. Spruijt calls this role as the proactive experts because they think that all the possibilities should be presented to policymakers (Spruijt et al., 2013).

In different ways, this research has not only shown new ways to think about how climate change is defined, but it also argued the relationship between the interactions and choices. It was always thought that experts who have struggled with defining climate refugee would not advise for international security. It means, why would they be? Migration is a complex phenomenon, and climate change does not generate a significant number of refugees. But after spending hours

collecting stories about experiences of policy experts with policymakers, three powerful patterns emerged:

- The issue advocates who have the formal relationship with policymakers focus on land degradation, such as Clingendael. According to this institute:

> "Climate change tends to be a little priority on the political agenda. With the opening of new areas of exploration of raw materials and with food and water shortages caused in part by climate change, international relations could be put to the test." (Dinnissen & van Schaik, 2013: 210)

- Without exception, scholars who work at the universities and were interviewed describe the relationship between climate change and human migration as a complex process. They were not able to define climate refugee, even for rising in sea level. They did not advise international security or did not provide this policy as the only option.

- People who work at environmental and migration institute describe the relationship between climate change and human migration as a complex process. They could define climate refugee for the sea-level rise. But this impact will not push people to migrate outside a state. However, they have the tendency to suggest the international security.

In order words, the differences between policy experts' advice stem from the interaction with policymakers and not from the differences of opinion on the idea of climate refugee. The issue advocates use the concept of climate refugee to put the topic of climate refugee in policymakers' agenda. It means that science is not theory-building as such but rather the production of a result that is relevant and applicable for the users of the research (policymakers).

4.2. The complexity of climate change - human migration nexus

Unlike migration experts, environmental experts argue that the relationship between climate change and human migration is linear and simple (Morrissey, 2012). The environmentalists who follow maximalist approach have been very influential in policy area, where violence and conflict in several parts of the world are associated with environmental change (Bettini et al., 2016; Salehyan, 2008). The potential link between climate change, migration, and conflict has been widely addressed and is increasingly viewed by policymakers as a security problem (Bettini et al., 2016; Burrows & Kinney, 2016). Framing climate change – human migration nexus as security threat causes a critical issue. There is the risk of overplaying the hand of nature and downplaying the role of policies or politics (Piguet, 2013). The main aim of this section is to find whether policy experts the same as policymakers focus on security threat of climate change, if so, how they do this. Three main parts map this section. First, it is discussed how policy experts explain five macro drivers of migration. Second, micro and meso drivers of migration decision will be examined. Third, the differences between the policy experts' perception of climate change and human

migration will be clarified. At the end of each section, the results will be summarized in the bullet points. With these three steps, the key insight that is aimed to develop is that the difference in policy experts' advice stems from their view on the relationship between climate change and human migration as well as their interaction with policymakers.

Migration is very dependent on various interacting drivers, such as environmental, social, political, climate, and developmental (Black et al., 2011; Upadhyay et al., 2015: 411). The relationship between environment and migration is far from linear or straightforward, and understanding it presents some conceptual challenges (Oliver-Smith, 2012). These problems are embedded in the complexity of the relationship between social and ecological systems and the nature of causality between such complex phenomena (Oliver-Smith, 2012). The first crucial matter is how policy experts distinguished environmental driver from other macro drivers of migration. When the research participants were interviewed who find defining climate refugee a complicated process, they include various macro drivers of migration. Some respondents started to talk about food price (economic) as soon as the question was asked. Respondent three stressed that it seems that food prices are quite remarkable. Besides to the interviews, some documents stress on this driver too. "The agriculture in the Middle East and North Africa is severely affected by climate change showing the immense challenge of these regions about feeding its population. In the longer term increased outmigration might be necessary as part of the solution" (PIK, 2015: 41). Countries with larger agriculture sector in combination with less democratic regimes are more exposed to climate change (FEEM, 2015: 16).

Indeed, some policy experts relate food price and agriculture (economic driver) with migration. Based on the observation, some policy experts believe that economic drivers alone do not push people to migrate. It requires other drivers, such as political and demographical. After emerging these drivers from the data, the literature reviewed was checked to find what other researchers had written about economic driver of migration. As stated by Geddes et al. (2012b), the environmental change can drive movement, although its effects are likely to be observed through its interaction with and effects on these other systems, particularly economic drivers. By contrast, Kelley et al. (2015), who mentioned that severe drought leads to agricultural collapse and mass human migration in Syria (Kelley et al., 2015). Here is what the respondent five and seven mentioned respectively:

> "If in Syria the government had done better water policy for the last twenty years, they could be done much better with drought in Syria and when the drought hit then the government did not help the farmers but the Syrian government could help them." (Page: 83, Lines: 2-3)
>
> "The current hunger in Africa is not due to the climate change and it is because of war." (Page: 87, Line: 17)

In other words, a government has a crucial role in climate change adaptation, and it is questionable to relate climate change to migration through economic drivers only. What was not shocking is the complexity of climate change - human migration nexus, a topic that also emerged as a major theme in climate refugee discussion. It seems that the policy experts believe that agricultural collapse is a major driver but alone cannot play a critical role in migration decision. Unlike to Kelley et al. (2015), who mentioned that climate change has a significant direct impact on migration decision. Thus, movement happens in complex interaction with other drivers, such as political.

Political driver is one of the five elements of migration. When other research participants answered how they relate climate change and human migration, they included other stories. Respondent one indicated that people may migrate because of war and unfair situation. Respondent five mentioned that Syrian people had to migrate because the government did not help them. It seems that these policy experts stress on the role of government. When the role of politics in migration decision was observed from the data, it would be interesting to see what other researchers found about the role of politics. Similarly, governance systems and their characteristic features create migration within and between states, particularly the inequalities of wealth and opportunity embedded within the global politics of unequal development (Payne, 2005). Certainly, political drivers are involved in their operation and highly context-dependent: a breakdown in social and political systems could drive migration, but may also make it more difficult for someone to move (Geddes et al., 2012b). While, environmental change could interact with deteriorating livelihoods and the breakdown of social and political systems in ways that force people to move within states (internal displacement) (Geddes et al., 2012b). On the one hand, Koubi et al. (2016: 8) mentioned that social and economic reasons significantly increase the likelihood of migration whereas political motives do not. One the other hand, the study of the causes and consequences of famine has been reversed by economic and political theories of why and how they occur, not least through Sen's (1982) treatise on the subject, which demonstrated that famines have political roots and are overwhelmingly caused by failures of entitlement to food and resources than with their absolute scarcity (Gemenne et al., 2014). Here are what the interviewed respondents of fifth and fourth mentioned respectively:

> "There is no hunger in democracies." (Page: 83, Line: 11)
>
> "People partially make choices and attached to the choices is the idea of the culture of migration." (Page: 81, Line: 14)

Indeed, the policy experts believe that political factor of migration is one of the key indicators of movements rather than climate change alone. It was not weird to see that some policy experts include environmental factor of migration, as well as, economic, social, and political factors of migration. Because minimalist argue that the natural environment is not easily distinguishable from the social, political, and economic context (Morrissey, 2012: 4). It was interesting that the

policy experts who do not have formal relationship with the policymakers (science arbiter or honest broker) did not alone relate climate change and human migration though conflict, as well as not including international security as the only policy advise. Although the respondent six mentioned that academics are under pressure to be friendly with policymakers, they do not stress on security threat of climate change.

> "There is a tendency among academics to be more friendly to policymakers because of research funding. You need to frame it useful for the Europe but the problem is over there and not here." (Page: 85, Line: 28)

When the participants were interviewed who found defining climate refugee as a complex concept, some of them talked about environmental degradation that has a major influence on migration. "Since land degradation mainly occurs in low-income countries, with growing populations and decreasing soil fertility, it could have a significant impact on the availability of food and water and the risk of conflict in those countries" (Clingendael, 2014: 60). Oliver-Smith argued that placing the blame on nature allows governments and development agencies an easy out if they can explain such disasters as hunger and conflict (Oliver-Smith, 2012).

This finding is crucial and remarkable in the research, so more time was spent to look what other researchers discussed about the land degradation - human migration nexus. Just like earlier research, conventional narratives assume that displacements will inevitably occur under climate change (Warner et al., 2009). Similarly, in certain circumstances these direct and indirect impacts of climate change on human security might, in turn, increase the risk of violent conflict (Barnett & Adger, 2007). In contrast, Selby & Hoffmann, who analyzed the relationship between environmental scarcity, conflict, and migration through comparative analysis of water–migration–conflict linkages in Cyprus and Israel, the West Bank, and Gaza. They found little evidence to support the view that water scarcity can lead to conflict or migration (Selby & Hoffmann, 2012). On a fundamental level, if it is acknowledged that people who are faced with environmental stress make decisions strategically, then it is possible to see that violence is a poor response to resource scarcity (Salehyan, 2008: 3). The relationship between resource scarcity and violent conflict is conjectural (Ide, 2015: 69). Likewise, "in multiple cases, positive environmental conditions—such as high land quality—instead appear to facilitate migration, including local, internal, and international population movements" (Gray & Bilsborrow, 2013: 1237). As Link, Scheffran & Ide, (2016) demonstrated that the framework of the water-security-conflict nexus needs to be embedded into wider political, societal, economic, and cultural structures and discourses. It depends on social, demographic, economic, and political drivers that interact with climate variability and change and all of these are very location-dependent (Burrows & Kinney, 2016). Overall, there is an enormous number of studies which cover climate change and human migration. Also, different works discuss whether land degradation can cause movement or not. Respondent one mentioned the following about it:

> "My impression is that the literature of this topic is very poor and underdeveloped and a very big gap exists between evidence on the relationship between migration/ displacement and climate change." (Page: 75, Lines: 3-4)

Apparently, some policy experts seek for certainty that climate change generates migration. To make it conceivable, they believe that the relationship is likely to be possible through conflict over the resource. These experts still have a tendency to focus on a particular climate change, land degradation to explain migration. For example, Clingendael relates land degradation – conflict – migration. Drawing on this research, some experts do not focus on any particular climate change and believe that the cause of the conflict is not climate change rather the combination of various factors.

Overall, the first part of Black et al.'s conceptual model is applied by all the experts: macro factors of migration. Experts include macro factors of migration during the interviews and document analysis, such as social, economic, political, and demographic. Indeed, besides to the environmental factor, there are usually multiple drivers behind decisions to migrate, such as social, economic, political, and demographical (Black et al., 2011; Geddes et al., 2016b). The findings of this study, suggest that policy experts (environmental and migration experts) who work at the universities believe that distinguishing environmental from other macro factors of migration is complex rather than simple. Unlike what Morrissey (2012) mentioned, the maximalist approach which is led by environmentalist (Myers, 2001), argues that the natural environment is easily distinguishable from the social, political, and economic context. Again, this finding confirms the earlier literature; there is a shift from simplistic conceptual linkages fuelling the environmental refugee debate indicating how far the field has come (Hunter, Luna, & Norton, 2015). Therefore, the policy experts do not point to the environment as the only reason for migration. As Oliver-Smith (2012) mentioned, it was difficult to look to the environment, even in natural agent disasters, as the single cause of anything. On the contrary, Clingendael includes a particular climate change: land degradation. Fundamental to all the objections to the terms 'environmental refugee' or 'environmental migrant' is the idea that nature is being blamed for basically human processes of ethnic or political violence, migration or famine, resembling a form of environmental determinism (Oliver-Smith, 2012). Thus, it seems this institute acts as maximalist, and the scholars perform as minimalist. In sum, after spending hours collecting stories about experiences of policy experts with policymakers and macro factors of migration, two powerful patterns emerged:

- The policy experts who have a formal relationship with politicians focus on land degradation. They explain migration through hunger and conflict. As a result, they advise on international security. Although there is a lot of research that shows that land degradation might not generate climate refugees, these policy experts believe that the literature is poor developed on this issue.

- The policy experts who work at the universities believe that distinguishing environmental factor from other macro factors of migration is complex. They combine all possible factors of migration. These policy experts do not have a formal relationship with policymakers and do not advice international security.

Without the doubt, one of the differences between policy experts' perception was found above. Some policy experts do not include any particular climate change and conflict rather others do. But before writing on the differences between policies, it is demanding to discuss micro and meso factors of migration. It is expectable that more differences of opinions will emerge as considering these factors. Because according to the conceptual framework of Black et al. (2011), individual (micro) and institutional (meso) factors represent significant filters as to whether people move or not in any particular case.

In the second section, the micro and meso factors of migration will be analyzed. Investigating the details of a context starting from the community – to household and individual settings like gender, age, occupation, and class – can reveal how varied responses and priorities get shaped while making migration decisions (Upadhyay et al., 2015). One part of the conducted interviews was talking about other factors of migration to my research participants. Micro factors were also found in interviews, as well as in the documents, such as wealth, age, gender, religion, and education. It was observed that research participants explained less these factors than macro factors. Respondent five suggested that "the majority of the affected people are poor people and they are not able to move due to the lack of money. Poorer families may not find the resources to emigrate (FEEM, 2015: 12). Many of the case studies show unambiguously that individuals who want to leave their villages/regions/country can only do so if they have the necessary financial means and access to networks that support migration (European Commission, 2009: 72).

Some of the policy experts include wealth (income & money) as one of the household characteristics that influence the migration decision. After this finding, looking at literature review was the next step to see how other scholars argue this factor. Similarly, environmental change was identified as a potential migration driver—but, through interaction with other drivers, as potentially leading to the movement towards and not away from risk and also having the potential to destroy household resources and make migration more difficult with the attendant risk of trapped populations (Geddes et al., 2012a). The distance that people move is linked to the social, physical, and financial resources that they maintain (Geddes et al., 2012b). Mainly, where slow-onset environmental change occurs, poor individuals, e.g., day laborers and temporary workers may become 'trapped' because they cannot diversify their livelihoods, or they do not have the resources and capacity to migrate (Koubi et al., 2016). Contrary, the influence of wealth and income on migration is even less clear (Perch-Nielsen et al., 2008). The movement is difficult as a result of the slow-onset climate change, such as land degradation, because people do not have enough resources. Here is what respondent two said:

> "These people are trapped population because they do not have money to move." (Page: 78, Line: 4)

Besides wealth, the experts discuss the gender as a factor that plays a role in migration decision. Sex affects migration decision in the combination with other factors. Women with a non-resident spouse and never-married female heads are more likely to suffer from poverty due to climate variability, especially rainfall variation and economic poverty seems to be a relevant household characteristic (IIASA, 2016: 14). Respondent four mentioned that those girls of 13, 14 years of old, took the chance of shock and moved from the village and to leave the obligations from home. Migration is thus also a highly gendered process (Geddes et al., 2012b). According to Massey et al. (2007), evidence from Nepal shows that men frequently respond to these risks by migrating, but that this option is much more difficult for women (see Geddes et al., 2012b). Also, Gray and Mueller (2012) showed that, in Ethiopia, there was an observed increase in male labour migration in response to deterioration in land quality as a form of income diversification, but a reduction in female migration because of reduced capital to fund marriage migration (see Geddes et al., 2012b). In contrast with the finding, Koubi et al., believe that gender does not have a significant effect on migration (Koubi et al., 2016: 8). Here is what respondent four mentioned:

> "The village as a whole is beginning to fall apart, and this situation is aggregated by the fact that those that possibly take the leadership role (elderly male in the case of Ghana). Because nobody trusts them anymore." (Page: 81, Lines: 26-28)

Of course, gender is another factor according to the data, but the way that it affects migration is dependent on local context. As Black et al. (2011) mentioned: underlying these fine-grained details of location and temporal scale, the drivers, filtered by barriers and facilitators, will manifest themselves in different spatial and temporal patterns of migration in a variety of ways, depending on local context. But let's look at the final household characteristics: education.

Education was another family feature that was emerged from the documents, and only one of the respondents included this aspect. Respondent six mentioned that education is good, but it raises expectation about the future; if a person is not educated he/she knows that being a farmer is his/ her job, but if they have primary and secondary education, they can find a white collar job in a town. Families with a secondary and tertiary educated head are significantly more likely to migrate, compare to families with basic and no education in Ghana and Nigeria (FEEM, 2015: 12). The intention of migration increases substantially only if a community has a high proportion of women with tertiary education (IIASA, 2015: 1). It seems that the experts believe that people with higher education are highly expected to migrate.

After raising this data, other researches were reviewed to investigate what they had said about education and how this factor has an influence on migration decision. Similarly, individuals with lower levels of education, in contrast to the baseline category of people with tertiary education, are less likely to migrate (Koubi et al., 2016). Also, in Mali and Senegal higher levels of

education changed peoples' livelihood strategies, thus changing the environment–economic link (Van der Land & Hummel, 2013). It was also found that the probability of migration was about twice as high among respondents with high levels of education as contrasted with those with primary school (by contrast, respondents with no education tended to stay in their district) (Ocello et al., 2015). Contrary, formal education plays a major role in reducing vulnerability to environmental stress because people with a higher level of education are usually less dependent on environmentally sensitive economic activities such as farming (van der Land & Hummel, 2013). The educational attainment has no significant effect on the migration experience as such. However, motives for migration differ apparently depending on people's level of education. This suggests that labor migration appears to be a strategy to reduce vulnerability to environmental changes mainly for individuals with no formal education or with primary education, whereas the better educated primarily migrate for education or vocational training (van der Land & Hummel, 2013). So some time was spent to understand better how the communication with policymakers is related to this.

Strictly speaking, the policy experts or issue advocates would not relate land degradation to human migration if they include micro factors of migration. Because the bad quality of field causes the households to face scarcity of resources (money) in some parts of the world; they cannot produce goods and sell them to earn money, especially those who have to work as a farmer because they do not have an education. As a result of these situations, the population becomes trapped. Still, these cases depend highly on local context. Overall, including micro factor in climate change - human migration nexus discussion makes the relationship even more complicated. The complexity of the climate change - human migration nexus questions is not only the prediction of a vast number of people to migrate but also international security as a policy option. As respondent four said:

> "Climate refugee is a political category." (Page: 81, Line: 37)

So far, macro and micro factors of migration were discussed. Economic and political factors of migration have the most influence on migration decision. This finding supports Geddes et al., (2012b) partially, who said that economic drivers are and will likely remain the most powerful drivers of migration. However, some experts focus on political factor and some others on the environmental factor of migration. The policy experts who stress on land degradation and conflict, underestimate micro or household characteristics of migration. After discussing meso factors in the next section, the differences between policy experts' perceptions will be argued. It was asked from the research participants what other factors of migration are. Two respondents mentioned 'network of people,' and one respondent said technology. Having an intention to migrate significantly increases for individuals who have engaged in community activities (IIASA, 2015: 15). Besides, according to respondent six who said that people invest in various kinds of technology to stay, such as solar and water conservation. It was observed that meso factors have

the least attention from the interviewed experts, as well as documents. Still, it is interesting to find how other scholars discuss this factor of migration.

After spending some time on reviewing literature, it was possible to find some information on this issue. According to Link, Scheffran, & Ide, (2016), the balance of water demand and supply is shaped by relevant trends in social livelihoods and networks. Similarly, whether a household member has already migrated does not have a significant effect on migration decision (Koubi et al., 2016). Also, there is a wide range of potential technical, economic pathways that have an effect on the overall water availability and determine the degree to which a giver riparian experiences water stress (Link, Scheffran, & Ide, 2016). Those most likely to leave are inherently more mobile because of such things as extended social networks and transferable human capital (McLeman, 2011). Contrary, household composition and social networks shape households' use of migration as a livelihood strategy in the face of environmental stress (Hunter, Luna, & Norton, 2015). Here is what has emerged from micro and meso factors:

- Migration is filtered by wealth, education, and gender (household characteristics). The policy experts who have a formal relationship with policymakers pay less attention to these drivers than other experts.

- Without exception, the policy experts pay less attention to meso factors of migration than micro drivers.

The lessons taken forward from micro and meso factors of migration is the complex and multi-causal process of a movement. It is hard to disentangle the effects of environmental change on migration from other potentially constitutive drivers such as economic, social, political, and demographic changes. The relationship between climate change and human migration becomes even more challenging if policy experts include micro and meso factors of migration in the analysis. But is the question of whether policymakers are interested in making the relationship complex to this extent. As discussed before, some policy experts focus on particular climate change which leads to migration through conflict. These policy experts are issue advocate that have the legal relationship with policymakers. The objective of post-academic science "is not scientific excellence and theory-building as such but rather the production of a result that is relevant and applicable for the users of the research; in other words, the result should be socially relevant, socially robust and innovative" (Bornmann, Haunschild, & Marx, 2016: 1478). The issue advocates frame the issue as security as the result of climate refugee for policymakers. Otherwise, if policy experts stress on the complexity of climate change – human migration nexus, the policymakers did not have the courage to talk about it.

Finally, by summing up the findings regarding climate change – human migration nexus, two main differences between the perception of policy experts were found. One is related to the macro factor of migration. Climate change – human migration is a complicated process, which is

dependent on social, environmental, political, economic, and demographic factors (Black et al., 2011; Upadhyay et al., 2015). The policy experts who work at environmental research institutes and universities found consensus on the complexity of identifying environmental from other factors of migration. These policy experts focus on climate change – human migration nexus. One the other hand, the policy experts who work at migration institute focus on climate change – conflict nexus. These policy experts focus on a particular type of climate change: land degradation. They explain migration through conflicts over resources. However, this has a contradiction with the earlier literature; climate change-security-conflict nexus further needs to be embedded into wider political, societal, economic, and cultural structures and discourses (Link, Scheffran, & Ide, 2016). "Indeed, placing the blame on nature – conflict, allows governments and development agencies an easy out if they can explain such disaster as hunger and conflict on overpopulation or environmental change (Oliver-Smith, 2012). Here is what respondent six told:

> "The root cause of the conflicts is not solved in Nigeria, radicalization from both sides (Muslims and Christians) has been seen, and other powers to get hold of this." (Page: 85, Lines: 15-17)

The second difference is about micro and meso factors of migration. These factors are essential details that decide on the location and temporal scales which depend on local context (Black et al., 2011). One the one hand, policy experts who work at the universities and research institutes, focus on climate change – human migration nexus. These policy experts include micro, and meso factors in their analyses. To be more specific, they include wealth, gender, education, technology, and social network. For example, people cannot migrate due to lack of resources as the result of decreasing of land productivity. This finding is in line with Gray & Bilsborrow (2013) who mentioned: "in multiple cases, favourable environmental conditions—such as high land quality—instead appear to facilitate migration, including local, internal, and international population movements" (Gray & Bilsborrow, 2013). One the other hand, the policy experts who work at migration institutes focus on climate change – conflict nexus. These policy experts combine an impact of climate change (land degradation) with food and water scarcity, economic, demographic factors which lead to conflict. These experts underestimate the effects of the individual (micro) and institutional (meso) factors of migration. They do not apply the conceptual framework of Black et al. (2011), who presented that individual and institutional factors represent significant filters as to whether people move or not in any particular case. According to two responds:

> "Climate change has clearly put an issue. If we look at vulnerability, we can see some parts of the world are more vulnerable than others." (Respondent four, Page: 81, Lines: 1-2)

> "It is very difficult to find the real cause of migration." (Respondent three, Page: 78, Line: 16)

In other words, it is clear that climate change is an issue. But the key concern is how policy experts frame this issue and why they frame it in that way. Here is what have emerged from differences of viewpoint on climate change and human migration:

- The policy experts who work at the universities perceive the climate change – human migration nexus as a complex issue. These experts are science arbiter and honest brokers who include micro and meso factors of migration.

- The policy experts who work at migration institute focus on conflict to perceive climate change – human migration. These experts are issue advocates who have formal and legal relationship with policy experts who do not include micro and meso factors of migration.

In sum, on the one hand, the policy experts who work at universities do not apparently support the idea of the security threat. These experts believe their role is primarily to conduct research and are likely to present their research questions and results different than scientists who believe in policy-relevant knowledge (Spruijt et al., 2013). On the other hand, the policy experts or issue advocates frame climate change as the security threat by simplifying the climate change - human migration nexus. This frame brings a fearful situation that at first it was expected that it would give priority to politicians to take action on mitigation policy and enhance the cooperation of international institutions to the reduction in CO2. Paradoxically, if the issue frames as the security threat, it fails to achieve this goal because it focusses on the fact that refugee is a certain consequence of climate change. According to Thompson (2010), if certainty replaces the uncertainty, actors cannot create flexibility that allows international institutions and commitments to change over time, such as Kyoto Protocol (Thompson, 2010). Overall, the policy experts reached consensus to some extent that the climate change – human migration is the complex issue, but some of them frame it as international security. This policy option mainly stems from the interaction with policymakers rather than the difference in viewpoints on the content. Science has become extremely politicized in the area of sustainable development, the use of science is mediated and thus possibly distorted by the political goals of potential users (Haas, 2004).

4.3. Concluding remarks

The main aim was to find how do policy experts envision the relationship between climate change and human migration. During the chapter, the continuous concern was the international security policy advice. Especially, to know the differences in this policy advice stem from various

viewpoints on content or from the type of interaction with policymakers. I answered the three research sub-questions.

First, it was the goal to reveal how policy experts define climate change and human migration by shedding light on the concept of climate refugee. Besides, I noted four possible policy options. Apparently, the experts stress that climate change is certainly put an issue. They find it difficult to define climate refugee because it remains impossible to identify climate factors of migration from other factors. Building on research, climate migrant means to some experts: the ones who have a formal relationship with policymakers. Climate migrant defined as a person who lives on a small island and has to leave his/ her habitat immediately because of sudden alternation in their natural environment related to only one of climate changes: the sea-level rise. The sea-level rise trigger people to move to find a safe place, which is not necessarily an international movement. Without the doubt, the policy experts believe that the high estimation of climate refugee is questionable and climate refugee is associated with high uncertainties. Therefore, the policy experts reached a consensus to some degree that defining climate refugee is not possible. International security is one of the options. The other policy experts include including reducing CO2, creating more justice between global North and global South, and protection of forced migrants. The policy experts who do not have a formal relationship with the policymakers (science arbiter or honest broker) did not include international security as the only policy advice. Therefore, the international security policy stems from the role of experts rather than different opinions on the content of climate refugee.

Second, it was the purpose to gain insights in how various experts relate climate change to human migration decision, as well as revealing the differences between perception of policy experts. The policy experts include macro factors of migration, but all of them do not apply micro and meso factors of migration. It seems that the policy experts believe that agricultural collapse is a major factor but alone cannot play a critical role in migration decision. The political factor of migration is one of the key indicators of movements rather than climate change alone, such as war and unfair situation. Also, I identified two different views on climate change – human migration nexus. One the one hand, the policy experts who focus on the link between climate change and human migration as a complicated process. They believe that this relationship is very dependent on various interacting factors, such as social, political, economic, and demographic. Climate change – human migration nexus is nonlinear, and people decide to migrate as a result of various interconnected factors instead of only environmental. Furthermore, they stress not only on macro factors of migration, but also they emphasize on micro (household characteristics), and meso (facilitators and obstacles) elements. Indeed, they do believe that climate change has an influence on migration either directly or indirectly, and it depends on the local context. According to these experts, climate change has a minor issue concerning the conflict. The conflict has other primary sources rather than climate change, such as religious, which are not solved. Interestingly, these policy experts are science arbiters and honest brokers who do not have a

formal relationship with politicians. The international security policy is not a policy option or not the only alternative for them. Thus, they insist that climate change – human migration nexus involves an enormous uncertainty.

On the other hand, other policy experts focus on climate change – conflict nexus. They relate land degradation to migration mainly through growing population and conflict over resources. These policy experts tend to say that land degradation has a significant influence on the availability of food and water and the risk of conflict. These experts include mainly macro factors of migration, such as economic, political, and demographic. They do not pay attention to household characteristics, facilitators, and obstacles. However, these factors have the final word on whether somebody moves or not. It appears that these policy experts, who have a formal relationship with policymakers have the tendency to simplify the relationship between climate change and human migration. The issue advocates focus on a particular climate change, land degradation, to explain climate change – conflict nexus.

After discussing the term 'climate refugee' and climate change – migration nexus, the final sub-question reveals the role of experts. I analyzed data and answered the question within the first and the second sub-questions. The reason was that to discuss right away whether the policy experts' advice comes from the differences in viewpoint on the content (climate refugee or climate change – human migration nexus) or their interaction with policymakers. This sub-question uncovered three roles of policy experts: the science arbiter, the issue advocate, and the honest broker. After finding the roles of policy experts, there were used to develop an interpretation of what the differences in policy experts' advice are. Although, as mentioned above, two main differences in ideas of the relationship between climate change and human migration were identified. The differences in policy advice come from the various viewpoints on the role of policy experts rather than the various views on the content (climate change - human migration nexus). Considering climate change is not a major driver of migration, and it does not trigger a significant number of migrants. I will answer the central question in the next chapter.

Chapter 5: Conclusion and discussion

This chapter first gives a brief overview of the key insights and provides an answer to the central question. Then, a discussion will be included to evaluate the theory and the ideas for future research. Besides, the limitations of the study will be explained. Finally, the thesis ends with a section on the implications for policy experts.

5.1. Conclusion

The starting point of this thesis has been to examine whether the policy experts perceive the climate change as the primary cause of migration which triggers a large number of people to move. If so, how they advise on preventing the people from migrating or adapting to climate change. I seek to focus attention away from the idea that environmental change can cause security threat, towards an understanding of the complexity of climate change – human migration nexus. In this thesis, a qualitative content analysis was used to explore the policy experts' discussion on climate change – human migration nexus. The central research question was the following: *"How do policy experts envision the relationship between climate change and human migration?"* I also explored which factors are associated with the differences in policy advice.

Building on research, the policy experts believe that identifying someone as climate refugee remains impossible. It was expected that complexity of defining climate refugee leads to a clear conclusion: climate change is not a core driver of migration. Thus, advising international security as a result of climate change is questionable. Unlike what two politicians had mentioned, the climate change is not a threat to our safety.

> Tom Middelburg: "Climate change is at the heart of tensions and armed conflict. It is nothing less than a 'security game changer'. Global warming is a threat to our safety, such as in the Middle East." (Brill, 2016)

> James Mattis: "Climate change is our national security challenge" and "climate change is impacting stability in areas of the world where our troops are operating today." (Revkin, 2017)

In other words, international security stems mainly from the interaction with policymakers. The objective of post-academic science is not scientific as such but rather the production of a result that is relevant and applicable for the users of the research (Bornmann, Haunschild, & Marx, 2016: 1478). Otherwise, the policy experts not only reach the consensus that defining climate refugee is complex but also the relationship between climate change and migration is complicated. Thus, if the experts keep their commitment to science instead of their relationship with politicians, they find climate change as not being a threat to our national borders.

5.2. Discussion and limitations

The greater purpose of this research is to contribute to an understanding of how the differences in policy experts' advice come on the significance of climate change - human migration nexus. In this section, the results are linked to this purpose and discussed. At first, the theoretical contribution of the research is presented, which raises new ideas for further studies. After these ideas, I introduce the limitations of this thesis.

As pointed out by many authors if the concept of climate refugee is found appropriate, the users of this concept (climate refugee) blame the nature rather than the social causes of it (Oliver-Smith, 2012; Piguet, 2013; Salehyan, 2008). This research indicates that some experts blame nature for conflict over resources and advise international security, even when they criticize the large prediction of refugees as climate change. Based on the earlier research, not only different viewpoints on content may shape their policy advice, but also differences of opinion on the role of scientific experts (Davies et al., 2014). The content analysis emphasized on the viewpoints of expert knowledge and political nature of the scientific information which results in developing four new insights. The first three are built upon the evaluation of the theoretical chapter, climate refugee, climate change – human migration nexus, and the role of policy experts. The final point provides a new idea which developed according to data analysis. Each one includes a suggestion for future research.

First, the research contributed to the previous study by demonstrating that it is complex to define climate refugee. In the current literature a precise definition of 'climate refugees' does not so far seem to exist (Baldwin, 2015: 3-4). The developed operationalization of the concept can be perceived as suitable to study this. However, further research can supplement this operationalization by adding founded specific characteristics to this operationalization. There is an important distinction between 'migration' assumed to be voluntary and movement for the purpose of seeking refuge (forced migration) (Geddes et al., 2012b). Based on this research, a climate refugee is a person who lives on a small island and has to leave his/ her habitat immediately because of sudden alternation in their natural environment related to only one of climate changes: the sea-level rise. The significant contribution of the understanding of the nature of climate change - human migration nexus is complicated. The two perceptions of policy experts were revealed in the analysis chapter. However, Hunter, Luna, & Norton (2015) already mentioned that there is a shift from simplistic conceptual linkages fuelling the environmental refugee debate indicating how far the field has come (Hunter, Luna, & Norton, 2015). The result of this research extends this view by finding and explaining that this shift from simplistic conceptual linkage is applicable for those policy experts who work at universities.

Second, the research contributed to the previous findings by demonstrating that it seems different sectors instead of expertise have approached this issue from various viewpoints. In the current literature, environmental and migration experts lead by maximalist and minimalist approaches, respectively (Mayer, 2014). Building on this research, the environmental and

migration scholars support minimalist approach, but there is a tendency among migration and environmental institutes to focus on a particular climate change (land degradation), and maximalist approach leads these institutes. It is interesting to note that a science arbiter does not suggest for international security and an honest broker communicates all the possible options to the policymakers. These two types of policy experts believe that climate change – human migration nexus is very context related. They do believe that climate change has an influence on migration either directly or indirectly, and it depends on the local context. However, the issue advocate believes their work should be relevant to decision makers. The potential link between climate change, migration, and conflict has been widely discussed and is increasingly viewed both by policymakers (Bettini et al., 2016; Burrows & Kinney, 2016), and academic as a security issue (Bettini et al., 2016). McNie (2007) already mentioned that there is a competing position point to the dilemmas that scientists often face in their interactions with policymakers, as well as to the tension between science and policy. The result of this research extends this view by finding and explaining that in the context of climate change – human migration nexus, the policy experts who work at the universities are not involved in tension between science and policy. Further research can add to this result by focusing on experts who work only at different universities.

Third, the research contributed to the previous study by demonstrating that the role of policy experts influence on their policy advice. As finding shows policy experts who work at universities do not advice only international security, instead they include all the possible options. However, the policy experts who work at migration institutes advise international security. It seems that the organization where the policy expert work influence on their policy experts. This research adds some evidence to previous finding and proof this for the international security. That there is limited empirical evidence that the organization in which an expert works is a major factor that influences an experts' role when s/he gives policy advice (Spruijt et al., 2016). Although, future research can focus on other policy advice to find whether the role of policy experts have an influence on their advice.

Fourth, the new insight which requires future search is built upon the idea of framing the climate change – human migration nexus. Without the doubt, some policy experts are involved in framing the climate change as an absolute security threat to national borders. Originally, this frame aimed at encouraging the nations to cooperate on mitigation plans (reduction in CO2). As the US President, Donald Trump recently announced withdrawn of this country from the Paris climate change agreement, the framing climate change as a security threat might be a failure in that sense. Besides, this frame comes with an anti-migrant idea behind it which fits the right-wing political parties. Thus, it seems that if the policy experts did not frame climate change as a security threat, international negotiation on climate change could result in a stronger cooperation. Related to this discussion, is the question whether framing the issue has a relationship with success of international agreement on mitigation policy, and if so, which frame enhances the cooperation internationally.

Like most scientific research, this study suffers from three limitations. The field of the policy experts is breath, as well as the critical nature of this thesis; it could engage with a small insight. However, the results presented in the previous chapter provide valuable insights. The area could be studied more in-depth to crystallize the different groups of experts' viewpoints on the relationship between climate change and human migration. For this reason, I am aware of this might have an influence on the generalization of the result. The second limitation is that the research on the role of policy experts mainly conducted by interviews. It examined the interaction with decision makers. Hence, this subject is sensitive; it might influence on the policy experts' answer. Consequently, it requires well-trained interview skills. Although the researcher carried out some sample interviews no well-trained interview skills can be displayed, the study is aware of and did consider the influence it might have. The third limitation of this research is the focus of this thesis on an international security. Although other policies were recognized, including sustainability, international protection, and protection of forced migrants. The reason was that I stressed on global security for the purpose of this thesis. The study is aware of this and did consider the influence it might have on a generalization of understanding of policy experts' role as a whole.

5.3. Implications for policy experts

Considering the different opinions dominating the experts and even scientific area; the finding confirms that there is a consensus among policy experts on the complexity of defining climate refugee. At the same time, they criticized a large number of refugees as a result of climate change. The most shocking significant result regarding policy is that the policy experts who have the formal relationship with policymakers include international security. Rather, the policy experts who interact with policymakers and politicians need to negotiate the relationship between climate change and human migration as a complex issue. Thus, this section suggests three implications for policy experts which are related to knowledge, the process of producing knowledge, and the role of the policy experts.

The first suggestion emphasizes the importance of the content. The migration decision is mainly based on local context, which requires immediate attention of the policy experts. They can do this by highlighting the micro and meso drivers of migration. As Black et al. (2011) stated, underlying these fine-grained details of location and temporal scale, the drivers, filtered by barriers and facilitators, will manifest themselves in different spatial and temporal patterns of migration in a variety of ways, depending on local context. Furthermore, as Thompson (2016) pointed out, focusing on the cultural and geographic qualities of places is essential in contributing to understanding the choice of destination for migration. Indeed, an agreement on the importance of understanding the geographical aspects of migration is perhaps surprising for policymakers but points to an urgent need for moving away from the idea that climate change is a major cause of migration. Since it is suggested to focus now on shift to understanding the

climate-security nexus for what it is, rather than as a normative argument to influence mitigation policy (Ide, 2015). Otherwise, if the response is limited to security responses, significant underlying climate change threats will remain ignored (Gemenne et al., 2014). Overall, for policy and regarding social and economic impact, the key issues are whether migrants move across borders, or whether migration takes the form of temporary, seasonal or permanent mobility and displacement. Therefore, there is an urgent need to focus on cultural aspects of migration.

The second implication covers the process of producing knowledge. Knowledge must also have the substantive characteristics of usable knowledge: credibility, legitimacy, and saliency (Haas, 2004). Credibility means that the key knowledge producers and their consumers believe that their product is pure. Legitimate means that the claims are believed to be legitimate when developed through a process that minimizes the potential for bias and is more equitable regarding participation by those who are dependent upon the information. Finally, saliency means that such information is provided in a timely manner and contains information that is useful for making public policy by decision makers. This means that in practice it arrives in conjuncture with the policy process and provides advice which can be converted into laws or decisions by decision makers. (Haas, 2004: 574)

The last implication stresses on the role of policy experts in providing advice. The science remains influential if its expertise and claims are developed behind a politically insulated wall (Haas, 2004). The autonomous scientist is the 'transmission belt' by which new knowledge is produced and transmitted to decision makers (Haas, 2004: 587). The more autonomous and independent science is from the policy the greater its potential influence (Haas, 2004: 576). The consensus in isolation builds value and integrity, and then its consequences are discussed in public (Haas, 2004). Overall, the policy experts can change the policymakers' understanding of the issue. The shift towards understanding that the relationship between climate change and human migration is complex and nonlinear (Black et al., 2011; Gemenne et al., 2014; Hunter, Luna, & Norton, 2015).

Bibliography

Books and articles

Abel, G., Bijak, J., Findlay, A., McCollum, D., & Wisniowski , A. (2013). Forecasting environmental migration to the United Kingdom: an exploration using Bayesian models. *Popul Environ, 35*, 183–203. doi: 10.1007/s11111-013-0186-8.

Ambrosetti, E., & Petrillo, E. (2016). Environmental disasters, migration and displacement. Insights and developments from L'Aquila's case. *Environmental Science & Policy, 56*, 80-88. doi: http://dx.doi.org/10.1016/j.envsci.2015.11.002.

Ambrus, M., Arts, K., Hey, E., & Raulus, H. (2014). The role of experts in international and European Decision-Making Processes: setting the scene. In M. Ambrus, K. Arts, E. Hey, & H. Raulus, *The Role of 'Experts' In International and European Decision-Making Processes Advisors, Decision Makers or Irrelevant Actors?* (pp. 1-18). Cambridge: Cambridge University Press.

Baekkeskov, E. (2016). Explaining science-led policy-making: pandemic deaths, epistemic deliberation and ideational trajectories. *Policy Sci, 49*, 395–419. doi: 10.1007/s11077-016-9264-y.

Baldwin, A. (2015). *Premediation and white affect: climate change and migration in critical perspective.* The Institute od British Geographers, Department of Geography. Durham: Royal Geographical Society. doi: 10.1111/tran.12106.

Barnett, J., & Adger, W. N. (2007). Climate change, human security and violent conflict. *Political Geography, 26*, 639-655. doi: 10.1016/j.polgeo.2007.03.003.

Bettini, G., Louise Nash, S., & Gioli, G. (2016, June). One step forward, two steps back? The fading contours of (in)justice in competing discourses on climate migration. *The Geographical Journal*, 1-11. doi: 10.1111/geoj.12192.

Biermann, F., & Boas, I. (2012). Climate Change and Human Migration: Towards a Global Governance System to Protect Climate Refugees. In H. G. Brauch, *Climate Change, Human Security and Violent Conflict: Challenges for Societal Stability.* Springer.

Black, R., Adger, W., Arnell, N., Dercon, S., Geddes, A., & Thomas, D. (2011, October 21). The effect of environmental change on human migration. *Global Environmental Change*, S3–S11. doi: 10.1016/j.gloenvcha.2011.10.001.

Bornmann, L., Haunschild, R., & Marx, W. (2016). Policy documents as sources for measuring societal impact: how often is climate change research mentioned in policy-related documents? *Scientometrics*(109), 1477–1495. doi: 10.1007/s11192-016-2115-y.

Boswell, C. (2008, June 4). The political functions of expert knowledge: knowledge and legitimation in European Union immigration policy. *ournal of European Public Policy, 15*, 471–488. doi: 10.1080/13501760801996634.

Brauch, H., & Scheffran, J. (2012). Climate Change, Human Security, and Violent Conflict in the Anthropocene. In H. G. Brauch, *Climate Change, Human Security and Violent Conflict: Challenges*

for Societal Stability (pp. 3-41). Springer.

Burrows, K., & Kinney, P. L. (2016, April 22). Exploring the Climate Change, Migration and Conflict Nexus. *International Journal of Environmental Research and Public Health, 13*(443), 1-17. doi: 10.3390/ijerph13040443.

Davies, G., Kendall, G., Soane, E., Li, J., Rocks, S., Jude, S., & Pollard, S. (2014). Regulators as agents: Modelling personality and power as evidence is brokered to support decisions on environmental risk. *Science of the Total Environment*(466), 74-83. doi: http://dx.doi.org/10.1016/j.scitotenv.2013.06.116.

Daviter, F. (2015). The political use of knowledge in the policy process. *Policy Sci, 48*, 491–505. doi: 10.1007/s11077-015-9232-y.

Dinnissen, R., & van Schaik, L. (2013). Climate change. In J. Rood, & D. Rosa, *An uncertain world: Clingendael 2013 Strategic Monitor.* The Hague: Clingendael Institute.

Dooley, D. (2009). *Social Research Method.* A Pearson Custom Publication.

Dunlop, C. A. (2014). THE POSSIBLE EXPERTS: HOW EPISTEMIC COMMUNITIES NEGOTIATE BARRIERS TO KNOWLEDGE USE IN ECOSYSTEMS SERVICES POLICY. *Environment and planning, Part C, Government & policy, 32*(21), 208-228.

El-Hinnawi, E. (1985). *Environmental Refugees.* Nairobi: UNEP.

Fernández, R. J. (2016). *How to be a more effective environmental scientist in management and policy contexts* (Vol. 64). Argentina: Elsevier. http://dx.doi.org/10.1016/j.envsci.2016.07.006.

Geddes, A., & Somerville, W. (2012). Migration and environmental change in international governance: the case of the European Union. *Environment and Planning C: Government and Policy, 30*, 1015 – 1028. doi:10.1068/c1249j.

Geddes, A., Adger, W. N., Arnell, N. W., Black, R., & Thomas, D. S. (2012a). The implications for governance of migration linked to environmental change: key ndings and new research directions. *Environment and Planning C: Government and Policy, 30*, 1078 – 1082. doi:10.1068/c3006c.

Geddes, A., Adger, W. N., Arnell, N. W., Black, R., & Thomas, D. S. (2012b). Migration, environmental change, and the 'challenges of governance'. *Environment and Planning C: Government and Policy, 30*, 951 – 967. doi:10.1068/c3006ed.

Gemenne, F. (2011). Why the numbers don't add up: A review of estimates and predictions of people displaced by environmental changes. *Global Environmental Change*, S41–S49. doi: 10.1016/j.gloenvcha.2011.09.005.

Gemenne, F., Barnett, J., Adger, W., & Dabelko, G. (2014, January). Climate and security: evidence, emerging risks, and a new agenda. *Climatic Change , 123*, 1-9. doi:10.1007/s10584-014-1074-7.

Gray, C., & Bilsborrow, R. (2013). Environmental Influences on Human Migration in Rural Ecuador. *Demography , 50*, 1217–1241. doi: 10.1007/s13524-012-0192-y.

Haas, P. (2004). When does power listen to truth? A constructivist approach to the policy process . *Journal of European Public Policy, 11*(4), 569-592. doi: 10.1080/1350176042000248034.

Hsieh, H.-F., & Shannon, S. E. (2005, November). Three Approaches to Qualitative Content Analysis. *QUALITATIVE HEALTH RESEARCH, 15*(9), 1277-1288.

Hukkinen, J. I. (2016). A model of the temporal dynamics of knowledge brokerage in sustainable development. *Evidence & Policy, 12*(3), 321–40. doi: 10.1332/174426416X14712607933264.

Hunter, L., Luna, J., & Norton, R. (2015). Environmental Dimensions of Migration. *Annu. Rev. Sociol., 41*, 377–97. doi: 10.1146/annurev-soc-073014-112223.

Ide, T. (2015). Why do conflicts over scarce renewable resources turn violent? A qualitative comparative analysis. *Global Environmental Change*(33), 61-70. doi: http://dx.doi.org/10.1016/j.gloenvcha.2015.04.008.

Ingold, K., & Gschwend, M. (2014). Science in Policy-Making: Neutral Experts or Strategic Policy-Makers? *West European Politics, 37*(5), 993-1018. doi: 10.1080/01402382.2014.920983.

Kelley, C., Mohtadi, S., Cane, M., Seager, R., & Kushnir, Y. (2015). Climate change in the Fertile Crescent and implications of the recent Syrian drought. *PNAS*, 3241–3246. www.pnas.org/lookup/suppl/doi:10. 1073/pnas.1421533112/-/DCSupplemental.

Koubi, V., Spilker, G., Schaffer, L., & Bohmelt, T. (2016, June 14). The role of environmental perceptions in migration decision-making: evidence from both migrants and non- migrants in five developing countries. *Popul Environ*(38), 134-163. doi: 10.1007/s11111-016-0258-7.

Link, P., Scheffran, J., & Ide, T. (2016). Conflict and cooperation in the water-security nexus: a global comparative analysis of river basins under climate change. *WIREs Water*(3), 495–515. doi: 10.1002/wat2.1151.

Lucassen, P., & olde Hartman, T. (2007). *Kwalitatief onderzoek: praktische methoden voor de medische praktijk.* Bohn Stafleu van Loghum.

Mayer, B. (2014). “Environmental Migration” as Advocacy: Is It Going to Work? *Refuge: Canada’s Journal on Refugees, 29*(2), 27-41.

McLeman, R. A. (2011). Settlement abandonment in the context of global environmental change. *Global Environmental Change 21S* , 108–S120. doi: 10.1016/j.gloenvcha.2011.08.004.

McNie, E. (2007). Reconciling the supply of scientific information with user demands: an analysis of the problem and review of the literature. *Environmental Science & Policy, 10*(1), 17 - 38. doi: 10.1016/j.envsci.2006.10.004.

Meyer, M. (2010). The Rise of the Knowledge Broker. *Science Communication, 32*(1), 118-127. doi: 10.1177/1075547009359797.

Morrissey, J. (2012). Rethinking the 'debate on environmental refugees': from 'maximilists and minimalists' to 'proponents and critics'. *Political Ecology, 19*, 36-49.

Myers, N. (2001). Environmental Refugees: A Growing Phenomenon of the 21st Century. *Philosophical Transactions of the Royal Society 356*.

Newland, K. (2011). *Climate Change and Migration Dynamics.* Wachington, DC: Migration Policy Institute.

Ocello, C., Petrucci, A., Testa, M., & Vignoli, D. (2015). Environmental aspects of internal migration in Tanzania. *Popul Environ, 35*, 99-108. doi: 10.1007/s11111-014-0229-9.

Oliver-Smith, A. (2012). DEBATING ENVIRONMENTAL MIGRATION: SOCIETY, NATURE AND POPULATION DISPLACEMENT IN CLIMATE CHANGE. *Journal of International Development*(24), 1058–1070. doi: 10.1002/jid.2887.

Payne, A. (2005). *The Global Politics of Unequal Development.* Palgrave Macmillan.

Perch-Nielsen, S. L., Bättig, M. B., & Imboden, D. (2008). Exploring the link between climate change and migration. *Climatic Change*(91), 375–393. doi: 10.1007/s10584-008-9416-y.

Pielke Jr., R. (2007). *The Honest Broker: Making Sense of Science in Policy and Politics.* Cambridge, UK: Cambridge University Press.

Piguet, E. (2013). From "Primitive Migration" to "Climate Refugees": The Curious Fate of the Natural Environment in Migration Studies. *Annals of the Association of American Geographers, 103*(1), 148-162. doi: 10.1080/00045608.2012.696233.

Radaelli, C. M. (1999, December). The public policy of the European Union: whither politics of expertise? *Journal of European Public Policy, 6*(5), 757-774. doi: 10.1080/135017699343360.

Rietig, K. (2014). 'Neutral' experts? How input of scientific expertise matters in international environmental negotiations. *Policy Sci, 47*, 141–160. doi: 10.1007/s11077-013-9188-8.

Salehyan, I. (2008). From Climate Change to Conflict? No Consensus Yet. *Peace Research, 45*(3), 315-326. doi: 10.1177/0022343308088812.

Sarewitz, D., & Pielke Jr., R. (2006). The neglected heart of science policy: reconciling supply of and demand for science. *Environmental Science and Policy*, 5-16.

Scarlett, L. (2011). Climate Adaptation: Science and Collaborative Decision Making. In I. Linkov, & T. S. Bridges, *Climate: Global Change and Local Adaptation* (pp. 9-17). Springer.

Selby, J., & Hoffmann, C. (2012). Water scarcity, con ict, and migration: a comparative analysis and reappraisal. *Environment and Planning C: Government and Policy, 30*, 997 – 1014. doi: doi:10.1068/c11335j.

Sheffield, J., Wood, E., & Rode, M. (2012, November 15). Little change in global drought over the past 60 years. *Nature, 491*, 435 - 439. doi: 10.1038/nature11575.

Spruijt, P., Knol, A. B., Petersen, A. C., & Lebret, E. (2016, February 18). Differences in views of experts about their role in particulate matter policy advice: Empirical evidence from an international expert consultation. *Environmental Science & Policy*(59), 44-52. doi: http://dx.doi.org/10.1016/j.envsci.2016.02.003.

Spruijt, P., Knol, A., Torenvlied, R., & Lebret, E. (2013). Different Roles and Viewpoints of Scientific Experts in Advising on Environmental Health Risks. *Risk Analysis, 33*(10), 1844-1857. doi: 10.1111/risa.12020.

Stern, N. (2007). *The economics of climate change: the Stern review.* Cambridge: Cambridge University Press.

Stojanov, R., Kelman, I., Ullah, A., Duží, B., Procházka, D., & Kavanová Blahutová , K. (2016, November 24). Local Expert Perceptions of Migration as a Climate Change Adaptation in Bangladesh. *Sustainability, 8*(1223), 1-15. doi:10.3390/su8121223.

Thompson, A. (2010). Rational design in motion: Uncertainty and flexibility in the global climate regime. *European Journal of International Relations, 16*(2), 269–296. doi: 10.1177/1354066109342918.

Thompson, M. (2016, May 24). Migration decision-making: a geographical imaginations approach. *Royal Geographical Society*, 77–84. doi: 10.1177/1354066109342918.

Upadhyay, H., Kelman, I., G.J., L., Mishra, A., Shreve, C., & Stojanov, R. (2015). Conceptualizing and contextualizing research and policy for links between climate change and migration. *International Journal of Climate Change Strategies and Management, 7*(3), 394 - 417. doi: http://dx.doi.org/10.1108/IJCCSM-05-2014-0058.

Van der Land, V., & Hummel, D. (2013). Vulnerability and the role of education in environmentally induced migration in Mali and Senegal. *Ecology and Society, 18*(4), 14. doi: http://dx.doi.org/10.5751/ES-05830-180414

Verschuren, P., & Doorewaard, H. (2010). *Designing a Research Project* (2nd Edition ed.). The Hague: Eleven International Publishing.

Warner, K., Ehrhart, C., de Sherbinin, A., Adamo, S., & Chai-Onn, T. (2009). In search of shelter— Mapping the effects of climate change on human migration and displacement. *CARE/CIESIN/ UNHCR/UNU-EHS/World Bank*.

Warner, K., Hamza, M., Oliver-Smith, A., Renaud, F., & Julca, A. (2010). Climate change, environmental degradation and migration. *Natural Hazards , 55*(3), 689–715. doi: 10.1007/s11069-009-9419-7.

White, G. (2016). The Specter of Climate Refugees: Why Invoking Refugees as a Reason to "Take Climate Change Seriously" is Troubling. *Migration and Citizenship, 4*. Washington, DC, USA: American Political Science Association.

Yamamoto, L., & Esteban, M. (2017). Migration as an Adaptation Strategy for Atoll Island States. *International Migration, 55*(2). doi: 10.1111/imig.12318.

Documents and reports

Climate and Migration Coalition. (2016, October 10). Syria and climate change - podcast / lecture. *Syria and climate change - podcast / lecture*. Climate and Migration Coalition.

Clingendael. (2014). *Terra Incognita: land degradation as underestimated threat amplier.* Clingendael Netherlands Institute of International Relations. The Hague: Clingendael.

European Commission. (2009). *EACH-FOR Environmental Change and Forced Migration Scenarios.* The Directorate-General for Research and Innovation. Budapest: European Commission.

European Commission. (2015). *Migration in response to environmental change Thematic Issue 51.* The Science Communication Unit, UWE, Bristol.

FEEM. (2015). *Development, Climate Change Adaptation, and Maladaptation: Some Econometric Evidence.* Fondazione Eni Enrico Mattei. Milano: Fondazione Eno Enrico Mattei.

FEEM. (2015). *Migration and Climate Change in Rural Africa.* Fondazione Eni Enrico Mattei. Milano: Fondazione Eni Enrico Mattei.

IIASA. (2015). Social Participation and Disaster Risk Reduction Behaviors in Tsunami Prone Areas. *PLoS ONE, 10*(7).

IIASA. (2016). Women, Weather, and Woes: The Triangular Dynamics of Female-Headed Households, Economic Vulnerability, and Climate Variability in South Africa . *World Development*.

IIASA. (2017). *IIASA Overview Information as of January 2017.* The International Institute for Applied Systems Analysis. IIASA.

International Water Association. (2016). *Water Scarcity & Drought Summit.* BRISBANE: International Water Association.

InterRisk Asia (Thailand) Co., Ltd. (2016). *Drought Report, Thailand 2016.* InterRisk Asia (Thailand) Co., Ltd.

IOM. (2008). *Climate Change, Environmental Degradation and Migration: Addressing Vulnerabilities and Harnessing Opportunities: Discussion Note on Migration and the Environment MC/INF/288.* Geneva, Switzerland: International Organization for Migration.

IOM. (2015). *The State of Environmental Migration 2015: A Review of 2014.* International Organization for Migration. IOM.

IOM. (2016). *Environment, climate change and human mobility.* Internation Organization for Migration, Geneva.

IPCC. (2014). *Climate Change 2014 - Impacts, Adaptation, and Vulnerability - Summary for Policymakers.* Intergovernmental Panel on Climate Change.

IPCC. (2014). *Climate Change 2014, Synthesis Report, Summary for Policymakers.* Intergovernmental Panel on Climate Change.

IPCC. (2014). *Climate Change 2014: Synthesis Repor. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.* IPCC. Geneva, Switzerland: IPCC.

Science for Environment Policy. (2015). *Migration in response to environmental change Thematic Issue 51.* The Science Communication Unit, UWE, Bristol.

Stockholm International Water Institute. (2016). *The Water Report 2016.* Stockholm International Water Institute. Stockholm: Torgny Holmgren.

PIK. (2015). *THE IMPACT OF CLIMATE CHANGE ON COSTS OF FOOD AND PEOPLE EXPOSED TO HUNGER AT SUBNATIONAL SCALE.* Potsdam Institute For Climate Impact Research. Potsdam: PIK.

United Nations. (2016). *International Migration Report 2015: Highlights (ST/ESA/SER.A/375).* Department of Economic and Social Affairs, Population Division, New York.

World Economic Forum. (2016). *The Global Risks Report 2016.* Geneva: World Economic Forum.

Internet sources

AIV. (2017). *Advisory Council on International Affairs*. Retrieved March 2017, from About the AIV: http://aiv-advies.nl/63v/about-the-aiv

Brill, P. (2016, December 11). *Paul Brill: Nederlands hoogste militair ontdekt een nieuwe vijand*. Retrieved 2017, from Volkskrant: http://www.volkskrant.nl/opinie/paul-brill-nederlands-hoogste-militair-ontdekt-een-nieuwe-vijand~a4431282/

Clingendael. (2017). *Networks & Partners* . Retrieved March 5, 2017, from Clingendael Netherlands Institute of International Relations: https://www.clingendael.nl/page/networks-partners

Clingendael. (2017). *Organisation*. Retrieved April 2017, from The Netherlands Institute of International Relations 'Clingendael': https://www.clingendael.nl/organisation

EP-Nuffic. (2015). Retrieved March 2017, from https://www.epnuffic.nl/redirect/rawoo

European Commission. (2015, 8 11). *Our mission*. Retrieved April 2017, from European Commission: http://ec.europa.eu/research/index.cfm?pg=dg

FEEM. (2017). *About us*. Retrieved February 15, 2017, from Fondazione Eni Enrico Mattei: http://www.feem.it/getpage.aspx?id=24&sez=About%20us

IOM. (2016). *International Organization for Mingration*. Retrieved April 23, 2017, from About IOM: http://www.iom-nederland.nl/en/about-iom

Obama, B. (2015, August). *Remarks by the President at the GLACIER Conference--Anchorage*. Retrieved March 2016, from the White House: https://obamawhitehouse.archives.gov/the-press-office/2015/09/01/remarks-president-glacier-conference-anchorage-ak

PBL. (2017). *Collaboration with other institutes*. Retrieved from http://www.pbl.nl/en/aboutpbl/collaboration-with-other-institutes#Advisory

PIK. (2017). *Potsdam Institute for Climate Impact Research*. Retrieved 2017, from Organization: https://www.pik-potsdam.de/institute/organization

Revkin, A. (2017, March 14). *Trump's defense chief cites climate change as national security challenge*. Retrieved May 10, 2017, from Science: http://www.sciencemag.org/news/2017/03/trump-s-defense-chief-cites-climate-change-national-security-challenge

The Council for the Environment and Infrastructure. (2017). *ABOUT THE COUNCIL*. Retrieved February 1, 2017, from The Council: http://en.rli.nl/about-the-council

The government of the Netherlands. (2017, February 9). *Roles and responsibilities of Central Government*. Retrieved from https://www.government.nl/topics/environment/contents/roles-and-responsibilities-of-central-government

The Ministry of Foreign Affairs. (2017). *About the Ministry*. Retrieved March 5, 2017, from https://www.government.nl/ministries/ministry-of-foreign-affairs/contents/about-the-ministry

The Ministry of Infructructure and the Environment (2017). *Organisation structure Ministry of Infrastructure and the Environment*. Retrieved February 1, 2017, from https://www.government.nl/ministries/ministry-of-infrastructure-and-the-environment/documents/leaflets/2015/01/21/organisation-structure-ministry-of-infrastructure-and-the-environment

The Ministry of Infructructure and the Environment (2017). Retrieved from https://www.government.nl/ministries/ministry-of-infrastructure-and-the-environment/contents/organisation/other-authorities

Appendices

Appendix I: About the Ministry of Infrastructure and the Environment

The Ministry of Infrastructure and the Environment is committed (I&M) to improving a quality of life, access and mobility in a clean, safe, and sustainable environment. In the policy section of this ministry, three Directorates-General are concerned with developing policy in the areas of mobility, water management, aviation and maritime affairs, spatial planning and the environment. The Directorate-General for Public Works and Water Management (Rijkswaterstaat, RWS) ensures that policy is implemented. Human Environment and Transport Inspectorate (ILT) oversees compliance with statutory regulations by private individuals and companies. The Royal Netherlands Meteorological Institute (KNMI) gathers information on the weather, climate and seismology and performs research. The Directorate-General for Public Works and Water Management, Human Environment and Transport Inspectorate (ILT), the Netherlands Emissions Authority, the Netherlands Environmental Assessment Agency (PBL) and the KNMI are agencies of the ministry (see Figure 3). The Ministry strives to create an efficient network of roads, railways, waterways and airways, effective water management to protect against flooding, and improved air and water quality. In carrying out these tasks and responsibilities, the Ministry of Infrastructure and the Environment works closely with other ministries, authorities, the private sector, research organisations, and the general public (The Ministry of Infrastructure and the Environment, 2017). This is in line with the long tradition in the Netherlands of consultation and cooperation between government bodies, citizens, and civil society organisations (The government of the Netherlands, 2017). The consensus is a vital element in the political culture of decision-making (The government of the Netherlands, 2017).

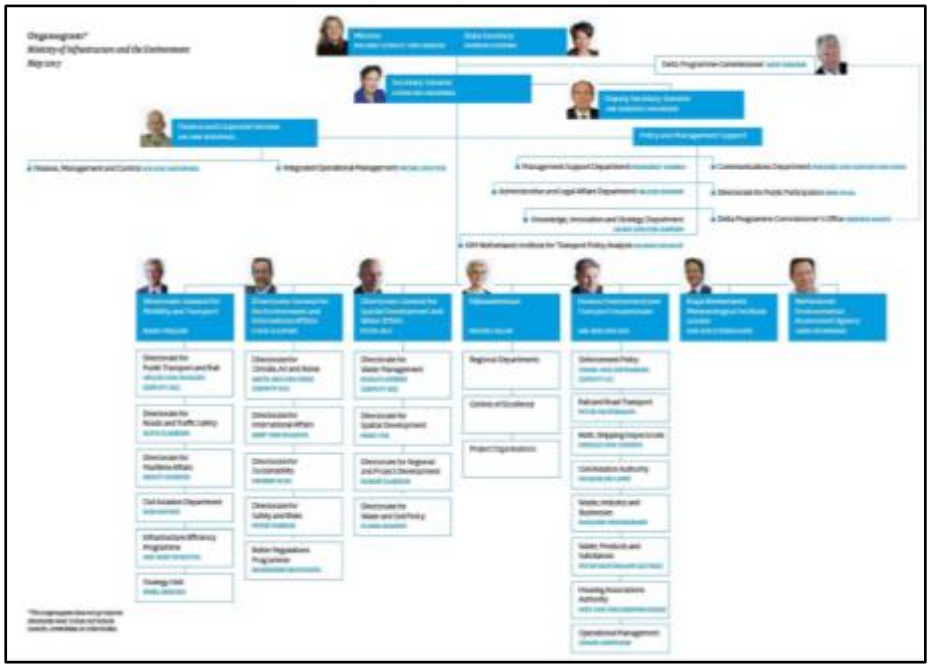

Figure 9: Organization structure, The Ministry of Infrastructure and the Environment, 2017

Appendix II: About the Ministry of Foreign Affairs

This ministry is the channel through which the Dutch Government communicates with foreign governments and international organizations. It coordinates and carries out Dutch foreign policy. The Ministry has two parts: its headquarters in The Hague and its missions abroad (embassies, consulates, and permanent representations) (The Ministry of Foreign Affairs, 2017). Its mission is to promote the security and well-being of the Netherlands and the Dutch people, and to that end, it will focus on international stability and security, energy and raw material security, the international legal order and the commercial and economic interests of the Netherlands and Dutch businesses. These principles have been translated into an integrated policy with three pillars: security, prosperity and freedom (The Ministry of Foreign Affairs, 2017). The headquarters in The Hague has four main parts, each with an array of responsibilities. The advisors, departments, and central services falling directly under the Secretary-General, including Consular Affairs, Directorate-General for Foreign Economic Relations (DGBEB), the Directorate-General for Political Affairs (DGPZ); the Directorate-General for European Cooperation (DGES), responsible for matters relating to European economic cooperation and integration; the Directorate-General for International Cooperation (DGIS), responsible for development cooperation (see Figure 4). The Ministry has four advisory bodies, namely Advisory Council on International Affairs (AIV), Advisory Committee on Issues of Public International Law (CAVV), Netherlands Development, Assistance Research Council (RAWOO), and Government Committee on Private International Law. CAVV and Government Committee on Private International Law focus on law issues. RAWOO was disbanded in 2007 (EP-Nuffic, 2015). AIV will be explained in the following section.

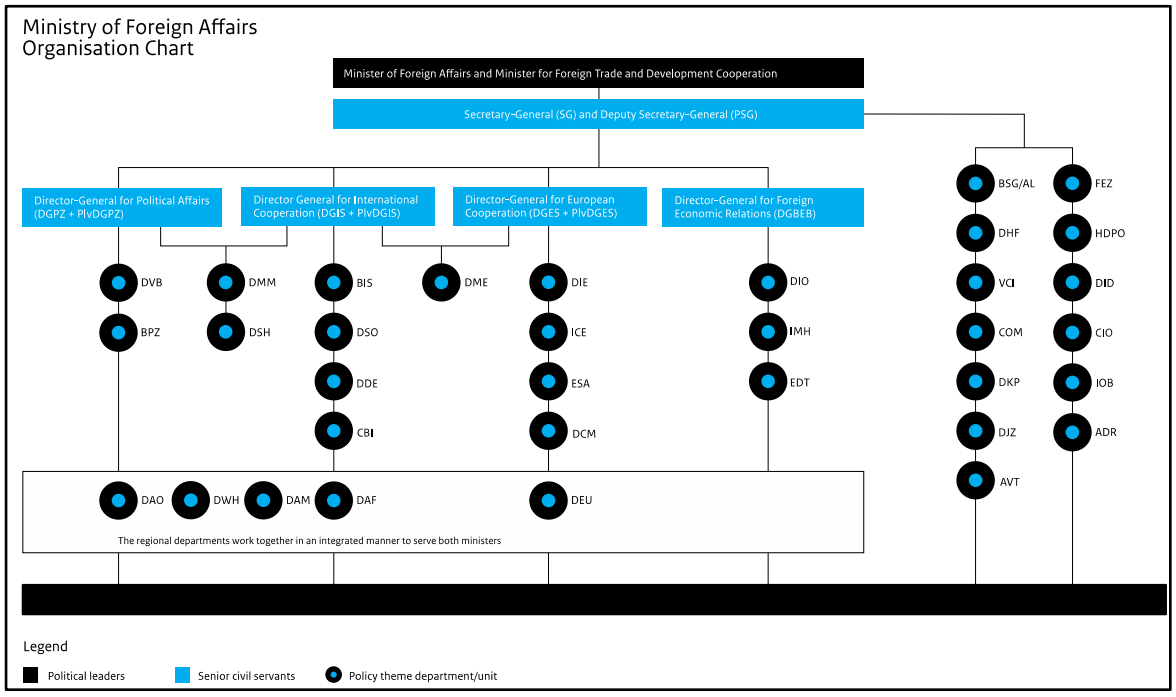

Figure 10: Organisation structure, The Ministry of Foreign Affairs, 2017

Appendix III: General information on research institutes

Apart from the interviews, documents were also used for this research. The documents were from European and national research institutes. In this section, the general information of the institutes will be briefly described to understand the backgrounds of them.

Fondazione Eni Enrico Mattei

FEEM is a non-profit, nonpartisan research centre and a think tank located in Italy (Milan, Venice, and Viggiano). It focuses on fostering a better understanding of sustainable development and providing timely and objective analysis on a broad range of environmental, energy and global economic issues. FEEM contributes to the quality of decision-making in public and private spheres through studies, research, information initiatives, scientific dissemination, and training. This international network allows FEEM to remain acquainted with the state-of-the-art of scientific knowledge, to spread its results more widely and expose its human capital to global interaction (FEEM, 2017).

International institute for applied systems analysis

IIASA is an international scientific institute that conducts policy-oriented research into the critical issues that are too large or complex to be solved by a single country or academic discipline. Problems like climate change that have a global reach and can be resolved only by international cooperative action. The findings provide valuable options to policymakers to shape the future of our changing world. IIASA is independent and funded by prestigious research funding agencies in Africa, the Americas, Asia, Europe, and Oceania (IIASA, 2017).

Potsdam institute for climate impact research

PIK was founded in 1992 and is a non-profit organization (PIK, 2017). PIK addresses crucial scientific questions in the fields of global change, climate impacts, and sustainable development. PIK organizes research in four interdisciplinary Research Domains, including Earth System Analysis, Climate Impacts & Vulnerabilities, Sustainable Solutions, and Transdisciplinary Concepts & Methods. The Potsdam Institute for Climate Impact Research (PIK) conducts research on climate change and its consequences (PBL).

The Directorate – General for research and innovation

The Directorate – General for Research and Innovation, is a Directorate-General of the European Commission, located in Brussels, and responsible for the European Union's research and innovation policy and coordination of research and innovation activities. Its mission is to define and implement European Research and Innovation (R&I) policy to (or "intending to") achieving the goals of the Europe 2020 strategy and its key flagship initiative, the Innovation Union (European Commission, 2015).

Clingendael

The Netherlands Institute of International Relations 'Clingendael' is a platform which enhances knowledge and insight in international relations. Clingendael is a think tank and a diplomatic academy. The Institute provides information, does research and develops training programs for a large number of audiences, which include Dutch diplomats and civil servants, representatives of foreign ministries, personnel of the armed forces and employees of NGO's and the private sector. Clingendael also provides information for the media and the general public (Clingendael, 2017).

Appendix IV: Format asking for nomination of experts

Dear Professor …,

My name is Sanaz Honarmand Ebrahimi and I am a master student with a major in Public Administration (sustainability track) at the University of Twente. I am currently working on my master thesis to investigate how policy experts envision the relationship between climate change and human migration.

In that regard, I look forward to meeting policy experts that are interested in cooperating in above-mentioned research. Therefore, I would greatly appreciate if you could help me finding 3-5 policy experts in the field of climate change - human migration nexus in the Netherlands who I can contact with this request.

Your advice will help me a lot.

I look forward to hearing from you. Thanks in advance.

Yours sincerely,

Sanaz Honarmand Ebrahimi

Appendix V: Format invitation of interviewees

Subject: Interested in a research project?

Dear Professor/ Mr./ Mrs. …,

My name is Sanaz Honarmand Ebrahimi and I am a master student with a major in Public Administration (sustainability track) at the University of Twente. I am currently working on my master thesis to investigate how policy experts envision the relationship between climate change and human migration.

In that regard, I contacted various authors to help me finding policy experts in the field. I receive feedback from them to contact you. In that regard, is the question of whether you would like to cooperate and have a short meeting (max. one hour) in March.

Your participation will help me a lot.

I would greatly appreciate if you could advise on this. Thanks in advance.

Yours sincerely,

Sanaz Honarmand Ebrahimi

Appendix VI: Interview transcript

Respondent 1

Date of Interview: Friday, 17 March, 2017

We are a think tank for the international relations. The issue of climate change and migration pumps up every once in a while. We have research on it, but we have never studied it in depth. My impression is that the literature of this topic is very poor and underdeveloped and a very big gap exists between evidence on the relationship between migration/ displacement and climate change. The political debate we have a lot of climate refugees and a lot of fears and the evidence is very inconclusive on the EU reasons that if we look at the migration evidence could be that people start to migrant one day because of food and water scarcity. But what I found difficult is that the relation between security aspects is under defined because of some evidence of regional migration due to climate change, but also this leads to tensions and security is not totally clear to me. Also, how this all affect the urbanization of people from the countryside to cities and does this has any security implication.

Migration is obvious if we have flooded. But with slow-onset events, we have some work on land degradation and climate change, food and water scarcity associated with climate change and caused by other reasons.

It is very difficult to say what causes people to say people to the migrant. In this area also research is very limited. It is difficult to distinguish environmental changes and other factors because it is a mix of various factors that cause people to migrate, such as war, unfair situation, and they find there are better opportunities elsewhere. There are future reasons to explain why people migrant.

There is a framework on migration as climate change adaptation and if it is managed well. If you live on the low level island and sea arises you well prepared to go somewhere else and it is a good example of adaptation policy but it is a bit of danger in this positive framing because, at the end of the day, there is a question of why the migration is necessary because of climate change. I am a bit surprised with all the policy documents especially from the EU as positive framing is used. I mean it is true that we don't know that much about the security and negatively induced of migration but the frame is the only positive way, and it is not the right way to catch this relation.

Oh, it is very difficult to answer that it is very difficult to say that recognizing someone as environmental refugees. The problems with environmental refugee would be the same problem as with other international migrants. The only way to prevent environmental refugees is to have real climate adaptation. In some cases, you cannot avoid it, but it is important to ensure the right way of using water, regression systems, and climate-smart agriculture. All these kind of things.

Thus, if there is a relationship, we need to read the policies, and we need to say to policymakers to do this for humanitarian reasons and poverty reduction reasons.

We convince and bring the policymakers with experts together on various topics. And until now we did not go to environmental stresses relationships. We make some publications and presentations to other conflict and events, make short policy briefs, recommendations. We did not have any specific report on the issue of climate change –migration nexus. We did a lot of work on climate and security and climate and foreign policy and Dutch foreign policy. This is always difficult to prove that how we influence the policies. We talk with the press too.

Connection with policy? We are part of the network but we are an independent foundation, and we receive funding from the ministry of foreign affairs. We do not have the formal relationship with policymakers. We point out the evidence and dilemma and choices that can be made on the topic, also options that could be thought of to strengthen the policies in these areas. It is not made to us to make the policy, but we provide framework and information and how you could think about the topic.

Our work should be the world of policymakers. Our work to make knowledge available and to present it in a way that is useful for policymakers. And also to contribute to the research itself.

Respondent 2

Date of Interview: Monday, 20 March, 2017

I have a current project that I call it environmental related because instead of climate I look at daily realities (Bangladesh, Kenya) and look at how people respond to floods, drought, and others. I am a social scientist, so I found it very difficult to prove to what extent flood caused by climate change or not so I call it just environmentally and I am not looking at to what extent is a climate change. Of course, we project it to become worse and more extreme because climate change and until now what we saw is related to floods and drought is expected to become worse. I did some research on framing and policy advice, and indeed it was more about climate change and future projection and get worse, policy gap, and we need to do something about it. How do policymakers and scientists frame the issue, development issue, human rights issue, security issue? I do not talk any more about mass human migration. I was more maximalist. Now I am not minimalist nor maximalist. In 2007-2008 policymakers were on the minimalist side. They did not want to do something on the topic. Also, human Commission on Refugee they said it is not an issue to talk about it and refugees are just political refugees. IOM was also skeptical. NGOs adopted our proposal because it was protecting the vulnerable groups. The shift was from something scary (mass migration) towards reframing it as the adaptation strategy. Therefore, more policymakers they engaged in it. Also, it needs some limitation; it also needs protection and not just resilience.

I think now there is a momentum that there is an action from both sides, such as task force in triple c.

I look at social network perspective also. How social networks are all, in any case, influencing migration decisions, decisions when to leave, where to go, in Bangladesh how people are networked and of course in relation to that if climate change happens or not, how it has influence on migration decisions and network structures and resilience of the communities that depends on social network structure. Environmental change has not minor influence on migration but in combination with other factors.

Environmental refugee: it is difficult to answer. I like in a sense the migration is multi-causal even with political refugees' other effects are involved. Migrants are very poor and coming to Europe. It is fair to say that economic migrant goes back to your country. We need to look at broader and holistic category so survival migrants and those who need help in which it could be those who also has exposed to environmental change better than different institutional regimes looking into specific factor. Then, again from the pragmatic point of view that is the way institutions functioned and organized, such as task force going to be developed in triple c to protect those who displaced by the climate change. They want to make it as much as possible focused by those displaced by climate change otherwise it does not fit in the triple c framework. The tension between which make it ideally and institutional really on the other hand (min 15:25). Slow onset events are more difficult. The article in 2010 was more maximalist. I believe it is possible to define 'environmental refugee' and top-down political framework and still needs some work how to translate it into practice. Indeed, in practice is multi-causal but still, our framework would apply well to those cases that there is a sudden disaster when there is a sort of clear relation. The environmental factor is a crucial factor, but it is difficult for slow onset changes. It depends on how you translate it into local realities. I think the work with refugee even though I still use it because of the moral connotation but let to a lot of misunderstanding people interpret it differently. I use more migrants and displace person.

Refugees do not make problems, if we assume that people always tend to migrate with common coping strategy, so it is not the way that their society works but how this coping strategy work change from one day to another day so what you see now is that the environmental changes are affecting their land and houses mediated through the existing coping strategies. Therefore, in that sense, it is hard to fully prevent and adapt. I agree with the notion that migration has been always there and adapting some of the traditional coping strategies adapted to new push factors. In that sense cannot fully prevent but I think the focus should be on cases on where because some people do not have means to move and their houses constantly destroyed by river erosion. I think the focus should be on case study and how these communities can stay with more protection or resettle nearby and now for example in Bangladesh NGOs like IPSHA, by means of these principles trying to on a very small scale to relocate some people but it is unfair in a way that only

Bangladesh should pay for that, but some international support need to help and assist with that. Because it not only climate change but it is very much one of the factors. In that sense, indeed I think the idea of mass migration (do not think that is true anymore). Thus, full prevention does not cover it. Trapped population because you do not have money to move.

I do not go to any policymakers, but I respond if some people ask me something. For example, in few weeks I will speak in the public event, teachers, NGOs invited me, the ministry of foreign affairs wanted to talk to me to get advice how to interpret the role of IOM. I respond to ad hoc request. I do not search for myself to influence. My primary work is to do research, and I like it if people like to know more and help and do not steer too much, and I am just trying to give informational according to perspectives of science. I gave las year a presentation on EC about Syria and somebody was saying that climate refugees are coming from Syria and I was arguing against that. I was trying to explain how the idea comes about in the first place and it is not too simple. Indeed, multi-causality.

Respondent 3

Date of Interview: Thursday, 23 March, 2017

We focus and approach in general on the aspect of climate change that affects water systems which can be the sea level rise, floods, droughts, and water scarcity. We focus more on water shortage at this moment. About the topic of conflict and migration, we are thinking of whether we should also pay attention to increase fund raise or disappearing small islands.

It is very difficult to answer environmental refugees. Migration does not have a single cause. I do think so that climate change can play a role in reducing natural resources that will lead to migration. When it comes to the implication of water shortage, I can imagine that climate change can play a role, but it is not the only role because water shortage is always a combination of water availability and influence by climate change and water demand that might differ by demographic and population growth, and wealth. And whether the water shortage is the problem depends on the political context and many other things. Therefore, it is very difficult to say whether this person is the environmental refugee and that person is not. I can imagine if it comes to the small developing state that is really disappearing as a result of the sea level rise, it is more obvious and also more important because they lose their nations. It is very difficult to say about the environmental refugee if I don't know its implication. Climate change is one reason that causes migration. It is very difficult to find the real cause of migration.

Climate change – security in Syria people lost their crop and for that reason, farmer moved to the cities but because in that city there were already many displaced Iraqi. Iraqis saved a lot of money and prices increase because of that. People who lost harvest move to the city and they were not

able to buy a house and food. They became very dissatisfied and a regime, and it was a ground for conflict. Therefore, the way it works more or less is that people they were not able to buy the main food products (hunger) and high, very inequality and fair. Recently in Kenya because of the drought it was a story that nomads with their cattle were not able to keep them alive were normally do but cattle from farmland from white farmers and called the policy and chased them away from those farm lands. I have never heard that nomad from one group had the fight, but it is between various groups. Food and basic income and basic food products play a very important role in that. In Egypt the very important factor leading to riots caused by drought in. Food prices seem to be quite important. Using information from others to micro factors and use it in combination with our water stress and what that means. We did not take those factors into our account, but I think we should count those factors into our analysis.

Problems: Migration needs to make resource scarcity in receiving area that can lead to tensions and if I see how people in Europe response to the large influx of migrants, it can be a problem if people are afraid that they are overwhelmed with the large numbers of migrants. I can imagine some actual problems if the infrastructure is not suitable and refugee camps and showed that the average years living in refugee camps is 17 years. We need to work on infrastructure to make sure the people who live in those camps can have normal lives. When it comes to the real problem, it does not matter where the refugee comes from because if there are many people and there is not infrastructure, there is a shortage. But it can matter for the receiving countries when they many have better and more understanding and willing to take environmental refugee than people that just want to come here to a better job. There can difference for receiving countries.

When climate change plays an important role it is a combination, but it is important to think about the solutions to start thinking about the root causes of migration and to see what we can do, and climate may be one factor, but I think that climate change and water management is not the only solution for everything. My main point was that in the Netherlands we have a lot of expertise in that area we should address this topic. We need other measures, and it might take a while before we can really stop migration so at the same time we need really good solutions for those that are coming or to other countries. Some politicians believe in the Netherlands that the Netherlands do not do something about the reduction of CO2 because our contribution is very small in compare to the rest of the world. Sometimes it is very easily dismissing the topic of the climate change. But we think that we can make an important contribution to our water management knowledge and not think that is the overall solution.

Security is a bit of ethical issue that people are worried for flux migration. It is better to address it by finding the cause of the problem and not building walls and closing your borders but it is very important if we want to do something to improve this world and not focusing on just those countries that the migrants come from because the most affected people are mostly poor people and they do not have the means to migrate. Therefore, we can justify that we want to address

the issue and if we can improve the situation at the country of origin that might help, then we should careful that we don't forget about other people who are affected by climate change that may not be able to migrate. Too much of their own interest western worlds.

To interact with the policymakers but also with NGOs and private organizations or defence agencies in government to find out what types of actions they want to take and what type of information they need to be able to take those actions at the right time. We have our water models and how that connects to the information of migration and climate, but we need to understand better what type of the information they need to be able to take some decisions, and often we focus on development cooperation and more strategic planning for the for the longer term. It is also important to advance the ministry of defence for much more regular food program and much shorter time spends where in the coming month's difficult situation can occur can what can be done to prepare for that. So in general from the type of work that we do we focus on assessment of future situations and measures, we quantify the impacts of measures that can be taken to help to achieve the policy goals that we want to achieve. And we also think if we do climate adaptation to advice actors on conflict or defence domain. We think also it is important that the people who are planning to climate adaptation measure are also aware that their actions may not get attention because they are benefiting some group of and not others. Therefore, we want to make different policy experts and where the relationships could be between climate change and resource scarcity and conflict but also where may be not the case of there is too focus on it. So to use knowledge to advise them what type of measures they can take. We have met and planning to conduct more, and it is a new knowledge about it. I think it was, in the beginning, a lot of criticism on the link between climate change and migration, it was a kind of abuse to climate change to put the security on the agenda but it is a shift from the last few years that we may not find a general relationship between climate change and conflict but we do find in some certain context this relationship may be there. Therefore, we need to understand in what context can happen and what we can do then, and then I think that its ok if we look at it in that way, then we should also think what water management contribute in the certain context to reduce those conflicts. Water management in some certain context may help and not for every solution. We are trying to find out in what context we can provide useful advice.

Respondent 4

Date of interview: Monday, 3 April, 2017

Climate change has clearly put an issue. If we look at vulnerability, we can see some parts of the world are more vulnerable than others. Especially those places that global warming is stronger. Incapability of people to react to shocks because they had too many shocks. When they want to move, they want to flee and do not come back anymore. Climate change will have a strong effect

on some parts of the world more than the others. Effect of environmental change (impacts) and people decide to make changes to their strategies, such as growing different kinds of crop, having different kinds of animals or this will be basically land based or just leave completely the village and try to find life in a city until they find out that the city is not romantic either and it is also a tough place. Even in the end people make the choice to go back from the city to the rural area because apparently the chances are better in the rural areas that in the city which is not consistent with the findings on the general theory around migration which people move out of rural area into the cities when there is a crisis.

It is difficult to distinguish environmental and non-environmental factors because of the issue of causality which is that what drives people to move. We focus a lot on rationality aspect of it, and I think part of our choices to move base on our perception and fears, ideas of other places. There are not rational as such. The idea of the past was that people compare place A with B and if the place B provide more options, they will move to place B. But this is not fully informed information. People partially make choices, attached to the choices is the idea of the culture of migration. Therefore, people become restless in particular certain generation like younger people. I think we need to include those. For example, those girls of 13, 14 years of old, took the chance of shock and actually move the village. A chance to leave the obligations from home. They call this 'happy moment' and I think it is paradoxical because there is a crisis and these girls are talking about happy moments. Thus, there are multiple processes of choices that were going on. I have seen that the existing units of decision making which in the past used to be the community and village as a whole that they would come together and talk about those changes and then make any decision as a whole. Now it has been changed to the level of extended families to discuss options. Side by side we have different networks of people relate to each other through social relationship and not geographical proximity. You may have a very poor family and richer family are living next to each other, and they do not have anything to do with each other. Although they are part of the same community. And their grandfathers used to play together. Thus, the village as a whole is beginning to fall apart. And this situation is aggregated by the fact that those that possibly take the leadership role (elderly male in the case of Ghana). Because nobody trusts them anymore. They do not know anymore which one a good rain and which one is not. Therefore, their authority when it comes to this dies away. Thus, younger people do not know to who they can look at. It is indeed the end of solidarity between people. I have seen this in Southern Africa context as well where people basically say if you want me to help you then you have to pay me. I think this is something that with decreasing resources we are going to that level where this kind of mechanisms such as solidarity and redistribution of supporting on the other becomes more and more critically assessed.

Climate refugee is a political category. UNHCR has the reluctance to use this. The mechanisms of solidarity towards UNHCR and refugees, in general, are beginning to go down really and they

afraid if they open up the category as climate refugee than it will be the end of the mandate as a total. Become increasingly strict in the definition. We differentiated between the categorizing people under the basis of whether we think it is right that they move. For example, the Dutch prime minister talks about 'luck seekers, ' and I found that concept hugely problematic. Ex-pants communities are welcome and bring for us a lot. But when we talk about the economic migrates, we are saying no you do not need to move here because you may do things over there and you are not political migrates. And now there is a category of climate migrate or climate refugees and more confusing. We need to ask why we need to link a sort sense of morality to the concept of people moving. Why we attach value to it. If you want to peruse your career somewhere else because you get a great job, we are going to happy for you. But when it comes to less skilled movement, in particular, we are suddenly much more cautions in supporting them. Because when come they cost us money or they jeopardize the position of other people because they will be too cheap local labour. But we need to ask us where is the failing. It is important to hear that when we talk about people moving, we should understand it from their perspective and understand why they want to move and why they do within their social units. And not to ask what the rational is and even the morality of that move from the perspective of any country, whether they are receiving or sending, is simply irrelevant.

What is the nature of their work they are doing before? I am against partial neoliberalism. We can talk about adaptation strategies that people should grow another thing that is better to response to fluctuations in rainfall. It can be a solution but it must we in line with existing culture. This is for self-consumption or to sold as well. Are you going to guarantee that there is a market to sold them? We need to safeguard them and make sure if they make other products such as soya, there is a market for it. If we are going to address the way that people are going to work on land and better respond to these changes of climate change. Then, we have to make sure it is for a larger gain, economic gain. We should not let this person make all these investments and take all the risks.

The connotation of fear. What I address in my pieces is the idea that if you stop migration at its root to address the cause of poverty is very partial analysis. It is used in the frame that tells the country to close their borders and return for a better development aid cooperation and then they should solve their own problems. Thus, we are in a situation that the European Union pay countries to close their borders and they did so already with Nigeria, Mali, and Libya.

Respondent 5

Date of interview: Wednesday, 5 April, 2017

We forget what happened as the result of climate change because it is not just automatic or determined but always politics that intervenes. For example, if Syria the government had done better water policy for the last twenty years, they could be done much better with drought in Syria, and when the drought hit then the government did not help the farmers, but the Syrian government could help them. Therefore, by knowing certain reasons that Syrian farmers have to migrate. They could stay if the government has done better politics. Therefore, that is my main concern. They had to migrate because the government did not help them, and the prices of food went up and really high and then they move and again it depends on what the government does whether they provide any direction and what happens if the communities take in these people and if this could lead to conflict is totally political it does not need any violent if there was enough food. "There is no hunger in democracies." Because the government will help and will not let people die from hunger. But in other countries (democratic) bad things can happen. There is no determination what happen, and it is fully political. The Netherlands is the best example because they live under water and if sea level increases by 2cm, they can protect themselves, but if this happens in Bangladesh, it will go and disappear.

I do not think that the term 'climate refugee' is appropriate at all because first of all the term refugees is just not a legal status, and I do not also think that they legal status should be created if you speak to people might be potentially affected by the having to escape from the climate change they are not also interested in climate refugee status because they argue they want to stay where they are, and the climate change must be stopped instead. Therefore, for them, it is not acceptable to move to a refugee camp and if they have to leave they want to have access to labour markets and they want compensation that they certainty do not want to be in refugee camp and status.

They do not make any problem and them just desperate so as I said people are being affected where the government fails to take appropriate care of climate change and its consequences; people be at risk and their livelihood. And if it can be related to climate change then it would be nice if they could be offer compensation and could have access to labour market but of course politically by the governments of the North that is not desired by them. And the government of the North does not want to pay for it of course because it will be expensive. Thus, that is the problem people livelihood is being destroyed, but nobody wants to pay for it.

The main solution is slowing climate change so reducing CO2 and changing lifestyle and carbonizing the economy in a way that produces and also creating more justice between north and south. Therefore, people in the south have actually emission left to use. If the government of the North fails to do this, they must offer some kind of compensation to the south. And at the

moment they are not willing to offer anything. It is enough for a start to do something about the emission and biggest emission producers should cooperate to reduce the CO2 and to apply someone as the refugee is not appropriate.

My knowledge that I generate is advised and also analysing the consequences of different ways of talking about climate issue and migration. I criticized, for example, the consequences of the issue in 'climate refugee' because I do not think that is a good idea and I show other concepts, for example, I have analysed four different ways of talking about the issue. First, is creating fear about the climate refugee and it is not appropriate because it just helps to keep people out and does not anything productive to help people. Second, I have analysed that we should help people by giving them refugee status and it is not a good idea. Third, people that are affected that they protest they do direct action and I showed that people from the small islands demand radical cut in gas emissions from the major economies because they do not want to think and stop climate change but the North is actually initiating nonsense initiative, and that is just saying ok, and we need to help people and they do that it is really tricky to differentiate between people that are being displaced because of climate change or because of natural disaster. Because sometimes is not clear whether is normal drought or because of climate change so they argue that ok but no matter what the drought is caused by we will help people, so they put in place some we will invest in disaster risk reduction everywhere in the world and invest in adaptation and new ways of living if the climatic conditions is changed and also they save people directly when they are displaced for whatever reason, so they use the term 'displaced' and do not use migration and refugee. And this does not include any bodies fault. I do criticize it because if nobody's' fault then we should pay for this and it is also a problem but at least they suggest that some help needs to come but they do not have much money yet, and they just suggest that everybody should do as much as they can to help these people but this is all very voluntary, and many people criticized it as too soft and too weak. It is a nice idea, but if it remains so voluntary, it is not going to rescue anybody.

I try to widen option by showing how limiting the currently discussed options are.

Respondent 6

Date of interview: Thursday, 6 April, 2017

In fact, in the region that I work (West Africa) climate variability is much more an issue than climate change. We can see that most of the problems in that area which leads to migration are as the result of climate variability and for this moment the direction the climate change and where it goes is not visible from data we have. And what we see drought and others create flows of migrants and refugees. But this migration is from a larger movement of people, from the drier to wetter part of the continent with more possibility to grow crops. People are looking at

opportunities. What factors have a contribution to flow of movements economic, network of people and climate involve? What you also see that people who arrive here are the very small fraction of people who move internally in the continent and what we see there the majority of people were living in drier areas in Nigeria, and now it is opposite. And nobody is worried about it but what you see such as in Northern Ghana enormous movement of people and all needs to accommodate locally and do not go to cities, but they go to rural areas. This rural migration might lead to various situations. For example, in Southern Burkina Faso the majority of the population is from outside and no longer inside, and this might lead to many political problems as well, and nobody is watching it, and I think we need to address it. Nobody looks at it because 'identity worry of Ivorian's' and a lot of people blamed a lot of people who migrate from Burkina Faso and Mali from the problems of war. In Ghana are a lot aware of this and they know a lot of people from these countries migrate to the country to work. This is creating different kinds of problems, and I am not sure whether policymakers are aware of this. If we look at Nigeria, have increasing conflicts between nomadic and farmers and not ecological instability but also political stability is moving to the south, and this is something that is not yet documented. The root cause of the conflicts is not resolved and radicalization from both sides (Muslims and Christians) and other powers to get hold of this, and I am worried about it. For example, Mali experiencing all kind of small proxy wars between the government and various kind of population groups and conflict between farmers and all competing for space and there is not state mediated conflicts in a fair way.

Conflicts zone, an intensity of population (ecological zone), demographically different, not just climate but also conflict, a density of the commercial network, the density of population. Combined with climate it can lead to conflict-related migration, and we will have really a problem. We cannot be sure which factors influence on migration decision. It is a combination of various factors. People invest in different kinds of technology to stay, such as solar and water conservation. In addition, the quantity of available land in Nigeria there is 0h land left and has the highest fertility in the world. PBL believes that food insecurity until 2030 will disappear and I do not agree with this. There is a tendency among academics to be more friendly to policymakers because of research funding. You need to frame it useful for the Europe, but the problem is over there and not here.

We need to look at it in a different way because of we intend to look at these states as failed but it does not help us to understand what is going on, so we need to look what is happening there and compare it to own state because it does not make sense. They have their own political logic to understand that. For example, how people at local level manage to govern natural resources and resolve conflicts and not solve them at a very local level to find what is below states and how you could build on that to provide solutions for managing resources that people have access to natural resources and can live and not move. How to organize education in such a way that serves

the interest of the country. All the education is oriented to universities, but we should also educate farmers that they can produce something and have jobs. It happens, but it is very limited.

We cannot define consistent criteria to call somebody as a refugee. If we look at local level migration happens because of many different reasons. It is not possible to define 'climate refugee.' I focus on the macro level to understand why people move or not move. Also, the macro conditions that make people move. Form policy point of view we should have coherence and efficient towards what is going on and because everything that happens in West Africa has ecological, political, and economic dimension and we need to bring these things together in order to be able to better understand how these things work and then we can hopefully address these problems better. One of the main things is that if you want to do something productive then you have to be able to provide these enormous number of young people to have the prospect for future in a way that they have a better life than their parents and this is a key issue to address. The communities are breaking up, and people have more contacts with an urban area and different expectations from life. Education is good but it raises expectation about the future and if you are not educated you know that you will be a farmer but if you are primary and secondary educated person you say I can find a job in town and white collar jobs. These expectations for these people are also moving. How can the Dutch government help these countries to create employment? We need to create different forms of employment that industrial one.

Respondent 7

Date of interview: Thursday, 10 April, 2017

The climate change and its impacts are not clear, in the climate change models they try to predict future but it is difficult in any circumstance, and even the models themselves may not be true anymore with the climate change, and there are a lot of uncertainties both in climate change and impacts. Another problem is that the climate models are very low scale and what really matters for the people and for their country is what is happening in particular in the locality. And it is becomingly increasingly possible to do predictions on the smallest scale, but I think in general what actually happens we need much longer time series because training needs 30/40 years to become visible. Therefore, the main message is that there are a lot of uncertainties. The alarmist approach is used among politicians and media and NGO leaflets, and still, the idea of climate change will change everything. I think the work from social sciences shows that migration has happened for a very long time and we look at the last decade the most causes of migration are not to do with climate change and they are to do with access to land, having many babies that survive, and looking for a better life. Therefore, climate change impacts on migration may be is environmental degradation, such as in Sahel in the 80s that people tried to find somewhere else to move. Climate change will have an impact on some of the reasons for migration and may have

impacts on lessening migration and maybe have an impact on increasing migration. Therefore, it depends on the local circumstances. But I think that the whole idea of climate change in compare to globalization, bad governance, and increasing population is a minor issue. Other reasons for migration are much bigger than climate change. Migration has been increased before whole the idea of climate change came over. The problems of urbanization and slums are the problems of 40/50 years. The overall situation is that if climate change and migration are used as a discourse to sell action or to ask for action but if we look at the evidence about the climate change and migration it is much more complex, and climate change may even in certain circumstances prevent migration because people's condition might become better. In academia stress on the complexity of the relationship.

Migration is mostly within borders and refugees is associated with international migration. The problem with the label of refugee is that it is a legal status. You can be a refugee when it is war or persecution. For the rich countries is a big problem if refugees are recognized due to the climate change because it would include a lot more people and there is a resistance of labeling of climate change and migration as climate change refugees on top of the other problems, such as there would be very few people that migrate because of climate change. It has to do with labeling. For example, look at the current hunger in Africa is not due to the climate change and it is due to war. If the likelihood of peoples' life is in danger, for example, they do not have a business, and they have to leave because of lack of food. Something like flooding in Bangladesh it happens every year, and it is even part of the productivity of their agriculture. They need food to be able to grow crops because it brings water. Flooding in Bangladesh is not a problem as such, and it becomes a problem when it happens more often, and longer and people lose land because of it. I can also think of drought and people cannot grow crops anymore, but the problem is that all the mechanism that look at natural and environmental there are always some human activities are involved. To distinguish environmental elements from human activities and human choices is impossible. Then, to distinguish climate element in the environment is another issue. The core element that people migrate is likelihood because it becomes impossible because they search for better life. The core is not environmental changes, but the core is that people are not able to cope with environmental change. If we compare the Netherlands with Bangladesh if you have a lot of technological knowledge and money you can make a lot of structure and you can prevent flooding.

I have a view on the usefulness of development aids in general. I have seen in my experience that to help families and communities you need to work at their level, and the most efficient development aid that I have seen has been very long term commitments with little money. I am not for Christian missions in a sense to spreading Christian world, but those are the kinds of effort that I have seen that have a real sustainable impact. Working with the community is important, and at the same time, that market prices are high. Governance can do a lot to support farmers so

that they do not need to migrate and the global market can do a lot. Therefore, as long as the EU has protection tariffs and the same time jumps its products. The African farmers do not get a chance so we can do something systematic at a higher level. Meaning gives change to farmers to produce and sell things, and the main work has to happen at the very micro level working with the communities and people and usually most of this development projects have huge projects and most of the budget does not get things that should reach and happen for various reasons, such as legal. A lot of those development budgets keep unfair systems, and they continue unfair system because they support elites, unequal trade relation. There are various good and bad examples of development aids. For example, first in Bangladesh in 80th, officially Bangladesh asked the world bank and other donors to intervene and intervention was to construct polders along the coast to prevent flooding and they constructed several of them in Bangladesh and the purpose was to protect the land from flooding, and it was meant that the agriculture would be a lot productive and they could have more rice every year and the farmers had better system and did not sell that much on the market but it was mainly for themselves. Initially, with these polders, the production went up a lot, and more rice produce and the incomes of the farmers went up even if they rent a farm they also had a higher income than before. But because of the polders, the river was limited and instead of spreading over the land, and the river stayed within the dikes. The river went higher and higher and quite soon the flood which could not drain to the polders. The intervention of constructing polders for the first ten years was positive but then because of the reaction of the system it becomes negative and water locked and the agriculture productivity much less than before. This intervention should not happen again because after few years (20, 30) will not be effective anymore and it costs a lot of money.

Second, the river in Bangladesh is huge, and outside the river bed people have permanent land, and they do agriculture, and some have small factories. They permanent land sometimes protected by a dike and sometimes does not and the flood comes everyone to five years. People are used to it. Business investors know that there is flood risk, but they will invest anyway. But within the river bed you have a lot of islands and islands are dry in the dry seasons and when the flood comes islands will flood. People who live on these islands most years they have to leave their property from few days to few weeks because there is too much water and if they stay they will drown. They have their own techniques to deal with these problems. Therefore, various projects combined to put a place flood warning and a flood warning is based initially on national predictions, and there is a network of sending messages and informing people about the flood, and they also can prepare and construct flood shelters. For example, there are some schools that have two stories and people can move and find shelter on the second stories in times of flooding. Therefore, it is a rather small scale low-tech intervention and makes it easier for people to keep living there. We have a map that says the farmers move within various homes in their region and they would prefer to stay in their own community instead of moving and if we ask them why you do not go somewhere else they would say that we do not have land somewhere else. They have

to cope with difficult circumstances. And it is important to help people with these difficult circumstances, and it helps them not to migrate. The very small projects were national initiatives, and there is a hierarchy (national, international, NGO,) which have money and ideas, but these small projects tend to be executed by national NGOs who work with CSOs. I think money should come from upward and the idea should come from below.

What I want to stress is that there is a discrepancy between what is in the texts at the discourse on climate and migration and what is in the evidence on the small scale studies. It is quite upsetting that the same people who are saying we do evidence-based policy and I get the impression that when you present the evidence of what really is happening and also what people really need, they ignore it because it does not fit their own agenda (the donors and national governments have the agenda to present climate change as a huge disaster and needs lots of money to solve this disaster. And the evidence says that it is not just true. The problems that are labelled as climate change problems usually are not they have the origin in globalization, bad governance, and economic development and they have a problem in land planning. There are a lot of things. And if you solve all other problems that are not related to climate change, then the climate change would be a problem. The problem is not climate change. I believe the way the world is functioning is complex and if we reduce it behind our desk, we cannot make progress in the wider sense to solve problems. The complexity needs to be embrace, and if you intervene in a situation that has a lot of interrelated big issues in one thing, it is very much likely to have a negative impact on the situation itself because it ignores other interrelated relations. We can intervene with the people with their knowledge, and their assessment of their situation and they will tell you I cannot make a living here because I have a very insecure tendency. I think that poor countries or developing countries have different problems than what we have. A lot of things that we have is similar, so I say on the one hand we have arisen complexity and one the other hand I am saying that we have to compare with our own situation and understand better how these relationships work.

Appendix VII: An example of coding process

To illustrate the process of coding, an example of a fragment of a transcript is used for the stepwise coding process. First of all, open coding was used to mark the text sections with the help of main topic of the coding:

1. Purple: The concept of climate refugee
2. Red: Policy experts' advice
3. Green: Macro drivers of migration
4. Blue: Micro and meso drivers of migration
5. Grey: The role of policy experts

Migration is obvious if we have flood. But with slow-onset events we have some work on land degradation and climate change, food and water scarcity associated with climate change and caused by other reasons.

It is better to address it by finding the root cause of the problem and not building walls and closing your borders…

It is very difficult to say what causes people to say people to migrant.

Trapped population because you do not have money to move.

I do not go to any policymakers but I respond if some people ask me something.

The next step is axial coding, this all selected parts of the transcript were analysed and transmitted to an Excel spread sheet.

The concept of climate refugee			
	Impacts of climate change	**Movement**	**Time scale**
Respondents Respondent 1 Respondent 2 **Documents** Document 1 Document 2	*Migration is obvious if we have flood *Temperature in the dry season		

The policy experts' advice				
	Environmental sustainability	**International security**	**International assistant**	**Protection of forced migrants**
Respondents				
Respondent 1		* The problems with environmental refugee would be the same problems as other international migrants		
Respondent 2	*Resilience		*International support needs to help and assist	*It needs also protection
Respondent 5	*The main solution is slowing climate change so reducing CO2			
Documents				
Document 1				
Document 10			*International efforts to limit climate change are essential	

The macro factors of migration					
	Social	**Environmental**	**Political**	**Demographic**	**Economic**
Respondents					
Respondent 1			* War, Unfair situation		
Respondent 2					
Documents					
Document 1		*Productivity of agriculture			
Document 2					