MMP | MIXED MIGRATION PLATFORM

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Migration, displacement, and the environment

A Perspective from the Middle East

Introduction

Although increasingly recognised as a major driver of displacement globally, the impact of environmental change on migration and displacement remains underexplored in the Middle East. The Internal Displacement Monitoring Centre (IDMC) estimates that an average of at least 25.4 million people are displaced by 'disasters triggered by natural hazards' each year, a number that is expected to increase.[1] While multiple analyses have linked climate change to the conflict in Syria, further study is needed to understand the complex relationships between environmental issues and migration in the region.

This briefing paper presents an overview of the available research and data on migration and displacement as they relate to changes in the environment, and climate, of countries in the Middle East.[2] By outlining the current dialogue surrounding environmental migration and displacement as well as the scale of current and predicted future trends, the paper highlights the understudied nature of this phenomenon in the Middle East. It concludes with suggestions to increase the awareness and preparedness of governments, humanitarian, and development actors in the face of environmental change in the region. Produced by the Mixed Migration Platform (MMP), this briefing paper is the third in a series of studies examining specific issues pertinent to migration to, from and within the Middle East.

Key messages

- Environmental migration and displacement is a growing global trend, though research and policies do not adequately address this phenomenon in the Middle East
- Unclear terminology has led to misrepresentation of the scale and context of displacement and migration induced by environmental change
- While environmental change (including climate change) is an acknowledged driver of displacement and migration, it is typically one of many interconnected drivers on which people base their decisions to move
- Environmental change is affecting the Middle East and predictions indicate that these effects will increase in the foreseeable future. In a region already experiencing significant displacement and large numbers of vulnerable communities, environmental change is likely to further impact the migration decisions of affected populations
- In a region already affected by significant water scarcity, continued environmental change will likely exacerbate resource scarcity and act as a 'threat multiplier'
- More research and policy attention should be given to environmental displacement in the Middle East, and the effects that mobility has on environmental change, in order to improve preparedness and response, both within and outside of the region

Methodology

While significant research and reporting exists in relation to climate change and displacement in many parts of the world, similar resources for the Middle East remain limited, revealing significant gaps in our understanding of environmental change in the region, as it relates to migration and displacement.[3]

This secondary data review uses academic literature, humanitarian and policy reports, and media articles to present a comprehensive, though not exhaustive, overview

[1] IDMC and NRC (2016) Seizing the momentum: displacement on the global climate change agenda; IDMC (2016) Global Report on Internal Displacement; ODI (2016) Climate-induced migration and displacement: closing the policy gap

[2] The Mixed Migration Platform (MMP) defines the Middle East, for the purpose of its geographic scope, as Iraq, Jordan, Lebanon, Syria, and Turkey.

[3] Significant research and data is available on climate change and displacement in South Asia, Southeast Asia, Central America, and Oceania, among other regions.

of environmental migration and displacement in the Middle East.

Migration, displacement, climate, and the environment

The relationship between environmental change, migration, and displacement evokes various viewpoints, political approaches, and terminology. This paper approaches these complex and interrelated issues by looking at environmental change, which includes climate change, as a *driver* of migration and displacement. Environmental change that *results* from mobility is also addressed throughout the paper, though to a lesser extent, highlighting the need for more research on this topic.

Terminology

In line with the complex relationship between environmental change, migration, and displacement, there is a multitude of often overlapping and conflicting terminology used by a variety of stakeholders, often to describe the same ideas and concepts. Below is a brief overview of some of the language commonly used to discuss this topic, as well as the concepts and phrasing used in this briefing paper.

IOM uses the concept of '**environmental migration**' to encompass the phenomenon of people leaving their places of habitual residence, primarily as a result of either sudden or progressive changes in the environment, which adversely affect their lives or living conditions.[4] These changes may be a result of broader climate change, human activities, or natural environmental shifts. For IOM, an **environmentally displaced person** is an "environmental migrant…whose movement is of a clearly forced nature".[5] In the absence of a legally accepted, international definition, IOM's intentionally broad definition of an **environmental migrant** serves as a useful starting point to discuss the links between climate, environment, and migration.[6]

Alternatives to these concepts include UNHCR's '**persons displaced in the context of climate change**' and ODI's **climate-induced migration and displacement**.[7] These terms imply a scope limited specifically to climate and climate change, as opposed to the broader lens of environmental change which may be caused by either natural processes or human activity (see Information Box 1 below).

The Nansen Initiative, however, uses the concept of **disaster displacement** to respond to people displaced by 'disasters' including the "adverse effects of climate change".[8] Such disasters may be sudden-onset or slow-onset, and may be linked to hydrological, meteorological and climatological hazards or geophysical hazards, but ultimately trigger displacement.[9]

With no legal definition for people who choose or are forced to move due to climate or broader environmental changes, those who do leave their homes, especially to seek out new livelihoods in order to survive, are often categorised as economic migrants, a term generally associated with voluntary movement and with no specific protection measures.[10] This categorisation focuses on the pull factors of migration rather than the push factors, which has resulted in limited data on the role of climate and environmental change as a driver of migration.[11]

Information Box 1: Climate and environmental change

While the science behind climate change, weather, environmental change, disasters, and similar phenomena is beyond the scope of this briefing paper, a working definition of these concepts and their usage is a necessary starting point. The below definitions are drawn from IOM's Migration, Environment and Climate Change: Evidence for Policy (MECLEP) – Glossary, and will be used throughout the paper.[12]

Climate change – "A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere…in addition to other natural climate variability that has been observed over comparable time periods."

Disaster – "A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources." Disasters may be divided into five groups: biological, geophysical, climatological, hydrological, and meteorological.[13]

Environmental Change – "[C]hanges in the physical and biogeochemical environment, over a large scale, either caused naturally or influenced by human activities (including industrial accidents), either through fast-onset or slow-onset events."[14]

Environmental Degradation – "The reduction of the capacity of the environment to meet social and ecological objectives and needs. […] Degradation of the environment can alter the frequency and intensity of natural hazards and increase the vulnerability of communities."

Under these definitions climate change and environmental degradation both fall under the concept of **environmental change**, which may be a result of either natural processes or human activities.

[4] Drawn from IOM's definition of an 'environmental migrant'. IOM (2014) MECLEP: Glossary
[5] IOM (2014) Glossary - Migration, Environment and Climate Change: Evidence for Policy
[6] IOM (2017) The Atlas of Environmental Migration. IOM, United Kingdom of Great Britain and Northern Ireland
[7] UNHCR (2016) Frequently asked questions on climate change and disaster displacement; ODI (2016) Climate-induced migration and displacement: closing the policy gap
[8] Nansen Initiative (2015) Agenda for the protection of cross-border displaced persons in the context of disasters and climate change: volume I
[9] *Ibid.*
[10] ActionAid (2016) Climate change knows no borders: an analysis of climate induced migration, protection gaps and need for solidarity in South Asia
[11] *Ibid.*
[12] IOM (2014) Glossary - Migration, Environment and Climate Change: Evidence for Policy
[13] *Ibid.*
[14] Foresight Projects (2011) Migration and global environmental change: future challenges and opportunities.

Climate refugees?

The concept of a **climate refugee** is one that is commonly used but also inadequate and misleading in the context of environmental migration and displacement[15] The 1951 Refugee Convention describes refugees as people who cross an international border when fleeing war or persecution.[16] Those fleeing climate risks do not, as such, fall under this definition, and often do not cross international borders.[17] Similarly, while environmental and climate change may be a driver of displacement, in many cases it is only one driver among many that may compel an individual or family to flee their home. The Wilson Centre argues that the label of 'climate refugee' is inherently misleading in the absence of a current legal framework defining the term.[18] Ultimately the existing international legal definition of the term refugee does not account for the role of intensive climate risks or increased extensive climate risks, meaning that the term refugee is legally inaccurate in this context.[19] ODI defines intensive climate risk as being "associated with sudden-onset, high severity events such as hurricanes and large scale floods" while extensive climate risk is linked to "low severity, high frequency or persistent weather and climate events such as drought and recurrent local flooding".[20]

Tied to this is the recognition by a number of academics and researchers that environmental migrants fall within a legal protection gap, which is magnified by the term climate refugee, when those to whom it refers are unable to avail themselves of the protection afforded by the Refugee Convention.[21] CARE, for example, argues that substituting the term 'climate refugee' with 'migrant', may imply that movement is voluntary and that those displaced by climate and environmental drivers require less or different protection than those displaced by conflict. In this line of argument, dropping the term climate refugee is seen as de-politicising the reality of such migration and removing the responsibilities of states towards those displaced by environmental change.[22]

Noted sociologist Saskia Sassen views environmental change as contributing to massive "losses of habitat" for humans globally.[23] Using this lens, she highlights the possibility that "traditional concepts and policies concerning the immigrant and the refugee are not enough today to address the current migration phase", namely displacement caused by factors other than war and conflict. Such concepts, she argues, were "generated in a different spatio-historical context" and do not necessarily fit with the current migration and displacement reality.

Taking these various perspectives and approaches into consideration, this paper uses the term **'environmental migration and displacement'** to incorporate IOM's basic definition of an environmental migrant and environmentally displaced person, while allowing for a more nuanced approach which recognises that 'migration' is driven by a range of factors and is not always purely voluntary. The term also encompasses environmental degradation, climate change, and the disasters that may accompany them.

The term '**environmental migrant'**, will, unless otherwise specified, be used to indicate those who are displaced, those who move voluntarily, and those who move as a result of planned relocation, as such mobility relates to climate and environmental drivers. Thus an environmental migrant may have moved voluntarily or been displaced, but lacks legal protection under the current international framework.

How is environmental change related to migration and displacement?

Environmental change as a driver of migration

In September 2016 the United Nations General Assembly adopted the New York Declaration, an agreement aimed at establishing a global compact for "safe, orderly and regular migration" in 2018. Notably, the Declaration acknowledges that "environmental factors are among the drivers of migration"[24] an assertion which, according to IOM, was neither "obvious nor usual" only five years earlier.[25] Even in regions where environmental change has been acknowledged as a driver of migration and displacement, for example South Asia, its prevalence as a driver is underestimated or misunderstood due to a history of migration driven by other factors in the region.[26]

ODI uses the concept of **weather and climate risk** to highlight the often 'risk-centric' approach of commentators to what they term 'climate-induced migration and displacement'.[27] This means that mobility is viewed as a response to the intensive or extensive weather and climate risks of changing weather or climate events and their consequences.

Intensive risks are, as mentioned above, associated with high severity, sudden-onset events like hurricanes, major floods, earthquakes, storms, and other extreme weather events, and are regarded as a much clearer driver of displacement than the extensive risk of seasonal or slow-onset events.[28] Between 2008 and 2015, IDMC recorded the displacement of 203.4 million people globally due to disasters triggered by natural hazards, with an average of

[15] Refugees Deeply (2016) Climate refugees: people and the environment treated as disposable, 16 December 2016
[16] http://www.unhcr.org/1951-refugee-convention.html
[17] UNHCR (2016) Frequently asked questions on climate change and disaster displacement; Nansen Initiative (2015) Agenda for the protection of cross-border displaced persons in the context of disasters and climate change: volume I
[18] The Wilson Centre (2016) Navigating complexity: climate, migration, and conflict in a changing world.
[19] ActionAid (2016) Climate change knows no borders: an analysis of climate induced migration, protection gaps and need for solidarity in South Asia
[20] ODI (2016) Climate-induced migration and displacement: closing the policy gap
[21] Jayawardhan, S. (2017) "Vulnerability and Climate Change Induced Human Displacement" Consilience: The Journal of Sustainable Development. Vol 17:1 (pp. 103 – 142); Türk, V. (2015) Temporary protection arrangements to fill a gap in the protection regime. Forced Migration Review, Issue 49, May 2015.
[22] CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement; Gemenne, F. (2015) One good reason to speak of 'climate refugees' Forced Migration Review, Issue 49, May 2015.
[23] Sassen, S. (2016). "Why "migrant" and "refugee" fail to grasp new diasporas" Open Migration, February 2016.
[24] United Nations (2016) New York Declaration for Refugees and Migrants
[25] IOM (2016) New steps for migration policy: the New York Declaration for refugees and migrants recognizes the crucial role of environmental degradation, disasters and climate change for human mobility.
[26] ActionAid (2016) Climate change knows no borders: an analysis of climate induced migration, protection gaps and need for solidarity in South Asia
[27] ODI (2016) Climate-induced migration and displacement: closing the policy gap
[28] ODI (2016) Climate-induced migration and displacement: closing the policy gap

25.4 million people displaced annually by such 'disasters' (see Figure 1).[29] Findings from the Nansen initiative (see below) indicate that current global data focuses on incidents of 'disaster displacement' rather than where people are displaced to, resulting in uncertainty regarding the scale of internal versus cross-border environmental migration and displacement.[30] It is accepted, however, that most environmental displacement occurs internally (with the majority reported in Asian countries) while cross-border displacement is rare (though predominantly recorded in Africa and Central and South America).[31]

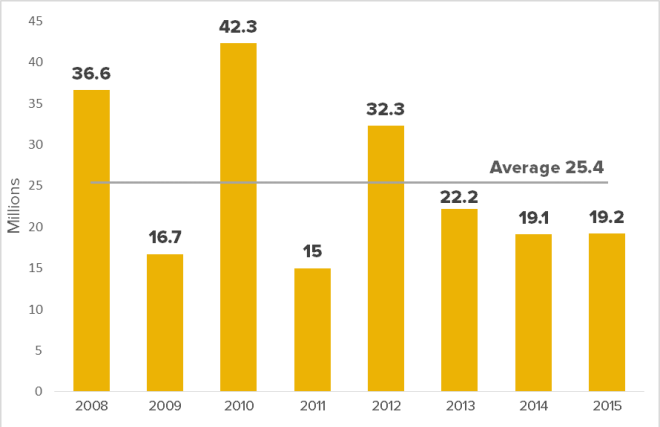

Figure 1 – Estimated displacements associated with disasters triggered by natural hazards from 2008 to 2015 (adapted from IDMC figures)[32]

Extensive risks are often high frequency (sometimes seasonal) events with low severity which may result in long-term or even permanent changes to the climate or environment.[33] These events may include seasonal flooding, drought, desertification, sea level rise, and other forms of environmental degradation.[34] Rising sea levels in Bangladesh, for example, are causing land erosion and salinisation of agricultural lands and water sources, consequently causing a growing number of people to leave their homes.[35] Mobility as a result of extensive risk is often tied to other drivers linked to socioeconomic wellbeing, resource scarcity, and vulnerability, often making the line between forced displacement and voluntary migration unclear.[36]

Mobility as a response to climate risks cannot be neatly divided into forced displacement and voluntary migration, despite the frequency with which this division is made. ODI addresses this by representing mobility along a spectrum, affected by aspects of choice and coercion as well as climate risks.[37]

Along this spectrum are three categories of human mobility, including **displacement** (typically connected with intensive risk following a disaster event), **migration** (usually linked to extensive risks, and to some degree voluntary), and **planned relocation** (typically organised and carried out by the state to reduce weather and climate risks), though there may be overlap between the first two categories.[38]

Burrows and Kinney argue that the level to which environmental changes and their associated risks will influence an individual to move are "highly complex, poorly understood, and context specific".[39] They claim that the complexity of drivers and motivations for migration make it difficult to discern any single driver as necessary or sufficient, and ultimately emphasise the importance of local context in understanding the role of environmental change as a driver of migration, citing Reuveny's example that greater dependence on agriculture as a livelihood will result in more environmental migration.[40]

Beyond the immediate risks of climate change is its tendency to act as a **threat multiplier** by exacerbating the potential of other drivers like poverty, environmental degradation, and conflict.[41] Much debate has surrounded the link between climate and environmental change and conflict, but it is generally agreed that while these changes do not singularly cause conflict, they have the potential to "exacerbate or catalyse conflict in conjunction with other factors".[42] The effects that climate and environmental change may have on other drivers of migration and factors contributing to conflict make it difficult to discern the exact number of people affected by such change.

While it is common to reduce motivations for migration to single push or pull factors, the reality is that migration is usually influenced and driven by economic, environmental, demographic, social, political, and other variables.[43] It is often difficult to discern if and when one of these is the primary driver of migration or when environmental change has aggravated other drivers.[44] One example is land degradation that influences economic opportunity resulting in

[29] IDMC (2016) Global Report on Internal Displacement
[30] Nansen Initiative (2015) Agenda for the protection of cross-border displaced persons in the context of disasters and climate change: volume I
[31] *Ibid.*
[32] IDMC (2016) Global Report on Internal Displacement
[33] ODI (2016) Climate-induced migration and displacement: closing the policy gap
[34] Nansen Initiative (2015) Agenda for the protection of cross-border displaced persons in the context of disasters and climate change: volume I
[35] ActionAid (2016) Climate change knows no borders: an analysis of climate induced migration, protection gaps and need for solidarity in South Asia
[36] ODI (2016) Climate-induced migration and displacement: closing the policy gap
[37] Hugo, G. (2010) 'Climate Change-Induced Mobility and the Existing Migration Regime in Asia and the Pacific'. Jane McAdam (ed.). Climate Change and Displacement, Multidisciplinary Perspectives. Oxford: Portland.
[38] ODI (2016) Climate-induced migration and displacement: closing the policy gap; IOM (2017) Making mobility work for adaptation to environmental changes: results from the MECLEP global research.
[39] Burrows, K. and Kinney, P.L. (2016). Exploring the climate change, migration and conflict nexus. International Journal of Environmental Research and Public Health. 13(4), 443.
[40] Reuveny, R. (2007) Climate change-induced migration and violent conflict Political Geography 26(6), 656.
[41] Ferrie, J. (2017) Climate change and mass migration: a growing threat to global security. IRIN, 19 January 2017; CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement
[42] Fröhlich, C. (2016) Climate change – migration – conflict. What's the connection? Sustainable Security, 10 August, 2016; Burrows, K. and Kinney, P.L. (2016). Exploring the climate change, migration and conflict nexus. International Journal of Environmental Research and Public Health. 13(4), 443.
[43] CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement
[44] Foresight (2011) Migration and global environmental change: future challenges and opportunities

'out-migration' from an area of habitual residence.[45] Is environmental change the driver in this case, or is it the lack of economic opportunity?

Migration as an adaptation strategy

Despite the simplistic but common view that migration as a response to environmental change is a 'last resort' for people who move, there is increasing acknowledgement of environmental migration as a viable adaptation strategy.[46] Though not a possibility for everyone, as some people are unable or unwilling to move, migration can be a 'positive anticipatory response' to environmental change.[47] If environmental migration occurs before the situation is critical, it can lessen the risk of forced displacement.[48] ODI gives the example of rural migration in Tanzania as an adaptation strategy to counter increasing weather shocks in the country.[49] In this way families spatially diversify their income to mitigate the possibility that the entire household will be affected by weather events like drought or flooding.

Environmental change as a result of migration and displacement

Beyond acting as a driver for migration and displacement, environmental change is in some cases also *caused* by these phenomena, in particular by the exacerbation of resource scarcity among host communities. The 2016 New York Declaration recognises this reality and addresses the need to assist receiving states in the protection and rehabilitation of the environment as it is affected by large movements of displaced people and refugees.[50]

Migration and displacement, when driven by environmental change, may result in resource competition between newly arrived environmental migrants and the host community.[51] This often occurs in a context when climate change has already led to resource scarcity prior to the added burden of a growing population. This may also contribute to tension and even conflict between those in control of resources and those without access, though such tension is typically multifaceted and not solely a result of inward migration.

For example, growing water scarcity in Jordan has been linked to the influx of Syrian refugees following the advent of the Syrian crisis in 2011.[52] Water scarcity has been an issue in Jordan long before the arrival of Syrian refugees, though the large population influx has certainly triggered some local level disputes over consumption. The Middle East is a region significantly affected by water scarcity that is only expected to worsen with continued climate change. More research and analysis is needed to better understand the relationship between access to resources and displacement in the region.

Environmental migration and displacement and conflict

While the role of environmental change as a driver of migration is widely accepted, the link between environmental migration and displacement and *conflict* remains a topic of debate. Fröhlich argues that the assumed linear relationship between environmental change, resulting in large scale migration which in turn leads to conflict, is riddled with misconceptions.[53] She argues that there are very few studies addressing the assumed causality between environmental migration and conflict, pointing to claims that a long drought period preceding the start of the conflict in Syria led to internal displacement and played a role in catalysing social upheaval in the country.[54] These arguments overemphasise environmental change as a driver of displacement, while neglecting a variety of other drivers, as well as the wider social and economic climate of Syria at that time. There is also no evidence that those who were newly displaced by the droughts were involved in the initiative of popular uprisings. In line with this position, Burrows and Kinney point to myriad examples of migration leading to increased tension and conflict,[55] but ultimately argue that in reality most migration flows do not lead to conflict.[56] This does not mean that large-scale migration (environmentally driven or otherwise) *cannot* lead to conflict, but rather that is not *necessarily* a risk. Rarely, if ever, can tension and conflict be attributed solely to the effects of migration and displacement, rather it is more likely one of many contributing factors when it is identified as a cause of conflict.

The global focus on environmental change

With nearly 60 million displaced people in "climate change hotspots" globally, UNHCR considers climate change to be a "megatrend that will compound other megatrends".[57] But what is the current state of this megatrend, and how has it developed in recent years?

[45] Burrows, K. and Kinney, P.L. (2016). Exploring the climate change, migration and conflict nexus. International Journal of Environmental Research and Public Health. 13(4), 443.
[46] ODI (2016) Climate change, migration and the 2030 Agenda for Sustainable Development; Burrows, K. and Kinney, P.L. (2016). Exploring the climate change, migration and conflict nexus. International Journal of Environmental Research and Public Health. 13(4), 443.
[47] Structural inequalities like gender, as well as economic inequality are cited as examples by ODI; ODI (2016) Climate-induced migration and displacement: closing the policy gap
[48] Though it can be argued that even anticipatory migration is in some ways forced and thus displacement
[49] ODI (2016) Climate change, migration and the 2030 Agenda for Sustainable Development.
[50] IOM (2016) New steps for migration policy: the New York Declaration for refugees and migrants recognizes the crucial role of environmental degradation, disasters and climate change for human mobility.
[51] Burrows, K. and Kinney, P.L. (2016). Exploring the climate change, migration and conflict nexus. International Journal of Environmental Research and Public Health. 13(4), 443
[52] Mercy Corps (2014) Tapped out: water scarcity and refugee pressures in Jordan.
[53] Fröhlich, C. (2016) Climate change – migration – conflict. What's the connection? Sustainable Security, 10 August, 2016; CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement; UNHCR (2016) Frequently asked questions on climate change and disaster displacement
[54] Fröhlich, C. (2016) Climate change – migration – conflict. What's the connection? Sustainable Security, 10 August, 2016.
[55] i.e. migration from Bangladesh to Norther India resulting in ethnic conflict, violence among West African migrants in France, and even tension between EU member states resulting from the Syrian conflict and mass arrivals on the continent
[56] Burrows, K. and Kinney, P.L. (2016). Exploring the climate change, migration and conflict nexus. International Journal of Environmental Research and Public Health. 13(4), 443.
[57] Needham, A. (2015) UNHCR commits to follow up on the Nansen Initiative on climate and disaster displacement and launches new overview of its work in this area. UNHCR, 14, October 2015; Oxford Dictionary defines 'megatrend' as "an important shift in the progress of a society or of any other particular field or activity; any major movement"; Megatrend, Oxford Living Dictionaries

According to the Intergovernmental Panel on Climate Change's (IPCC) most recent synthesis report (from 2014), "recent anthropogenic emissions of greenhouse gases are the highest in history" while the climate is unequivocally warming.[58] The last three decades have been successively warmer than any preceding decade since 1850; as the atmosphere and oceans have warmed, the sea level has risen, and snow and ice have diminished. The IPCC acknowledges the role of human influence in these changes and predicts that surface temperatures will continue to rise in the coming century, with the frequency of heatwaves increasing and continued sea level rise. The report details the extent to which climate change is shaping the global environment, and ultimately predicts that these changes will continue with ever greater impact and frequency.

Rising temperatures have culminated in 2016's distinction as the hottest year ever recorded, after the same record was broken in the previous two years.[59] Following this, in March 2017, the World Meteorological Organization announced that Antarctica has reached its highest ever recorded temperature at 63.5 degrees Fahrenheit (17.5 degrees Celsius).[60] Additionally, IDMC estimates that at least 40 million people are at risk of displacement caused by extreme weather events each year, a figure that is thought to be conservative.[61]

While UNHCR points out that no regions are immune to the effects of environmental change, specifically climate change, it notes that Asia, particularly South and East Asia, sees more 'natural hazards' than any other region.[62] While it is difficult to estimate the number of people that have been displaced or have migrated as a response to environmental change in a given year or over time, often due to the primarily internal nature of such movement and the difficulty in defining a primary driver of movement among a typically complex array of drivers, ODI points to a notable increase in outward migration from countries with a high vulnerability to climate variability and extremes between 1970 and 2000.[63] Significant increases in outward migration were noted among the twenty countries considered to be most affected by, or vulnerable to, the effects of climate change throughout this 30-year period, and these countries continue to be disproportionately affected by climate change today.[64] Additionally, GermanWatch's Global Climate Risk Index indicates that of the ten countries most affected by extreme weather events in the last twenty years, nine were described as 'developing countries'.[65]

IDMC estimates that 19.2 million people were displaced by disasters linked to natural hazards in 2015, with some 203.4 million people displaced since 2008. These estimates, however, only account for rapid onset or intensive climate risks, and not those displaced by slow-onset or intensive climate risks.[66]

These figures give an idea of the scale at which climate change is affecting migration globally. To date, several international agreements and initiatives have been implemented to try and address the effects of environmental change, and to learn more about migration and displacement that results from it. As early as 1998, a set of non–binding 'Guiding Principles on Internal Displacement' that were prepared by IOM and put forth by UNHCR acknowledged the responsibility of governments to protect and assist people displaced by disasters, though no concrete frameworks for such assistance were established.[67] More recently, the 2015 Paris Agreement acknowledged the issue of 'displacement related to the adverse impacts of climate change' and called for the creation of a task force to develop recommendations to address such displacement.[68] Further progress in bringing these issues to a global, high-level dialogue was made with the 2015 production of the Sendai Framework for Disaster Risk Reduction.[69] Though also non-binding, it recognises the primary role of the state in reducing the risk of disasters both related and unrelated to climate change by 2030.[70] As previously mentioned, 2016 the New York Declaration also acknowledged that "environmental factors are among the drivers of migration".[71] While these statements and developments are encouraging, there are still no legally binding frameworks or mechanisms to address the protection or rights of those displaced by environmental change.

In addition to these agreements, several international initiatives exist to better understand the global scale of environmental migration and displacement. The Nansen Initiative, which ran from 2012 to 2015, was a state-led consultative process meant to address the protection gap for 'people displaced across borders in the context of disasters and the effects of climate change'.[72] It resulted in the production of a protection agenda and was succeeded by the implementation of the Platform on Disaster Displacement with the aim of encouraging government use of the Agenda.[73] Other initiatives like IOM's Migration, Environment and Climate Change: Evidence for Policy (MECLEP) project and the UK's Climate and Migration Coalition aim to further understand and respond to these phenomena.[74]

Despite the variety of research and response initiatives looking at environmental migration and displacement, the majority of available humanitarian and academic research is

[58] IPCC (2014) Climate Change 2014: Synthesis Report. Contribution of Working Groups I, II and III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. IPCC. Geneva, Switzerland.
[59] Abraham, J. (2016) Global warming continues; 2016 will be the hottest year ever recorded. The Guardian. 21 October, 2016
[60] EcoWatch (2017) 63.5° F: Antarctica's new record high temp
[61] CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement
[62] UNHCR (2016) Frequently asked questions on climate change and disaster displacement
[63] ODI (2016) Climate change, migration and the 2030 Agenda for Sustainable Development.
[64] As of 2015 the 20 most 'climate vulnerable' countries included: Afghanistan, Bangladesh, Barbados, Bhutan, Costa Rica, Ethiopia, Ghana, Kenya, Kiribati, Madagascar, Maldives, Nepal, Philippines, Rwanda, Saint Lucia, Tanzania, Timor-Leste, Tuvalu, Vanuatu and Vietnam; ODI (2016) Climate change, migration and the 2030 Agenda for Sustainable Development.
[65] Germanwatch (2017) Global Climate Risk Index 2017

[66] IDMC (2016) Global Report on Internal Displacement
[67] UNHCR (1998) Guiding Principles on Internal Displacement; CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement
[68] UNFCCC (2015) Adoption of the Paris Agreement
[69] UNISDR (2015) Sendai Framework for Disaster Risk Reduction
[70] CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement
[71] United Nations (2016) New York Declaration for Refugees and Migrants
[72] The Nansen Initiative
[73] Platform on Disaster Displacement; CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement
[74] Migration, Environment and Climate Change: Evidence for Policy (MECLEP); Climate and Migration Coalition

centred on countries and regions outside of the Middle East. The MECLEP project, for example investigated the relationship between migration and environmental change in six key countries; Dominican Republic, Haiti, Kenya, Mauritius, Papua New Guinea, and Vietnam.[75] Similarly, the Nansen Initiative found no examples of cross-border 'disaster displacement' (its topic of focus) in the Middle East.[76]

Environmental change and displacement in the Middle East

Despite growing international awareness of the link between environmental change and displacement, countries in the Middle East have not been at the forefront of discussions or research on environmental migration and displacement. Environmental change is already presenting risks to vulnerable populations in the Middle East, and combining with other factors to induce displacement, a trend that will likely increase in the future. These impacts are being felt in the following countries:

Iraq

As of March 2017 an estimated 3,062,808 people were internally displaced due to ongoing fighting in Iraq.[77] While this displacement is primarily linked to conflict in the country, climate and environmental change is shaping Iraq in different ways that could lead to environmental displacement in the future.

Climate change has led to intensified summer extremes in Iraq, with one study predicting that daytime highs could rise by seven degrees Celsius by 2100.[78] Another study predicts that the number of sandstorms will increase from 120 to 300 each year. Iraq is also plagued by climate change-induced droughts and water scarcity, some of which is linked to dams established by Syria and Turkey along the Euphrates River. According to Germanwatch's Global Climate Risk Index, Iraq ranked 159th in terms of its vulnerability to extreme weather events between 1996 and 2015, with an average of less than five deaths related to extreme weather events each year.[79] In 2015 alone, however, Iraq had moved up to 93rd in the rankings, with 65 related deaths reported in that year, marking a notable increase from its previous 20 year average.[80]

Additionally, since 2016, scientists and environmentalists have been warning about the imminent collapse of the Mosul Dam in Northern Iraq due to its construction on soluble ground plagued by hundreds of sinkholes.[81] The dam holds back more than 11 billion cubic meters of water that, if the dam should collapse, could kill some 1.5 million people and leave millions without food or electricity. Experts say that recent repairs are only delaying the dam's inevitable collapse, and that the resulting submersion of Mosul is only a "matter of time".[82] Though such an event would arguably be categorised as a 'man-made' disaster, the role of environmental degradation and the resulting disaster will likely lead to significant environmental displacement in Iraq.

Jordan

Jordan is known as one of the most water-scarce countries in the world, even among other countries in the Middle East.[83] [84] Exacerbating this reality are water losses due to aging infrastructure and practices of over-pumping, which are set to exhaust underground freshwater sources by 2060.[85]

Consequently, the arrival of more than 650,000 Syrian refugees (the number registered by UNHCR) in Jordan since 2011 has put additional pressure on the scant supply of water in the country.[86] Beyond reducing the amount of water available per person in Jordan, the arrival of these newcomers has resulted in an overwhelming amount of human waste that threatens to pollute the groundwater.[87] Mercy Corps reports that the situation has contributed to growing resentment of refugees within the Jordanian host community, as it is commonly, though somewhat erroneously, believed that Syrian refugees are to blame for the reduced water supply.[88] Jordan has had a long history of water scarcity prior to the arrival, in recent years, of Syrian refugees, though this large influx of people has led to localised tensions surrounding water consumption.

Less well recognised is the fact that the conflict in Syria has resulted in shifting water patterns in the Yarmouk-Jordan river watershed, leading to an increase in water flow to Jordan's Yarmouk river.[89] Using satellite imagery, researchers were able to determine that rapid changes in land use, including decreases in irrigated agriculture in Syria (due to the abandonment of land following the start of the conflict) and heightened rainfall retention in Syrian dams, were behind the increased water flow into Jordan.[90] The increase, however, was relatively small, and does not seem to have made a major impact on the context of water scarcity in Jordan.

[75] Migration, Environment and Climate Change: Evidence for Policy (MECLEP)
[76] Nansen Initiative (2015) Agenda for the protection of cross-border displaced persons in the context of disasters and climate change: volume II
[77] IOM (2017) Iraq Mission: Displacement Tracking Matrix
[78] The Economist (2016) The roasting of the Middle East: infertile crescent, 6 August, 2016.
[79] Abu Zeed, A. (2016) Why Iraq needs immediate action on climate change. Al-Monitor, 4 December, 2016.
[80] Germanwatch (2017) Global Climate Risk Index 2017
[81] Bibbo, B. (2016) Mosul Dam collapse will be 'worse than a nuclear bomb' Al-Jazeera, 11 December, 2016.
[82] McKernan, B. (2017) Mosul Dam could collapse at any minute 'killing 1.5 million people' Independent, 5 January 2017
[83] REACH (2015) Social cohesion in host communities in northern Jordan
[84] WHO (2015) Climate change adaptation to protect human health: Jordan project profile
[85] MercyCorps (2014) Water scarcity and refugee pressures in Jordan
[86] Government estimates put this figure closer to 1.4 million; UNHCR (2017) Syria Regional Refugee Response – Inter-agency information sharing portal
[87] MercyCorps (2014) Water scarcity and refugee pressures in Jordan
[88] MercyCorps (2014) Water scarcity and refugee pressures in Jordan; REACH (2015) Social cohesion in host communities in northern Jordan
[89] According to Watershed Atlas, a watershed is "a basin-like landform defined by highpoints and ridgelines that descend into lower elevations and stream valleys." What's a watershed?; El-Showk, S. (2016) How a flow of people affects the flow of water. Nature Middle East, 12 December, 2016.
[90] Müller, M. F. et al. (2016) Impact of the Syrian refugee crisis on land use and transboundary freshwater resources PNAS 113(52), 27 December, 2016

Syria

Of the available literature on environmental change, displacement, and migration in the Middle East, the majority focuses on Syria and the climate change-related drought that occurred in the country and region prior to the advent of the Syrian conflict. Between 2007 and 2010 a drought in the region known as the 'Fertile Crescent' severely impacted areas of Syria, Turkey, Iraq, and Iran.[91] This three-year drought, the most severe on record, reportedly led to the displacement of 250,000 to 1.5 million Syrians from rural, farming areas to urban centres like Damascus, Aleppo, and Dara'a.[92] It is argued, by some, that this displacement then led to the uprising connected with the start of the Syrian conflict.[93] This connection, however, is difficult to support.

It is widely accepted that climate change was at least partially responsible for the pre-conflict drought in Syria, with scientists arguing that climate change made the drought two to three times more likely than natural environmental change alone.[94] It is also recognised that a significant number of people, primarily Syrian farmers and their families, were displaced by the drought's destruction of their rural livelihoods.[95] The Climate and Migration Coalition, however, argues that media accounts connecting the drought to the conflict in Syria fail to explain or elaborate on the ways in which migration into Syria's cities actually led to unrest and protest. Vague references to 'rising poverty' and 'social stresses' caused by the influx of rural Syrians into cities are cited as leading to the uprising and ultimately resulting in terrorism and even the rise in migration to Europe.[96] Fröhlich and others, however, argue that these claims are unfounded and tenuously made at best.[97] They are based primarily on a single study by researchers at Columbia University and the University of California, which links the 2007 – 2010 drought in the Fertile Crescent to the start of the Syrian conflict.[98]

In addition, inadequate government management of the drought, declining job creation, limited investment in agriculture, and poor economic policies also contributed to movement within the country, a factor which is often downplayed in media reports.[99] The Columbia/University of California report also neglects to illustrate how the arrival of rural Syrians in cities is connected to the uprising that sparked the Syrian conflict.[100] The paper cites evidence that 'demographic change' can lead to unrest and conflict, but fails to elaborate on this in the Syrian context. As Fröhlich argues, there is no evidence that newly arrived rural migrants initiated or were significantly involved in the popular uprisings that precipitated the conflict, mainly due to lack of social networks and limited means.[101] She concedes that frustration at government mismanagement of the drought and limited livelihood opportunities may have contributed to the unrest among local urban populations, which in turn led to protest, but maintains that the uprisings were not linked to migration into Syrian cities.[102]

Ultimately, the climate change related drought displaced hundreds of thousands of people in Syria, and may, among many other causes, have been a contributing factor to the start of the conflict.

Turkey

Internal environmental migration and displacement has been similarly reported in Turkey, as climate change impacts the agricultural sector and those reliant on it. IOM reports that between 1960 and 2010 temperatures have risen to reach more than 40 degrees Celsius in the summer months, while shifting rainfall patterns have resulted in increased precipitation in north-eastern Turkey and decreased precipitation in the west. Concomitant glacier melting and sea level rise (from three to eight millimetres per year) have also been reported as an effect of climate change in the country.[103]

Turkey has a long agricultural history of internal, seasonal labour migration, particularly from cities in the southeast to a variety of cities throughout the country that have limited agricultural labour supply.[104] As of 2012, government sources estimated that some 300,000 people were engaged in migrant farm work in the country. In recent years these internal migrants have been especially vulnerable to environmental change.[105] Crop insecurity and high temperatures are negatively impacting the livelihoods and health of seasonal labour migrants in Turkey.[106] IOM reports that much like in Syria, farmers and their families are

[91] Kelley, C.P. et al. (2015) Climate change in the Fertile Crescent and implications of the recent Syrian drought. PNAS 112(11), 17 March, 2015; Benko, J. (2017) How a warming planet drives human migration. New York Times, 19 April 2017.
[92] IRIN (2009) Drought response faces funding shortfall. 24 November 2009; Selby, J. and Hulme, M. (2015) Is climate change really to blame for Syria's civil war? The Guardian, 29 November 2015; Solh, M. (2010) Tackling the drought in Syria. Nature Middle East, 27 September 2010
[93] IRIN (2009) Drought response faces funding shortfall. 24 November 2009; Fountain, H. (2015) Researchers link Syrian conflict to a drought made worse by climate change. New York Times, 2 March 2015; Fischetti, M. (2015). Climate change hastened Syria's civil war. Scientific American, 2 March 2015; Kelley, C.P. et al. (2015) Climate change in the Fertile Crescent and implications of the recent Syrian drought. PNAS 112(11), 17 March, 2015
[94] Kelley, C.P. et al. (2015) Climate change in the Fertile Crescent and implications of the recent Syrian drought. PNAS 112(11), 17 March, 2015
[95] Randall, A. (2016) Syria and climate change: did the media get it right? Climate and Migration Coalition.
[96] *Ibid.*
[97] Fröhlich, C. (2016) Climate change – migration – conflict. What's the connection? Sustainable Security, 10 August, 2016; Randall, A. (2016) Syria and climate change: did the media get it right? Climate and Migration Coalition; Selby, J. and Hulme, M. (2015) Is climate change really to blame for Syria's civil war? The Guardian, 29 November 2015
[98] Climate change in the Fertile Crescent and implications of the recent Syrian drought. PNAS 112(11), 17 March, 2015; Randall, A. (2016) Syria and climate change: did the media get it right? Climate and Migration Coalition.
[99] Fröhlich, C. (2016) Climate migrants as protestors? Dispelling misconceptions about global environmental change in pre-revolutionary Syria. Contemporary Levant, 1(1), 38-50; Randall, A. (2016) Syria and climate change: did the media get it right? Climate and Migration Coalition.
[100] Randall, A. (2016) Syria and climate change: did the media get it right? Climate and Migration Coalition.
[101] Fröhlich, C. (2016) Climate migrants as protestors? Dispelling misconceptions about global environmental change in pre-revolutionary Syria. Contemporary Levant, 1(1), 38-50.
[102] *Ibid.*
[103] Čadež, T. and Hevia, M.H. (2016) Environmental migration in Turkey: challenges, recognition and implications for policy. IOM, Migration, Environment, and Climate Change: Policy Brief Series, 8(2) December 2016
[104] Turhan, E. *et al.* (2015) Adaptation as biopolitics: why state policies in Turkey do not reduce the vulnerability of seasonal agricultural workers to climate change. Global Environmental Change, 31, 296-303
[105] Ibid.
[106] Čadež, T. and Hevia, M.H. (2016) Environmental migration in Turkey: challenges, recognition and implications for policy. IOM, Migration, Environment, and Climate Change: Policy Brief Series, 8(2) December 2016

reportedly moving to urban areas and changing professions due to their resulting inability to farm or to make a living off of seasonal farming migration, though the environment is only one of a variety of factors leading to these decisions to move.

Additionally, efforts to mitigate water scarcity by building dams have resulted in environmental degradation and further internal displacement in Turkey. Some farmers have been forced to engage in seasonal farming migration as an adaptation strategy due to development–induced degradation of their land, particularly by the construction of the Ataturk Dam in south-eastern Turkey in 1992. Environmental degradation as a result of the dam resulted in the displacement of 113,476 people.[107]

Looking to the future

In the current context of widespread and growing environmental migration and displacement, it is imperative that researchers, policy makers, and humanitarian actors look to the future - both globally and in the Middle East - to address a phenomenon that is unlikely to cease in the immediate term.

Estimates for the future of environmental migration and displacement are varied and contentious, ranging from 50 million to one billion for the number of people who may be displaced by "climate change related phenomena" by 2050.[108] 200 million is the most widely cited figure, but that it is based on projections conducted by Oxford University's Norman Myers in 1995 and 2000, and generally thought to be a conservative estimate in need of more research and rigorous testing.[109] The United Nations Convention to Combat Desertification (UNCCD) predicts that as many as 2.4 billion people may be subjected to periods of intense water scarcity by 2025, resulting in the displacement of up to 700 million people by 2030.[110] Estimates at the highest end of the spectrum, warns ODI, may be made in an effort to galvanise international cooperation on climate change, while low estimates are felt to be too optimistic.[111] Oli Brown, of the International Institute for Sustainable Development, similarly argues that any figures suggested by analysts are "little more than well-educated guesswork" due to limited data, changing contexts, and a tendency to heap predictions on top of other predictions and thereby increase the potential margin for error.[112]

With regard to the Middle East, such estimates and predictions are similarly varied, though all point to continued climate and environmental change. The Nansen Initiative, for example, looks sparingly at environmental displacement in the Middle East, but predicts that temperatures will continue to rise in the already water-scarce region, likely resulting in decreased precipitation and increased aridity.[113] CARE similarly presents various scenarios for global mean temperature increase by 2050 (see Figure 2).[114] These predictions indicate that an increase of **1.5 degrees Celsius** would result in moderate droughts for 15 days each year, with a substantial increase in heatwaves resulting in 31 days of heatwave in Amman, Jordan, and 47 days in Baghdad, Iraq. In the scenario of a **two degree Celsius** increase, CARE predicts that heatwaves in the Middle East and North Africa will occur ten times more frequently than they do now, with up to 80 'unusually hot' days in the region per year. Sandstorms are also expected to increase as rising temperatures make the region increasingly inhospitable for humans. The worst case prediction of a **three degree Celsius** increase in the global average temperature by 2050 would result in 75% of land in the Middle East and North Africa being affected by 'highly unusual heat', water shortages, desertification, and an average of 1.5 months of drought amid lengthening heatwaves, water scarcity, and desertification.

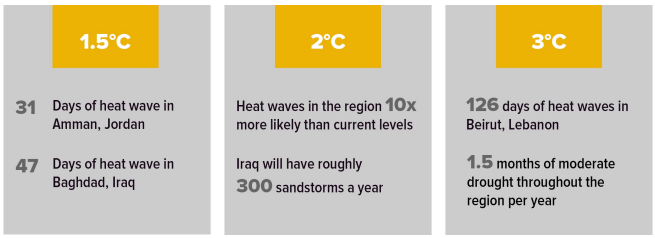

Figure 2 – Impact of potential temperature increase scenarios in the Middle East by 2050 (based on CARE predictions) [115]

Climate and environmental change is already affecting the Middle East, and it is clear that barring major efforts to halt climate change globally, the effects of such changes will continue to be felt. In a region already affected by water scarcity, significant displacement due primarily to conflict – but also to some extent environmental change and exacerbated sudden-onset and slow-onset changes – may have disastrous effects as a threat multiplier for already vulnerable communities. Burrows and Kinney note that "if we wait for climate change induced impacts to be clearly evident, it may be far too late to take action to prevent them".[116] With this future in mind, now is the time to learn, plan, act, and better understand the connection between environmental change and displacement in the region. More and better research must be done on the role that environmental change plays as a driver in a region with many drivers of displacement, to better understand the ways that predictions for climate change in the Middle East will affect vulnerable communities, and to provide evidence for policy-making. Policy makers and humanitarian actors must

[107] *Ibid.*
[108] Burrows, K. and Kinney, P.L. (2016). Exploring the climate change, migration and conflict nexus. International Journal of Environmental Research and Public Health. 13(4), 443.
[109] Myers, N. (1995) Environmental exodus: an emergent crisis in the global arena Climate Institute, Washington, DC
[110] UNCCD (2014) Desertification: the invisible frontline.
[111] ODI (2016) Climate-induced migration and displacement: closing the policy gap
[112] Brown, O. (2008) The numbers game. Forced Migration Review 31. October 2008.
[113] Nansen Initiative (2015) Agenda for the protection of cross-border displaced persons in the context of disasters and climate change: volume II
[114] CARE Danmark (2016) Fleeing climate change: impacts on migration and displacement
[115] *Ibid.*
[116] Burrows, K. and Kinney, P.L. (2016). Exploring the climate change, migration and conflict nexus. International Journal of Environmental Research and Public Health. 13(4), 443.

acknowledge the research and predictions that currently exist, and plan for various climate change and displacement scenarios in the region. Work must be done to implement policies and projects to mitigate the risks of displacement and the effects of climate change for those who may be affected by it.

Recommendations

- **Greater acknowledgement of the need to adopt a holistic approach in understanding the multiple drivers of migration and displacement, and further recognition of environmental change as a potential driver of migration**
- Migration should be recognised as an adaptation strategy and response to environmental change, and policy should be implemented at local, national, and regional level to support dignified, pre-emptive movements as a strategy to avoid displacement
- In the absence of a legal protection framework for people displaced internally or across borders as a result (wholly or in part) of environmental change, governments and the international community should work towards establishing such a framework globally
- In the meantime, steps at a local and regional level should be taken to better understand and address the specific protection risks faced by environmental migrants in an effort to prepare for, and foster resilience in the face of, environmental change
- The international and academic community should work to develop more robust definitions and terminology to represent those displaced by environmental change, and the complex nature of such displacement
- In a region already significantly affected by conflict induced migration and displacement, steps should be taken at a local and regional level to mitigate the effects of environmental change to prevent the exacerbation of existing risks and conflicts
- New research and data collection should be undertaken to better understand the current relationship between environmental change and displacement as well as potential future scenarios for environmental migration and displacement in the Middle East. Areas for future research include:
    - The relationship between resource scarcity as a threat multiplier, and displacement in the Middle East
    - To what extent has migration and displacement in the Middle East been a cause of environmental change?
    - The effects of climate change at a household level for vulnerable families and communities
    - Governmental policies and initiatives, or lack thereof, to mitigate the effects of environmental change in the region
    - A MECLEP-style analysis of countries in the Middle East that are affected by environmental change