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Climate Change and Human Migration as Adaptation: Conceptual and Practical Challenges and Opportunities



Johannes M. Luetz^{1,2} and John Merson²

¹CHC Higher Education, Brisbane, Brisbane/Carindale, QLD, Australia

²University of New South Wales (UNSW), Sydney, NSW, Australia

Definition

Climate change-related human migration is an area of growing interest and policy concern. Although climate change is not easily isolated as the predominant cause of human movement, it is increasingly impossible to dismiss its role as a key contributing migration push factor. Moreover, there is agreement among experts that its contribution to migration, relative to other causes, will increase significantly as the effects of climate change impacts are progressively borne out in the future. This makes anticipatory migration-as-adaptation an important emergent priority (Brown 2007, 2008; Laczko and Aghazarm 2009; Hugo 2011; Luetz 2017; Ahmed 2018; Jha et al. 2018; Luetz and Havea 2018; Salerno 2018).

Synonyms

Climate change-induced mobility; Climate migrants; Climate refugees; Climate-related human displacement; Environmentally displaced people; Migration-as-adaptation

Preamble

This chapter should be read in conjunction with the chapter entitled ► “Climate Refugees: Why Measuring the Immeasurable Makes Sense Beyond Measure”.

Introduction

This chapter explores the topic of climate change and human migration (CCHM) within the broader framework of the United Nations Sustainable Development Goal (SDG) 13 Climate Action: Take urgent action to combat climate change and its impacts (UN 2019). More specifically, Targets 1 and 3 explicitly emphasize the need for anticipatory adaptation to climate change, envisaging progress as follows:

- “Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries” (Target 1)
- “Improve education, awareness-raising and human and institutional capacity on climate

change mitigation, adaptation, impact reduction and early warning” (Target 3)

Situated within this context, discourses about CCHM typically comprise theoretical, conceptual, legal, and practical considerations, among others. Importantly, adaptation to climate change in the migration arena is a human development and policy concern, which typically envisages a forward-thinking posture of preparedness. This makes the proactive engagement of human development actors in the CCHM space a fertile undertaking (EC 2019).

In terms of content arrangement, this chapter is divided into three sections and organized as follows. Section “[Conceptualizing Climate Change-Related Human Migration](#)” introduces both definitional and conceptual challenges, discusses “[Etymological Perspectives,](#)” and canvasses “[Agency, Inclusivity, Empowerment: “Nothing About Us, Without Us!”](#)” Thereafter the following section discusses “[Legal and Practical Considerations,](#)” including selected instruments and migration frameworks that have been proposed to manage CCHM: the “[Geneva Convention Relating to the Status of Refugees,](#)” “[The Guiding Principles on Internal Displacement,](#)” the “[United Nations Framework Convention on Climate Change \(UNFCCC\),](#)” and “[Global Compact for Migration \(GCM\); Global Compact on Refugees \(GCR\).](#)” Critical analysis of today’s global framework architecture around migration and displacement is offered in section “[Synthesis.](#)” Finally, section “[Concluding Synthesis: Migration as Adaptation to Climate Change](#)” synthesizes the state of the art in the context of adaptation to climate change.

Conceptualizing Climate Change-Related Human Migration

Available literature on climate change-induced migration abounds with contentious issues, but perhaps none more so than the question how those driven to move from their homes in response to climate change-related problems should be labelled or conceptualized. The question of

nomenclature or definition is delicate and laden with implications (Luetz and Havea 2018). The list of suggested labels is long and growing, and examples in the shortlist below are necessarily incomplete:

“climate refugees” (e.g., Biermann and Boas 2010), “climate change refugees” (e.g., Docherty and Giannini 2009, p. 361), “refugees” (Hansen 2008, p. 2), “environmental refugees” (e.g., Ehrlich and Ehrlich 2013, p. 4), “eco-refugees” (Cournil 2011, p. 359), “environmental and climate change refugees” (Dupont and Pearman 2006, p. 55), “sea-level refugees” (WBGU 2006, p. 61), “rising-sea refugees” (Brown 2011, p. 73), “desert refugees” (Brown 2011, p. 77), “water refugees” (Brown 2011, p. 79), “displaced persons (refugees)” (Westing 1992, p. 201), “‘climate refugees’ ” (e.g., McAdam 2012; Bettini 2012) [N.B. various authors “perpetuate variations of the term “climate refugees” in inverted commas, apparently recognising the widespread comprehension that this construct enjoys among readerships, and yet without conceding personal assent.” (Luetz and Havea 2018, p. 21)], “environmentally-displaced persons” (Lopez 2007), “climate migrants” (e.g., Gibb and Ford 2012), “climate change migrants” (Shamsuddoha and Chowdhury 2010, pp. 3–7), “climate exiles” (e.g., Wei 2011, p. 1), “climate change exiles” (Byravan and Rajan 2006), “environmentally-induced [displaced] populations” (e.g., UNHCR 1996, p. 14), “environmental migrants” (e.g., IOM 2011, p. 33), “climate evacuees” (Cournil 2011, p. 359), “environmental migrants/refugees” (Renaud et al. 2007, pp. 14–17), “climate-change victims” (Popovski 2011; Popovski and Mundy 2012), “ecomigrants” (Wood 2001, p. 43), “ecological migrants” (ADB 2012, p. 9), “environmentally displaced persons” (e.g., Cournil 2011, p. 359), “[climate] displaced people” (e.g., Kolmannskog 2009), “climate change-induced displaced people” (McAdam 2011, p. 18), “forced migrants” (Brown 2007, p. 8), “persons displaced by climate change” (Kälin 2010, p. 97), “[people] forced to leave their homes due to sudden-onset climate-related natural disasters” (UN-OCHA 2009, p. 15), “survival migrants” (Betts 2010), “climigrants.” (Bronen 2010, p. 89)

As shown, the list of proponents of varied terms and terminologies is considerable, and the arguments put forth in favor of some disambiguations over others plentiful. In a widely cited paper migration scholar, Richard Black (2001) aptly synthesizes that there could be “perhaps as many typologies as there are papers on the subject”

(p. 1). Definitions and typologies discussed below are therefore limited to the most prominent studies, organizations, think tanks, and schools of thought.

Campaigners and humanitarian NGOs have frequently used the terms “environmental refugee” or “climate refugee” to highlight the plight of climate displaced populations as a matter of urgency (e.g., Trent 2009; Shamsuddoha and Chowdhury 2010; Bauer 2010; Environmental Justice Foundation 2012), and even Australian politicians have not shied away from labelling such groups of people “refugees” (e.g., Sercombe and Albanese 2006). Proponents of the refugee label generally justify its use on the grounds that those displaced literally seek “refuge” from the impacts of climate change and are therefore rightly to be identified as “climate refugees” (Brown 2008, p. 13; cf. Ahmed 2018). Moreover, it is generally maintained that “[t]he word ‘refugee’ resonates with the general public who can sympathize with the implied sense of duress” (Brown 2007, p. 7) experienced by forcibly dislocated populations and that this term also carries “strong moral connotations of societal protection in most world cultures” (Biermann and Boas 2010, p. 67).

Since the terms “evacuee” and “exile” imply temporary displacement and would therefore seem inapplicable in cases of permanent displacement (e.g., sea-level rise induced submergence of small islands), they have been less frequently proposed as suitable nomenclature (for the most notable exceptions, see Byravan and Rajan 2005a, b, 2006, 2008, 2009, 2010; Wei 2011).

The term “migrant”, on the other hand, connotes a degree of “choice” and “free will” and may “imply a voluntary move towards a more attractive lifestyle” (Brown 2008, p. 13). As a result, perpetuating the term “migrant” could consequently imply a reduced responsibility on the part of the international community for the welfare of this category of people and also lower any sense of liability for their forced fate (Brown 2008, pp. 13–15; cf. Ahmed 2018). Put simply, refugees may be seen to “run from” – migrants “run towards”; refugees are “pushed” by pandemonium – migrants are “pulled” by

promise; refugees are “reactive” – migrants are “proactive”; and refugees enjoy public “empathy” – migrants public “mistrust” (or vice versa). Moreover, there are suggestions that the classification “refugee” heightens a sense of “victimization,” whereas “migrant” insinuates “opportunism” (e.g., Brown 2007, 2008). Expressed in simple language, the words “refugees” and “migrants” conjure up vastly different mental images and associations which seem to be, more often than not, indicative of the writers’ normative preferences, institutional or ideological allegiances, or underlying agendas (Zetter 2007; Counil 2011, pp. 359–360).

Debates surrounding the definitional or associational appropriateness of different terminologies appear to have broadly divided academics into two camps (Brown 2008, pp. 13–15), namely, those favoring the term “refugee” (e.g., Docherty and Giannini 2009) and those favoring the term “migrant” (e.g., IOM 2018). While environmentalists have tended to portray migration as a form of failed climate change mitigation, migration researchers have traditionally treated it as one of numerous potentially positive means of adaptation (Castles 2010). With academics arguing both sides of this terminological divide, consensus has remained notoriously elusive (e.g., Zetter 2007; Laczko and Aghazarm 2009, p. 397). Furthermore, by perpetuating terms like “climate refugees” and “environmental refugees,” the media have also played a role in propagating, popularizing, and lodging such terminology firmly in the public domain (Lawton 2009; MacFarquhar 2009; Schmidle 2009; Vidal 2009; Lam 2012; Luetz and Havea 2018).

Etymological Perspectives

According to Black (2001, p. 1), the term “environmental refugee” was first popularized by Lester Brown of the Worldwatch Institute in the 1970s but failed to gain traction until a publication by the United Nations Environment Programme (UNEP) 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/or triggered by people) that

jeopardized their existence and/or seriously affected the quality of their life. (El-Hinnawi 1985, p. 4)

Myers and Kent (1995) subsequently volunteered the following definition of “environmental refugees” as:

[...] persons who can no longer gain a secure livelihood in their traditional homelands because of environmental factors of unusual scope, notably drought, desertification, deforestation, soil erosion, water shortages and climate change, also natural disasters such as cyclones, storm surges and floods. In face of these environmental threats, people feel they have no alternative but to seek sustenance elsewhere, whether within their own countries or beyond and whether on a semi-permanent or permanent basis. (pp. 18–19)

Their study firmly anchored the term “environmental refugees” both in academic literature and public policy discourse. It appears that given the progressively growing public awareness of climate change, recent years have seen a gradual popularization of the term “climate refugee,” which more directly reflects the climatic “cause” of the environmental “effect” leading to forced migration.

While the two terms “environmental refugees” and “climate refugees” have at times been used almost interchangeably, there is no unified view about the appropriateness of one term over another. Stavropoulou (2008), for example, concedes the term “environmental refugee” (though conceding its legal inaccuracy) as “more compelling than ‘environmental migrant’ because it evokes a sense of global responsibility and accountability, as well as a sense of urgency” (p. 12). Nevertheless, she stops short of endorsing the term “climate change refugee” which she views as “going too far [given that] it will generally be impossible to say whether a degradation in ecosystems leading to displacement has climate change as a major causative factor” (Stavropoulou 2008). Similarly, the Climate Change, Environment and Migration Alliance (CEEMA 2010) made the point that “it is difficult to clearly identify the relative role of environmental factors in a decision to migrate [and] isolating the role of climate change is even more difficult. Therefore, *terms containing a reference to the environment*

are preferable to those referring to climate change” (p. 5; emphasis original). Notwithstanding ongoing debate, if environmentalists like Myers (1993, 1996, 2002, 2005; Myers and Kent 1995) have been largely successful at coining the concept of “environmental refugees” and disseminating it in the public domain, migration scholars have repeatedly and resolutely rejected its assimilation (Black 2001; Laczko and Aghazarm 2009; IOM 2018).

In 1996, the United Nations High Commissioner for Refugees created the less controversial concept of “environmentally displaced persons,” defining this group of people as:

Persons who are displaced within their country of habitual residence or who have crossed an international border and for whom environmental degradation, deterioration or destruction is a major cause of their displacement, although not necessarily the sole one. (UNHCR 1996, p. 9)

Notwithstanding, the strongest attempt at blocking the term “refugee” from gaining currency in public policy discourse appears to have been the counterproposal of a new terminology and typology advanced by the International Organization for Migration (IOM). At its 94th Council Session, the organization floated a definition which uses the word “migrant” instead of “refugee”:

Environmental migrants are persons or groups of persons who, predominantly for reasons of sudden or progressive change in the environment that adversely affects their lives or living conditions, are obliged to leave their habitual homes, or choose to do so, either temporarily or permanently, and who move either within their country or abroad. (IOM 2011, p. 33)

Additionally, the IOM openly discourages the use of the terms “environmental refugees” and “climate change refugees” (Laczko and Aghazarm 2009, p. 397), urging emphatically that such terms are “to be avoided” (IOM 2018, para 5). Furthermore, the mention of a “growing consensus among concerned agencies, including UNHCR” (IOM 2018, para 5), appears to be an attempt on the part of the IOM to entrench its proposed typology and build momentum around this definitional approach (IOM 2018). However,

despite the impression that the pragmatic focus on “forced migration” already appears to resonate well with some scholars as a suitable common denominator consensus (e.g., Brown 2007, 2008; ADB 2009; Warner et al. 2009), it seems unlikely to settle the refugee-versus-migrant debate once and for all. Highlighting the plight of islanders made homeless by rising sea levels (e.g., Schmidle 2009; cf. Luetz 2017; Luetz and Havea 2018), the German Advisory Council on Global Change (WBGU 2006) offered the following definition of “sea-level refugees”:

If a state is submerged, its citizens become stateless. ‘Refugees from sea-level rise’ will probably seek refuge in neighbouring countries, perhaps greatly exceeding these countries’ absorption capacities. WBGU therefore considers that formal provisions are required to regulate the legal status of these people. [...] In line with the non-refoulement principle, . . . states should undertake not to return sea-level refugees to their country of origin if climate change has rendered these countries unsustainable. (WBGU 2006, p. 61)

More recently, Harvard scholars Docherty and Giannini (2009) conceptually defined a “climate change refugee” as:

[...] an individual who is forced to flee his or her home and to relocate temporarily or permanently across a national boundary as the result of sudden or gradual environmental disruption that is consistent with climate change and to which humans more likely than not contributed. (p. 361)

Furthermore, research spearheaded by Biermann and Boas (2010) also came up in support of the “climate refugee” classification, which the authors have enduringly upheld (Biermann and Boas 2007, 2008, 2010). According to their conceptual classification, “climate refugees” are:

[...] people who have to leave their habitats, immediately or in the near future, because of sudden or gradual alterations in their natural environment related to at least one of three impacts of climate change: sea-level rise, extreme weather events, and drought and water scarcity. (p. 67)

Finally, Reeves and Jouzel (2010) have also unapologetically lent support to the “climate refugee” conceptualization in their book entitled *Climate Refugees*, as has Nash (2009) in his documentary by the same name, and Hack (2015, para 1) through

his public displays of “world climate change refugee camps” artwork.

In summary, there is no consensus definition on people who are displaced (in full or in part) by the adverse environmental effects brought on by progressive climate change (ADB 2012), leaving a situation that has been described as “confusing” and “unhelpful” (Dun and Gemenne 2008, p. 10). Instead, different normative approaches and agendas have led scholars to propose a vast array of competing conceptualizations and dissimilar definitions.

Agency, Inclusivity, Empowerment: “Nothing About Us, Without Us!”

Importantly, diversity in respect of nomenclature reaches beyond simple semantic preferences as Brown (2008) has emphasized: “which definition becomes generally accepted will have very real implications for the obligations of the international community under international law” (p. 13). Further, given that the word “refugee” is a legal term of entitlement, which bestows privileges of protection that are not claimable by “migrants,” IOM and UNHCR have expressly discouraged any extraneous or expansive uses of the term “refugee” so as not to risk undermining the Refugee Convention (UNHCR 1951; Laczko and Aghazarm 2009; CCEMA 2010, p. 5). At the same time, the situation is not remedied simply by using the term “migrant” instead, which appears to be inept in situations where human movement is induced by environmental factors:

There is no definition of ‘migrant’ in international law. The only definition that can be found in a universal treaty is that of a ‘migrant worker’, meaning ‘a person who is to be engaged, is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national.’ [UNTC 2004] [...] At the same time, [...] the notion of ‘migrant workers’ as defined by international law does not really fit, since even if such people find a job abroad, they are primarily in search of protection and assistance and their decision to leave is not just triggered by economic considerations. (Kälin 2010, pp. 89–90)

To synthesize, pilot research (Luetz and Havea 2018) has proposed a shift away from treating climate migrants (however they are to be

conceptually classified) as passive consignees of “scholarly labels”, to placing them more firmly at the center of the definitional debate. There also seems to be a sense that some islanders may resist the categorization of “climate refugees” (McNamara and Gibson 2009; Luetz and Havea 2018). Furthermore, there are suggestions that “local contexts, dialects and expressions (e.g., “Turangu”) have much to contribute terminologically with respect to more appropriately informing the definitional and conceptual constructs of policy and research discourses” (Luetz and Havea 2018, p. 23). Inclusivity in coining conceptualizations has already made advances in discourses about disability, and there is the hope that “inclusion” may be similarly normalized in the climate migration domain: “The ‘nothing about us, without us’ (Charlton 2000) cry within the disability discourse, calling for representation in a bureaucratic system of oppression and disempowerment, is hauntingly relevant” (Luetz et al. 2019, p. 120).

To conclude, this discourse does not feel comfortable to advance a self-consistent and universally applicable typological nomenclature and rather prefers to advocate conceptual representations that are inclusive, nuanced, and contextually grounded and which involve or even defer to the perspectives and contributions of individuals and communities who migrate for reasons that may implicate climate change. Such a posture of mutuality, inclusion, and cooperation seems to be most conducive to the kind of anticipatory adaptation to climate change envisaged by SDG 13 (UN 2019), especially via Targets 1 and 3 (see section “Introduction”). Such inclusivity seems to be all the more pivotal as “consulting the unconsulted” is increasingly identified in the international development arena as a key concern and success factor for global poverty reduction, social justice, and environmental sustainability education (Chambers 1997; Luetz et al. 2018, 2019; Luetz and Walid 2019).

Legal and Practical Considerations

Leading change in change-resistant institutional environments can be a formidable challenge

(Nelson and Luetz 2019). This section will introduce selected legal instruments and frameworks that may apply to people who migrate for reasons related to climate change, including the sections “Geneva Convention Relating to the Status of Refugees,” “The Guiding Principles on Internal Displacement,” the “United Nations Framework Convention on Climate Change (UNFCCC),” and the two twin global compacts on migration and refugees (section “Global Compact for Migration (GCM); Global Compact on Refugees (GCR)”). The section concludes with a brief synthesis (section “Synthesis”).

Geneva Convention Relating to the Status of Refugees

According to the 1951 Refugee Convention (UNHCR 1951), under international law a “refugee” is:

A person who owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country, or who, not having a nationality and being outside of the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it. (1951 Convention relating to the Status of Refugees, Art. 1A(2), 28 July 1951, as modified by the 1967 Protocol)

Accordingly, the Refugee Convention does not offer protection to “climate refugees.” Although people who migrate on account of climate change-related causes may very well meet the “well-founded fear” requirement (e.g., Luetz 2018), they are evidently not “persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion” and may also not find themselves “outside the country of [their] nationality” (e.g., Luetz and Havea 2018), to mention only some of the impediments to the legal fit of the term “refugee” in many geopolitical or socioenvironmental contexts. Expressed in simple language, under international law climate migrants do not enjoy the rights and privileges of convention refugees (Myers and Kent 1995; McAdam 2010, 2012). In short, the Convention does not include “any of the myriad factors,

including climate change and environmental degradation, that might plausibly be motivating flight” (Stapleton et al. 2017, p. 27).

The Guiding Principles on Internal Displacement

Internally displaced persons (IDPs) are defined as:

[...] persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized State border. (Guiding Principles on Internal Displacement, E/CN.4/1998/53/Add.2.)

While acknowledging that the Guiding Principles on Internal Displacement apply relevant aspects of humanitarian law, refugee law, and international human rights law to situations of internal displacement, Stapleton et al. (2017) point out that “this deliberately does not constitute a binding legal norm” (p. 27). Moreover, research by Zetter (2017) supports the synthesis that “in practice, few countries have incorporated these principles into their national legislation or constitutions, and those that have done so rarely implement these principles systematically or with conviction” (Stapleton et al. 2017, p. 27).

United Nations Framework Convention on Climate Change (UNFCCC)

Given the comprehensive role of the UNFCCC in coordinating multilateral international action on climate change mitigation and adaptation [e.g., in 1997 the Kyoto Protocol established legally binding obligations for developed countries to reduce greenhouse gas emissions], some scholars have seen this global convention as aptly suited to provide an appropriate framework architecture for the protection of “climate refugees” or “climate migrants” (e.g., Biermann and Boas 2007, 2008, 2010; Gibb and Ford 2012). Even so, the UNFCCC did not initially include or even envisage “any provisions concerning specific assistance or protection for those who will be directly affected by the effects of climate change” (UNFCCC 2008, p. 1). Recent years have seen

limited progress in respect of “Loss and Damage,” albeit the Convention pledged in 2015 to “develop recommendations for integrated approaches to avert, minimize, and address displacement related to the adverse impacts of climate change” (UNFCCC 2015, p. 8, para 50). The IOM has summarized progress as follows:

The United Nations Framework Convention for Climate Change (UNFCCC) first recognized the growing importance of human mobility with the adaptation of the 2010 Cancun Adaptation Framework. When the 2015 Paris Agreement was adopted during the twenty-first Conference of Parties in Paris (COP21), climate migrants were finally rendered visible within the wider international policy arena. IOM has been actively engaged in the UNFCCC process since COP14 in Poznan in 2008, advocating for the recognition of migration and displacement dimensions in policy discussions on climate change. (EMP n.d., para 2; cf. UNFCCC 2015)

Stapleton et al. (2017) have synthesized that the Conference of the Parties in Paris (COP21) has resulted in the establishment of a Task Force on Displacement (TFD), which the authors consider “a significant step forward [...] given that it] includes representatives from UNHCR, UNDP, the International Organization for Migration (IOM), the International Federation of the Red Cross and Red Crescent Societies (IFRC), the Platform on Disaster Displacement and the UN Advisory Group of Climate Change and Human Mobility” (p. 25). Other UNFCCC-linked initiatives include the Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change (Nansen Initiative 2015), the Sendai Framework for Disaster Risk and Reduction 2015–2030 (UNISDR 2015), and the United Nations Convention to Combat Desertification (UNCCD n.d.).

In summary, it appears questionable, at best, that the UNFCCC will emerge as the predominant international framework of choice to govern climate change-related human migration.

Global Compact for Migration (GCM); Global Compact on Refugees (GCR)

The 2016 UN Summit for Refugees and Migrants in New York resulted in a pledge by states “to

work towards two Global Compacts, one on migration, the other on refugees” (Stapleton et al. 2017, p. 27). The Global Compact for Migration (GCM 2018) was finalized in July 2018 and is considered to be “the first, intergovernmentally negotiated agreement, prepared under the auspices of the United Nations, to cover all dimensions of international migration in a holistic and comprehensive manner” (UN 2018a, para 1). The Global Compact on Refugees (GCR 2018) was finalized in June 2018 (UN 2018b) and recognizes that “[w]hile not in themselves causes of refugee movements, climate, environmental degradation and natural disasters increasingly interact with the drivers of refugee movements” (GCR 2018, p. 3, (iv) para 8). Although the GCR considers countries of origin primarily responsible for addressing the root causes of refugee movements, it concedes that “averting and resolving large refugee situations are also matters of serious concern to the international community as a whole, requiring early efforts to address their drivers and triggers, as well as improved cooperation among political, humanitarian, development and peace actors” (GCR 2018, p. 3, (iv) para 8).

Despite hopes that these twin compacts may result in more practical support for climate migrants, Stapleton et al. (2017) have cautioned that the GCM “is not binding and does not as yet include a framework for implementation. It remains to be seen what impact it will have on individual state policies” (p. 27). Contrastingly, the authors note that the GCR:

is pointedly not tasked with opening up debate on the scope of the 1951 Convention or the mandate of UNHCR. Moreover, the decision to establish two separate compacts on refugees and migrants risks perpetuating a conceptual and organisational distinction between ‘forced’ and ‘voluntary’ flight that fails to reflect the fluid and complex reality of contemporary population movements, both within countries and across borders, incorporating ‘voluntary migrants, putative refugees, former IDPs, other forcibly displaced people and trafficked and smuggled persons’, often using the same routes and heading for the same destinations. (Stapleton et al. 2017, p. 27; attributed to Zetter 2017, pp. 23–28)

Synthesis

Given that there is no one-size-fits-all applicable legal framework and migration regime, people who migrate for climate change-related reasons are not uniformly and equitably assisted by the international community (Biermann and Boas 2010; Ahmed 2018). Stapleton et al. (2017) have aptly summarized the situation as follows:

The conceptual framework and organisational architecture around migration and displacement are embedded within an international response machinery developed over seven decades, and any efforts to produce an approach more reflective of the complexity of contemporary displacement will face probably intractable political and institutional opposition. (p. 27)

There is also a sense that climate migrants may be most clearly classified as being in need of protection primarily *after* a desperate environmental situation spirals into violent chaos, given that such conditions are most conducive to fostering and sustaining the kind of clear-cut “persecution” identified in the Refugee Convention (UNHCR 1951). There may thus be a perverse incentive to wait for a situation to worsen (because there are initially no adequate legal instruments to address the situation preemptively) and deal with it chiefly after it has erupted into full-blown violence, armed conflict, and “persecution” (because legal instruments are now in place that squarely fit the bill). The “climate change-collective violence” nexus is well-established in the literature, and there are indications that recent humanitarian-scale refugee movements have been, at least in part, fuelled by climate change-related causality (Breisinger et al. 2013; Wendle 2016; Levy et al. 2017; cf. Ahmed 2018). Hence the case to assist early, proactively, and preemptively remains clear and compelling.

In summary, although recent notable progress has been made to recognize climate migration in international legal frameworks, there is still a lingering sense that “forced climate migrants fall through the cracks of international refugee and immigration policy. There is no ‘home’ for forced climate migrants, either literally or figuratively” (Brown 2008, p. 36).

Concluding Synthesis: Migration as Adaptation to Climate Change

Discourses about climate change and human migration (CCHM) are typically characterized by theoretical, conceptual, legal, and practical considerations, among others. In respect of theoretical and conceptual issues, this chapter canvassed both definitional and terminological challenges and opportunities (section “[Conceptualizing Climate Change-Related Human Migration](#)”). Zetter (2007) argues that the concept of labelling reflects a “political discourse of alienation and resistance to refugee claims [where] legitimate and objective processes are in fact pernicious tools which fraction the claim to a fundamental human right” (p. 188) and that labelling creates “convenient images, while keeping the refugees and other dispossessed people at a distance” (p. 190). While the absence of a universally agreed nomenclature is noted by scholars as a well-known challenge, pilot research (Luetz and Havea 2018) has suggested a shift away from treating climate migrants (however they are to be classified) as passive consignees of “scholarly labels,” to placing them more firmly at the center of definitional discourses and deliberations. Inclusivity in respect of coining conceptualizations has already made inroads in discourses about disability, and there is now the opportunity that this may be similarly normalized in the scholarly climate migration space (Luetz et al. 2019). Furthermore, there are suggestions that “local contexts, dialects and expressions (e.g., ‘Turangu’) have much to contribute terminologically with respect to more appropriately informing the definitional and conceptual constructs of policy and research discourses” (Luetz and Havea 2018, p. 23).

In respect of legal and practical issues (section “[Legal and Practical Considerations](#)”), the multiplicity of diffuse frameworks and migration regimes seems to frustrate the attempts by diverse stakeholders who seek to straightforwardly assist climate migrants with clear-cut systems, mechanisms, and approaches (Ahmed 2018). Even so, studies and publications point to promising new perspectives and initiatives. For instance, there are indications that the preparedness paradigm long

embraced by the disaster management community, which values proaction over reaction and preparing over repairing (Luetz 2008, 2013; UNISDR 2011, 2015; IPCC 2012), is also increasingly gaining currency in CCHM discourse, as evidenced by case study research in the Maldives (Luetz 2017) and Bangladesh (Luetz 2018; Luetz and Sultana 2019) and a “Toolbox” for planned relocations (UNHCR 2017). Given that Targets 1 and 3 of SDG 13 explicitly envisage anticipatory adaptation to climate change (UN 2019, cf. Section 1) makes the proactive engagement of human development actors in the CCHM space a fertile climate change adaptation objective (EC 2019). This offers clear benefits in respect of supporting climate change-related migration as a favorable form of adaptation to climate change (IOM 2010; Luetz 2013; Jha et al. 2018). To conclude, “migration should not be treated as a failure to adapt locally; rather, it should be well accepted as a survival strategy” (Ahmed 2018, p. 15; attributed to Siddiqui et al. 2014).

Cross-References

- ▶ [Climate Refugees: Why Measuring the Immeasurable Makes Sense Beyond Measure](#)
- ▶ [Wicked Problems](#)

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References

- ADB – Asian Development Bank (2009) Climate change and migration in Asia and the Pacific. Executive summary. University of Adelaide, Flinders University, The University of Waikato, Mandaluyong City, Philippines. http://www.preventionweb.net/files/11673_ClimateChan geMigration.pdf. Accessed 19 Oct 2018
- ADB – Asian Development Bank (2012) Addressing climate change and migration in Asia and the Pacific: final report. Asian Development Bank, Metro Manila. <https://www.adb.org/sites/default/files/publication/29662/addressing-climate-change-migration.pdf>. Accessed 19 Oct 2018
- Ahmed B (2018) Who takes responsibility for the climate refugees? *Int J Clim Change Strategies Manage*

- 10(1):5–26. <https://doi.org/10.1108/IJCCSM-10-2016-0149>
- Bauer S (2010) “Climate refugees” beyond Copenhagen. Legal concept, political implications, normative considerations. Analysis. Diakonisches Werk der EKD e.V. Brot für die Welt, Stuttgart
- Bettini G (2012) Climate barbarians at the gate? A critique of apocalyptic narratives on ‘climate refugees’. *Geoforum* 45:63–72
- Betts A (2010) Survival migration: a new protection framework. *Glob Gov* 16(3):361–382
- Biermann F, Boas I (2007) Preparing for a warmer world. Towards a global governance system to protect climate refugees. Global governance working paper no. 33, The Global Governance Project, Amsterdam
- Biermann F, Boas I (2008) Protecting climate refugees—the case for a global protocol. *Environment* 50(6):8–16
- Biermann F, Boas I (2010) Preparing for a warmer world: towards a global governance system to protect climate refugees. *Global Environ Polit* 10(1):60–88
- Black R (2001) Environmental refugees: myth or reality? New issues in refugee research. Working paper 34, University of Sussex, Brighton. <http://www.refworld.org/docid/4ff57e562.html>. Accessed 22 Oct 2018
- Breisinger C, Zhu T, Al Riffai P, Nelson G, Robertson R, Funes J, Verner D (2013) Economic impacts of climate change in Syria. *Clim Chang Econ* 4(1):1–30
- Bronen R (2010) Forced migration of Alaskan indigenous communities due to climate change. In: Afifi T, Jäger J (eds) *Environment, forced migration and social vulnerability*. Springer, Berlin/Heidelberg
- Brown O (2007) Climate change and forced migration: observations, projections and implications. Thematic paper for the Human Development report 2007/2008, Geneva. http://www.iisd.org/pdf/2008/climate_forced_migration.pdf. Accessed 19 Oct 2018
- Brown O (2008) Migration and climate change. Paper prepared for IOM 31. IOM migration research series. International Organization for Migration, IOM, Geneva. https://www.iom.cz/files/Migration_and_Climate_Change_-_IOM_Migration_Research_Series_No_31.pdf. Accessed 19 Oct 2018
- Brown LR (2011) World on the edge: how to prevent environmental and economic collapse. Earth Policy Institute. W. W. Norton, New York/London
- Byravan S, Rajan SC (2005a) Immigration could ease climate change impacts. A modest proposal to allow the big gas-emitters to take their share of responsibility. *Nature* 434:435
- Byravan S, Rajan SC (2005b, May 9) Before the flood. *The New York Times*. <http://www.nytimes.com/2005/05/09/opinion/09byravan.html>. Accessed 20 Oct 2018
- Byravan S, Rajan SC (2006) Providing new homes for climate change exiles. *Clim Pol* 6:247–252
- Byravan S, Rajan SC (2008, Mar 1) The social impacts of climate change in South Asia. Immigration could ease climate change impacts. <https://doi.org/10.2139/ssrn.1129346>. Accessed 20 Oct 2018
- Byravan S, Rajan SC (2009) Warming up to immigrants: an option for the U.S. in climate policy. *Econ Polit Wkly* XLIV(45):19–23
- Byravan S, Rajan SC (2010) The ethical implications of sea-level rise due to climate change. *Ethics Int Aff* 24(3):239–260
- Castles S (2010) Afterword: What now? Climate-induced displacement after Copenhagen. In: McAdam, J [ed.] *Climate Change and Displacement: Multidisciplinary Perspectives*. Hart Publishing, Oxford, pp 239–246
- CCEMA – Climate Change, Environment and Migration Alliance (2010, Dec) Climate change, environment and migration: frequently asked questions. http://www.iom.int/jahia/webdav/shared/shared/mainsite/activities/env_degradation/CCEMA_top_10FAQs.pdf. Accessed 20 Oct 2018
- Chambers R (1997) *Whose reality counts? Putting the last first*. Intermediate Technology Publications, London
- Charlton J (2000) *Nothing about us without us*. Disability oppression and empowerment. University of California Press, Berkeley
- Cournil C (2011) The protection of “environmental refugees” in international law. In: Piguet E, Pécoud A, de Guchteneire P (eds) *Migration and climate change*. Cambridge University Press, Cambridge, pp 359–386
- Docherty B, Giannini T (2009) Confronting a rising tide: a proposal for a convention on climate change refugees. *Harv Environ Law Rev* 33(2):349–403
- Dun O, Gemenne F (2008) Defining environmental migration: there is currently no consensus on definitions in this field of study. The resulting variety of terms is not just confusing but unhelpful. *Forced Migr Rev* 31:10–11
- Dupont A, Pearman G (2006) Heating up the planet: climate change and security. Lowy Institute for International Policy, Double Bay
- EC – European Commission (2019) Goal 13: take urgent action to combat climate change and its impacts. https://ec.europa.eu/sustainable-development/goal13_en. Accessed 8 Jan 2019
- Ehrlich PR, Ehrlich AH (2013) Can a collapse of global civilization be avoided? *Proc R Soc B* 280(1754):20122845
- EJF – Environmental Justice Foundation (2012) No place like home: securing recognition, protection and assistance for climate refugees. https://ejfoundation.org/resources/downloads/NPLH_briefing.pdf. Accessed 20 Oct 2018
- El-Hinnawi E (1985) *Environmental refugees*. United Nations Environment Programme (UNEP), Nairobi
- EMP – Environmental Migration Portal (n.d.) Human Mobility in the UNFCCC. <https://environmental-migration.iom.int/human-mobility-unfccc>. Accessed 6 Mar 2019
- GCM – Global Compact for Migration (2018, July 13) Global compact for safe, orderly and regular migration. https://refugeesmigrants.un.org/sites/default/files/180713_agreed_outcome_global_compact_for_migration.pdf. Accessed 18 Oct 2018

- GCR – Global Compact on Refugees (2018, June 26) The global compact on refugees. Final draft. <https://www.unhcr.org/5b3295167.pdf>. Accessed 18 Oct 2018
- Gibb C, Ford J (2012) Should the United Nations Framework Convention on climate change recognize climate migrants? *Environ Res Lett* 7(4):045601. <https://doi.org/10.1088/1748-9326/7/4/045601>
- Hack JH (2015) Hack erklärt Leopold-Hoesch-Museum zum Klimafüchtlingslager. <http://hermann-josef-hack.de/cms/?p=312>. Accessed 20 Oct 2018
- Hansen J (2008, June 23) Global warming twenty years later: tipping points near. Briefing before the Select Committee on Energy Independence and Global Warming, U.S. House of Representatives. National Press Club on June 23. http://www.columbia.edu/~jeh1/2008/TwentyYearsLater_20080623.pdf. Accessed 19 Oct 2018
- Hugo G (2011) Future demographic change and its interactions with migration and climate change. *Glob Environ Chang* 21:S21–S33
- IOM – International Organization for Migration (2010) Disaster risk reduction, climate change adaptation and environmental migration: a policy perspective. http://publications.iom.int/bookstore/free/DDR_CCA_report.pdf. Accessed 19 Oct 2018
- IOM – International Organization for Migration (2011) Glossary on migration, 2nd edn. International Migration Law No. 25. IOM, Geneva. https://publications.iom.int/system/files/pdf/iml25_1.pdf. Accessed 19 Oct 2018
- IOM – International Organization for Migration (2018) Migration, climate change and the environment: definitional issues. <https://www.iom.int/definitional-issues>. Accessed 19 Oct 2018
- IPCC – Intergovernmental Panel on Climate Change (2012) Managing the risks of extreme events and disasters to advance climate change adaptation. In: Field CB, Barros V, Stocker TF, Qin D, Dokken DJ, Ebi KL, Mastrandrea MD, Mach KJ, Plattner G-K, Allen SK, Tignor M, Midgley PM (eds) A special report of Working Groups I and II of the intergovernmental panel on climate change. Cambridge University Press, Cambridge
- Jha CK, Gupta V, Chattopadhyay U, Sreeraman BA (2018) Migration as adaptation strategy to cope with climate change: a study of farmers' migration in rural India. *Int J Clim Change Strategies Manage* 10(1):121–141. <https://doi.org/10.1108/IJCCSM-03-2017-0059>
- Kälén W (2010) Conceptualising climate-induced displacement. In: McAdam J (ed) *Climate change and displacement: multidisciplinary perspectives*. Hart Publishing, Oxford, pp 81–103
- Kolmannskog V (2009) Climate changed: people displaced—a thematic report from the Norwegian Refugee Council. Norwegian Refugee Council. https://www.preventionweb.net/files/12548_img.pdf. Accessed 22 Oct 2018
- Laczko F, Aghazarm, C (eds) (2009) *Migration, environment and climate change: assessing the evidence*. International Organization for Migration, Geneva. http://publications.iom.int/bookstore/free/migration_and_environment.pdf. Accessed 20 Oct 2018
- Lam A (2012, Aug 18) The rising tide: environmental refugees. News analysis. New America Media. <http://truth-out.org/news/item/10969-the-rising-tide-environmental-refugees>. Accessed 20 Aug 2012
- Lawton C (2009, Dec 17) What about climate refugees? Efforts to help the displaced bog down in Copenhagen. *Spiegel Online*. <http://www.spiegel.de/international/europe/0,1518,667256,00.html>. Accessed 19 Oct 2018
- Levy BS, Sidel VW, Patz JA (2017) Climate change and collective violence. *Annu Rev Public Health* 38:241–257. <https://doi.org/10.1146/annurev-publhealth-031816-044232>
- Lopez A (2007) The protection of environmentally-displaced persons in international law. *Environ Law* 37(2):365–409
- Luetz JM (2008) Planet prepare: preparing coastal communities in Asia for future catastrophes. Asia Pacific Disaster Report. World Vision International, Bangkok. <http://luetz.com/docs/planet-prepare.pdf>. Accessed 19 Oct 2018
- Luetz JM (2013) Climate migration: preparedness informed policy opportunities identified during field research in Bolivia, Bangladesh and Maldives. Ph.D. dissertation, University of New South Wales, Sydney. <http://handle.unsw.edu.au/1959.4/52944>. Accessed 31 May, 2016
- Luetz JM (2017) Climate change and migration in the Maldives: some lessons for policy makers. In: Leal Filho W (ed) *Climate change adaptation in pacific countries: fostering resilience and improving the quality of life*. Springer, Berlin. https://doi.org/10.1007/978-3-319-50094-2_3
- Luetz JM (2018) Climate change and migration in Bangladesh: empirically derived lessons and opportunities for policy makers and practitioners. In: Leal Filho W, Nalau J (eds) *Limits to climate change adaptation, Climate change management*. Springer, Cham. https://doi.org/10.1007/978-3-319-64599-5_5
- Luetz JM, Havea PH (2018) “We’re not refugees, we’ll stay here until we die!”—climate change adaptation and migration experiences gathered from the Tulun and Nissan Atolls of Bougainville, Papua New Guinea. In: Leal Filho W (ed) *Climate change impacts and adaptation strategies for coastal communities, Climate change management*. Springer, Cham. https://doi.org/10.1007/978-3-319-70703-7_1
- Luetz JM, Sultana N (2019) Disaster risk reduction begins at school: research in Bangladesh highlights education as a key success factor for building disaster ready and resilient communities – a manifesto for mainstreaming disaster risk education. In: Leal Filho W, Lackner BC, McGhie H (eds) *Addressing the challenges in communicating climate change across various audiences, Climate change management*. Springer, Cham. https://doi.org/10.1007/978-3-319-98294-6_37

- Luetz JM, Walid M (2019) Social responsibility versus sustainable development in United Nations Policy Documents: a meta-analytical review of key terms in Human Development Reports. In: Leal Filho W (ed) Social responsibility and sustainability – how businesses and organizations can operate in a sustainable and socially responsible way, World sustainability series. Springer Nature, Cham. https://doi.org/10.1007/978-3-030-03562-4_16
- Luetz JM, Buxton G, Bangert K (2018) Christian theological, hermeneutical and eschatological perspectives on environmental sustainability and creation care—the role of holistic education. In: Luetz JM, Dowden T, Norsworthy B (eds) Reimagining Christian education—cultivating transformative approaches. Springer Nature, Singapore. https://doi.org/10.1007/978-981-13-0851-2_4
- Luetz JM, Bergsma C, Hills K (2019) The poor just might be the educators we need for global sustainability—a manifesto for consulting the unconsulted. In: Leal Filho W, Consorte McCrear A (eds) Sustainability and the humanities. Springer, Cham. https://doi.org/10.1007/978-3-319-95336-6_7
- MacFarquhar N (2009, May 28) Refugees join list of climate-change issues. The New York Times. <http://www.nytimes.com/2009/05/29/world/29refugees.html>. Accessed 31 May 2009
- McAdam J (ed) (2010) Climate change and displacement: multidisciplinary perspectives. Hart Publishing, Oxford
- McAdam J (2011) Swimming against the tide: why a climate change displacement treaty is not the answer. *Int J Refugee Law* 23(1):2–27
- McAdam J (2012) Climate change, forced migration, and international law. Oxford University Press, Oxford
- McNamara KE, Gibson C (2009) “We do not want to leave our land”: Pacific ambassadors at the United Nations resist the category of “climate refugees”. *Geoforum* 40(3):475–483
- Myers N (1993) Environmental refugees in a globally warmed world. *Bioscience* 43(11):752–761
- Myers N (1996, Oct) Environmentally-induced displacements: the state of the art. In: UN High Commissioner for Refugees, environmentally-induced population displacements and environmental impacts resulting from mass migrations. UN High Commissioner for Refugees, Geneva, Switzerland, 21–24 Apr 1996. <http://www.unhcr.org/refworld/docid/4a54bbd6d.html>. Accessed 19 Oct 2018
- Myers N (2002, April 29) Environmental refugees: a growing phenomenon of the 21st century. *Philos Tran R Soc Lond B* 357(1420):609–613
- Myers N (2005) 13th OSCE economic forum, Prague, 23–27 May 2005, Session III—environment and migration (Doc. # EF.NGO/4/05—22 May 2005)
- Myers N, Kent J (1995) Environmental exodus: an emergent crisis in the global arena. Climate Institute, Washington, DC
- Nansen Initiative (2015) Agenda for the protection of cross-border displaced persons in the context of disasters and climate change, vol 1. The Nansen Initiative, Geneva. <https://nanseninitiative.org/wp-content/uploads/2015/02/PROTECTION-AGENDA-VOLUME-1.pdf>. Accessed 18 Oct 2018
- Nash M (2009) Climate refugees: a documentary film about the human face of climate change. <http://www.climate-refugees.com>. Accessed 22 Oct 2018
- Nelson W, Luetz JM (2019) What can we learn from Pope Francis about change management for environmental sustainability? A case study on success factors for leading change in change-resistant institutional environments. In: Leal FW, Consorte MCA (eds) Sustainability and the humanities. Springer, Cham. https://doi.org/10.1007/978-3-319-95336-6_29
- Popovski V (2011, Dec 1) Climate change victims. United Nations University (UNU), Tokyo. <http://unu.edu/publications/articles/climate-change-victims.html>. Accessed 20 Oct 2018
- Popovski V, Mundy KG (2012) Defining climate-change victims. *Sustain Sci* 7(1):5–16
- Reeves H, Jouzel J (2010) Climate refugees. Massachusetts Institute of Technology (MIT) Press, Cambridge, MA
- Renaud F, Bogardi JJ, Dun O, Warner K (2007) Control, adapt or flee—how to face environmental migration? *InterSecTions* 5/2007. United Nations University Institute for Environment and Human Security (UNU-EHS), Bonn
- Salerno F (2018) Guest editorial. *Int J Clim Change Strategies Manage* 10(1):2–4. <https://doi.org/10.1108/IJCCSM-08-2017-0165>
- Schmidle N (2009, May 10) Wanted: a new home for my country. Global warming may drown the Maldives, and the island nation’s president is considering relocating the entire population. The New York Times. <http://www.nytimes.com/2009/05/10/magazine/10MALDIVES-t.html>. Accessed 20 Oct 2018
- Sercombe B, Albanese A (2006) Our drowning neighbours: Labour’s policy discussion paper on climate change in the Pacific. <http://www.bobsercombe.id.au/uploads/OurDrowningNeighbours.pdf>. Accessed 30 May 2009, <http://anthonyalbanese.com.au/labor-calls-for-international-coalition-to-accept-climate-change-refugees>. Accessed 21 Oct 2018
- Shamsuddoha MD, Chowdhury RK (2010) Climate change migrants. *Tiempo: Bull Clim Dev* 74:3–7
- Siddiqui T, Bhuiyan M, Sikder M, Islam M (2014) Adaptation strategies of poor urban migrants in the context of climate change: a case study of informal settlements in Natore, Sirjaganj and Rajshahi. Working paper series No. 46. Refugee and Migratory Movements Research Unit (RMMRU), Dhaka
- Stapleton SO, Nadin R, Watson C, Kellett J (2017, Nov) Climate change, migration and displacement: the need for a risk-informed and coherent approach. Report. Overseas Development Institute (ODI)/United Nations Development Programme (UNDP), London/New York.

- <https://www.odi.org/sites/odi.org.uk/files/resource-documents/11874.pdf>. Accessed 19 Oct 2018
- Stavropoulou M (2008) Drowned in definitions? *Forced Migr Rev* 31:11–12
- Trent S (2009, Sept 13) Protecting climate change refugees: communities hardest hit by climate change are also the poorest. Their right to compensation and protection needs to be made law. *The Guardian*. <http://www.guardian.co.uk/commentisfree/2009/sep/13/climate-change-refugees-law>. Accessed 20 Oct 2018
- UN – United Nations (2018a) Refugees and migrants: global compact for migration. <https://refugeesmigrants.un.org/migration-compact>. Accessed 18 Oct 2018
- UN – United Nations (2018b) Refugees and migrants: global compact on refugees. <https://refugeesmigrants.un.org/refugees-compact>. Accessed 18 Oct 2018
- UN – United Nations (2019) Sustainable development goals—goal 13: take urgent action to combat climate change and its impacts. <https://www.un.org/sustainabledevelopment/climate-change-2/>. Accessed 8 Jan 2019
- UNCCD – United Nations Convention to Combat Desertification (n.d.) About the convention. <https://www.unccd.int/convention/about-convention>. Accessed 18 Oct 2018
- UNFCCC – United Nations Framework Convention on Climate Change (2008, Oct 31) Climate change, migration and displacement: who will be affected? Working paper submitted by the informal group on migration/displacement and climate change of the IASC. <http://unfccc.int/resource/docs/2008/smsn/igo/022.pdf>. Accessed 20 Oct 2018
- UNFCCC – United Nations Framework Convention on Climate Change (2015) Draft Decision CP.21 on Agenda item 4(b): adoption of the Paris Agreement. Proposal by the President. UNFCCC, Bonn. <https://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>. Accessed 18 Oct 2018
- UNHCR – United Nations High Commissioner for Refugees (1951) Convention and protocol relating to the status of refugees. Author, Geneva. <http://www.unhcr.org/3b66c2aa10>. Accessed 20 Oct 2018
- UNHCR – United Nations High Commissioner for Refugees (1996, Oct) Environmentally-induced population displacements and environmental impacts resulting from mass migrations. <http://www.unhcr.org/refworld/docid/4a54bbd6d.html>. Accessed 20 Oct 2018
- UNHCR – United Nations High Commissioner for Refugees (2017) Tool box: planning relocations to protect people from disasters and environmental change. UNHCR, Geneva. [Co-developed by Georgetown University, UNHCR, IOM, the World Bank and UN University]. <https://www.refworld.org/pdfid/596f15774.pdf>. Accessed 08 Jan 2019
- UNISDR – United Nations International Strategy for Disaster Reduction (2011) Global assessment report on disaster risk reduction. Geneva, Switzerland United Nations International Strategy for Disaster Risk Reduction, United Nations Development Programme (UNISDR-UNDP 2012) Disaster risk reduction and climate change adaptation in the Pacific: an institutional and policy analysis. UNISDR, UNDP, Suva
- UNISDR – United Nations Office for Disaster Risk Reduction (2015, Mar 18) Sendai framework for disaster risk reduction 2015–2030. Third UN world conference on disaster risk reduction, Sendai, Japan. <https://www.unisdr.org/we/inform/publications/43291>. Accessed 18 Oct 2018
- UN-OCHA – United Nations Office for the Coordination of Humanitarian Affairs (2009) Monitoring disaster displacement in the context of climate change: findings of a study by UN-OCHA and the Internal Displacement Monitoring Centre (IDMC). <http://www.internal-displacement.org/sites/default/files/publications/documents/200909-monitoring-disaster-displacement-the-matic-en.pdf>. Accessed 20 Oct 2018
- UNTC – United Nations Treaty Series (2004) International convention on the protection of the rights of all migrant workers and members of their families. New York, 18 December 1990. vol 2220. Doc. A/RES/45/158. <http://treaties.un.org/doc/publication/UNTS/Volume%202220/v2220.pdf>. Accessed 20 Oct 2018
- Vidal J (2009, Nov 3) Global warming could create 150 million ‘climate refugees’ by 2050. *The Guardian*. <http://www.guardian.co.uk/environment/2009/nov/03/global-warming-climate-refugees>. Accessed 20 Oct 2018
- 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. Policy paper prepared for the 2009 climate negotiations. United Nations University, CARE, and CIESIN-Columbia University and in close collaboration with the European Commission “Environmental Change and Forced Migration Scenarios Project”, the UNHCR and the World Bank, Bonn
- WBGU – German Advisory Council on Global Change (2006) The future oceans—warming up, rising high, turning sour. Special report. WBGU, Berlin
- Wei D (2011) Receding maritime zones, uninhabitable states and climate exiles: how international law must adapt to climate change. *Environ Law Manage* 23(2):83–87
- Wendle J (2016) Syria’s climate refugees. *Sci Am* 314(3):50–55
- Westing AH (1992) Environmental refugees: a growing category of displaced persons. *Environ Conserv* 19(3):201–207
- Wood WB (2001) Ecomigration: linkages between environmental change and migration. In: Zolberg AR, Benda P (eds) *Global migrants, global refugees*. Berghahn Books, New York/Oxford, pp 42–61
- Zetter R (2007) More labels, fewer refugees: remaking the refugee label in an era of globalization. *J Refug Stud* 20(2):172–192
- Zetter R (2017) Why they are not refugees – climate change, environmental degradation and population displacement. *Siirtolaisuus-Migr Q* 1(2017):23–28