



Regional Climate
Change Initiative
Republic of
Cyprus



THE CYPRUS
INSTITUTE
RESEARCH • TECHNOLOGY • INNOVATION

Report of the Task Force on Migration



Eastern Mediterranean and Middle East
Climate Change Initiative

Copyright © 2022 by The Cyprus Institute

Special edition for the June 7th, 2022 Ministerial Meeting in Lemesos, Cyprus.
Published by The Cyprus Institute, www.cyi.ac.cy.

No part of this work may be copied, reproduced, digitalized, distributed, translated or modified in any way without written permission from the copyright owners.

Eastern Mediterranean and Middle East Climate Change Initiative, Report of the Task Force on Migration. Received: July 2021.

Disclaimer: The information contained in the present publication represents the views and opinions of the authors; it does not necessarily represent the views or opinions of The Cyprus Institute nor those of the Government of the Republic of Cyprus.

<https://emme-cci.org/>



Regional Climate
Change Initiative
Republic of
Cyprus



THE CYPRUS
INSTITUTE

RESEARCH • TECHNOLOGY • INNOVATION

Report of the Task Force on
Migration

**Eastern Mediterranean and Middle East
Climate Change Initiative**

Task Force Coordination and Lead Author

Dr. Nicolas Jarraud, The Cyprus Institute

Members of the Migration Task Force (in alphabetical order)

Dr. Bertrand Baldet, SeeD

Mr. Mahmoud Driaat, Ecopeace

Asst. Prof. Dr. Mazin Nazar Fadhel, Mosul University

Ms. Roula Majdalani, UN-ESCWA

Dr. Rita Der Sarkissian, École des Ingénieurs de la Ville de Paris

Prof. Ourania Tzoraki, University of the Aegean

Dr. Kanta Kumari Rigaud, World Bank

Other Contributors

Dr. Marco Neira, Cyl/EMME-CCI Health Task Force

Dr. Nestor Fylaktos, Cyl/EMME-CCI Energy Task Force

Prof. Thanasis Hadzilacos, The Cyprus Institute

Contents

Disclaimer	v
Acknowledgements.....	vi
Abbreviations	vii
Executive summary	ix
1 Scope	1
2 Geographical setting	2
3 Migration, displacement and climate change	6
4 Policy landscape.....	21
5 Research and policy recommendations	33
5.1 Policy recommendation 1.....	33
5.2 Policy recommendation 2	45
5.3 Policy recommendation 3.....	53
5.4 Policy recommendation 4.....	58
5.5 Policy recommendation 5.....	65
6 Summary and recommendations	75
References.....	77

Boxes

1	Groundswell - Preparing for Internal Climate Migration - A Pioneering Approach to Modeling.	15
2	RICCAR Integrated Vulnerability Assessment: Methodology Summary	17
3	Migration, climate change and energy	22
4	Migration, climate change and health	22
5	Migration, climate change and cultural heritage.	23

Figures

1	Geophysical map of the Eastern Mediterranean and Middle East region.	3
2	The Migration Task Force research and policy recommendation framework.	32

Tables

1	Dimensions of the SRA framework	40
2	Potential capacities to be addressed by the SRA.	42
3	Status of preconditions of the Biodiversity Oases	69
4	Proposed measures: Summary and timing	76

Disclaimer

The opinions expressed in this publication are those of the authors. They do not purport to reflect the opinions or views of the wider EMME-CCI nor the official policy of countries participating in this initiative, nor any of the other partners who were consulted. Migration is by definition a sensitive issue, and the authors have attempted to the best of their ability to reflect the current literature on the climate and migration nexus in the EMME region. This report is by definition a collective effort, and the result of deliberations and compromise between the various authors and external stakeholders who also informed its compilation.

Acknowledgements

We would like to thank all members of the Migration Task Force of the EMME-CCI, with whom the authors deliberated on various important sections of the report. In particular, the authors would also like to thank colleagues from IOM (Alice Baillat) and UNHCR (Florence Geoffroy), who over the past few months have provided us with constructive dialogue, pointed us to invaluable references in the literature, and generally shared their vast expertise and insights into this complex and delicate subject.

Abbreviations

CBCs	Citizens' Biodiversity Councils
CLIMIV	Climate-Migration Vulnerability Index
EMME	Eastern Mediterranean and Middle East
EMME-CCI	Eastern Mediterranean and Middle East Climate Change Initiative
ESCWA	Economic and Social Commission for Western Asia
EU	European Union
GCM	Global Compact for Safe, Orderly and Regular Migration
IDMC	Internal Displacement Monitoring Centre
IDPs	internally displaced persons
IOM	International Organization for Migration
MedECC	Mediterranean Experts on Climate and Environmental Change
MENA	Middle East and North Africa
SCORE	Social Cohesion and Reconciliation Index
SDG	Sustainable Development Goal
SDSN	Sustainable Development Solutions Network
SeeD	Centre for Sustainable Peace and Democratic Development
SRA	SCORE Resilience Analysis
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commissioner for Refugees
VBD	Vector-Borne Disease

Executive summary

The Eastern Mediterranean and Middle East (EMME) is at the confluence of several global challenges: this region of almost 400 million inhabitants is not only suffering disproportionately from the effects of climate change, but it is also prone to a range of challenges, from environmental degradation to economic challenges to civic strife and conflicts, with migration a major consequence. Climate change in the region is expected to result, in the coming decades, in increased temperatures, more frequent heatwaves and decreased precipitation, with negative consequences for the natural environment and human societies. Climate change is also a clear threat multiplier, and although the full extent of its impact on migration at the present time is hotly debated, most analysts agree that it will play a larger role in decades to come as a driver of migration, either directly or indirectly.

In this report, the Migration Task Force of the Eastern Mediterranean and Middle East Climate Change Initiative (EMME-CCI) reviews linkages between climate and migration in the region, identifies knowledge and policy gaps, and proposes concrete policy recommendations and frameworks aimed at addressing the challenges posed by the climate-migration nexus. Unfortunately, the EMME region is characterised by a dearth of policies aimed at addressing the combined challenges of climate change and migration, and of efforts toward transboundary co-operation to address these issues. There are also some major gaps in knowledge, especially regarding the precise nature of the interaction between climate change and migration in the region. Although it is obviously crucial to address the root causes of migration through climate adaptation and other measures, it is clear that these would be insufficient, and come too late, to prevent further forced migrations, and so must be accompanied by measures to protect internally or internationally displaced people, and ensure safe, orderly and regular migration in the context of climate change, environmental degradation and disasters. In addition, we must move away from rhetoric that characterises migration as a purely negative phenomenon. Migration has multiple benefits to those emigrating (moving out of harm's way, easing pressure on vulnerable areas, etc.) and to host societies (bringing skills, labour, remittances, intangible cultural heritage, etc.). As such, migration *is* one of several possible climate adaptation measures.

The policy recommendations identified by the task force focus on a full range of solutions, from collecting data to inform the policy-making process, to climate adaptation, disaster risk reduction and development measures that build community resilience and are conflict-, gender- and migration- sensitive. It is important that climate adaptation measures

improve the well-being of refugee and migrant communities and help them better integrate in, and contribute to, their host countries as well as safely return to their places of origin if that is possible. Key recommendations include the following:

- **Produce an EMME Climate-Migration Vulnerability Index**, an evidence-based policy tool that would be used by policy makers in the majority of countries in the EMME to identify climate-driven migration hotspots in the region.
- **Facilitate community engagement to control vector-borne diseases among displaced populations.** In camps that house refugees and internally displaced persons throughout the EMME region, community-based groups would work to:
 - Monitor populations for disease vectors.
 - Raise awareness of hygiene and other health measures, including vaccination campaigns.
 - Provide early warnings to authorities of disease outbreaks.
 - Implement simple measures to reduce insect breeding grounds in refugee camps.
 - Ultimately, the objective is to see a 25% reduction in the incidence of vector-borne diseases in refugee camps within a decade.
- **Establish so-called climate oases.** The aim is to create a significant number of green jobs through the implementation of concrete climate adaptation measures. This would reduce the incentives for migration and foster community resilience to climate change.
- **Set enabling policy frameworks that include climate-driven migration.** The premise of this recommendation is that, in many cases, migration will be a valid climate adaptation measure, most climate migration will be internal, climate change drivers are difficult to prove and not all migration is forced. As such, the idea is to promote the consistent integration of existing international treaties and policy frameworks into national legislation throughout the EMME region. This would support efforts to recognise climate-migration linkages, protect and integrate migrants, whether they are internally displaced or refugees, and engage with them as actors in the climate adaptation struggle.
- **Create biodiversity oases.** Based on the premise that healthy ecosystems act as buffers against the worst impacts of climate change and build community resilience, this initiative would provide pathways to conflict transformation and climate adaptation for the EMME region. A series of participatory pilot projects centred on the protection of biodiversity would ultimately lead to the creation of incentives to reduce the pressure behind the climate- or conflict-driven exodus.

1. Scope

The almost 400 million inhabitants of the Eastern Mediterranean and Middle East (EMME) region (EMME-CARE, 2021) are not only suffering disproportionately from the effects of climate change but also from a range of conflicts, some of which are worsened by climate effects. As a result, the region has seen large internal population displacements and movements that are expected to worsen. The recipient countries of migrants, which are themselves experiencing climate change and conflict, are also attempting to deal with this challenge.

In this report, the Migration Task Force of the Eastern Mediterranean and Middle East Climate Change Initiative (EMME-CCI) reviews the linkages between climate and migration in the EMME region specifically, and identifies specific policy measures that can help with climate adaptation, which in turn can reduce the pressures that can lead to conflict and migration in the region. In doing so, it draws synergies with the work of many of the initiative's other task forces, including health, energy, water resources, agroforestry and food chains, and even cultural heritage. It will also focus on how migrant and host communities can work together and be empowered to adapt to the common challenge of climate change in a process that will help with integration and conflict resolution.

2. Geographical setting

The EMME region is affected by dust storms, dryness, heat extremes and unparalleled air pollution, along with severe environmental, health and socio-economic challenges. Identified as a global climate change hotspot, the EMME is already facing adverse impacts ranging from extreme weather events to poor air quality, which are only due to intensify in the coming decades. If no adaptation or mitigation actions are taken, this situation could create intolerable environmental conditions, and even prevent human habitation, thus resulting in migration at unprecedented scales (EMME-CARE, 2021).

To define the region with more precision, the EMME is roughly the area contained between 10°E and 65°E, and 22°N and 47°N. It covers the easternmost part of the Mediterranean basin (stretching as far as southern Italy and Libya), the southern Balkans, the Middle East (including Iran) and part of North Africa (Egypt, Libya). It is characterised by a variable topography, including all sorts of habitats, from elevated mountain ranges to water bodies to flat deserts. It also hosts a range of climates, with the northern EMME being more temperate with warm to hot, dry summers, occasional droughts and mild, relatively wet winters. In contrast, in the southern EMME, an arid hot desert climate prevails, with low rainfall and sparse vegetation.

Of global regions, the EMME is particularly sensitive to climate change, being located at the intersection of subtropical temperate and continental climates. This vulnerability has become even more evident in recent decades, with wintertime precipitation (which contributes most to the annual water budget) declining, presumably as a result of climate change. In parallel, summertime temperatures have been increasing steadily since the 1970s, causing a further drying of the soils. According to most climate projections, these trends are likely to continue (Zittis, 2015). Overall, projections suggest that the region will likely experience a mean temperature increase of about 37°C by the end of the century, with hot weather extremes and decreased rainfall of up to 30% (Lelieveld et al., 2013; Zittis, 2015). Indeed, it is estimated that by the end of this century, about half of the population of the Middle East and North Africa region, the boundaries of which overlap those of the EMME, could be exposed every year to extreme heatwaves. To make matters worse, the vast majority of the exposed population (>90%) would be in urban areas, which could result in societal disruption (Zittis et al., 2021).

FIGURE 1. Geophysical map of the Eastern Mediterranean and Middle East region

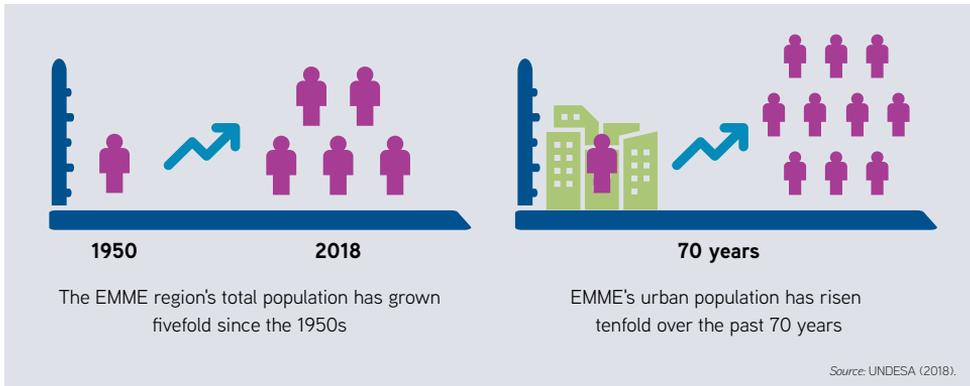


Source: Zittis, 2015.

As a result of these projected, significant decreases in precipitation and intense warming, the region will probably suffer significant socio-economic and human health impacts, affecting also water availability and agriculture. In terms of ecosystems, this implies a shift from temperate to more arid and desert-like climate types, with the possible disappearance of cold and snow-dominated climates in high-altitude mountain ranges (Zittis, 2015).

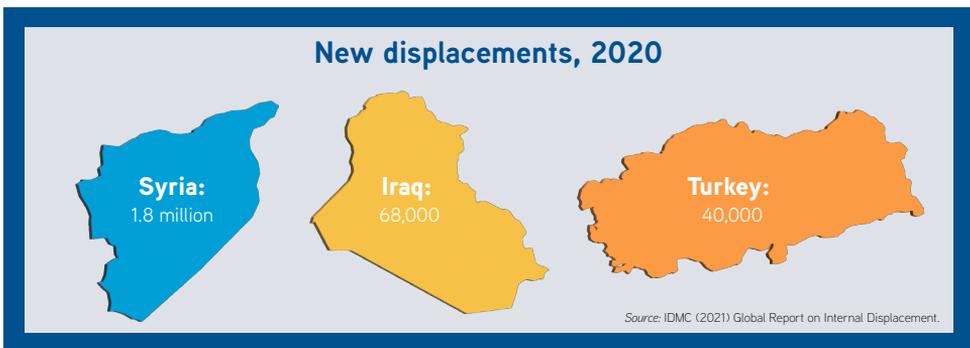
The total population of the EMME region has multiplied fivefold since the 1950s (from below 85 million in 1950 to an estimated 432 million in 2020, with a projected rise to 588 million inhabitants by 2050) (UNDESA, 2018¹). According to the UNDESA dataset, the urban population in the EMME has risen tenfold over the past 70 years, and by 2050 it is projected to account for 76% of the total. Some countries already have very high urbanisation levels (more than 80% in Kuwait and close to 100% in Qatar). One of the first-order effects of urbanisation on the local climate is the urban heat island (UHI), by which temperatures in a city are higher than the surroundings due to differences in the urban/rural energy balance (Oke et al., 2017).

1. As reported by the Physical Basis Task Force task force. Link: <https://population.un.org/wup/>



The region's growing population and their higher standards of living put ever greater pressure on water resources, which are historically scarce in the region as well as unevenly distributed. There is a negative water balance, and thus limited surface or groundwater resources. Many areas across the EMME region consistently receive less than 100 millimetres of precipitation per year, and climate change has only worsened populations' access to freshwater resources, a trend that is projected to continue. Turkey and Syria could be particularly affected because of reduced runoff and large agricultural demand, Iraq because of its downstream location and Jordan because of its meagre *per capita* water resources coupled with limited options for desalination.

The projected transition to these warmer and drier conditions will severely affect agriculture, and thus food production, which is particularly vulnerable to future droughts. With some exceptions, many traditional Mediterranean crops (and in particular summer crops) will be heavily affected by the combined effect of prolonged droughts and increased



thermal stress². Indeed, the vulnerability of the EMME region to water shortages and climate change more generally is extreme, since the already very arid climatic conditions and dry soils of the Middle East increase the water requirements of its agricultural sector to approximately 80% of all water withdrawals. In certain countries (such as Syria, Oman, Saudi Arabia, Iran and Yemen), the sector is responsible for as much as 90% of water withdrawals (World Bank, 2018).³ This vulnerability is compounded by rapid industrialisation, the abandonment of agricultural lands, and the decline of traditional livelihoods (Geddes, 2015). All of these developments are occurring in a region which already (because of conflict and other drivers) has the highest number of displaced persons in the world⁴. Indeed, according to the Internal Displacement Monitoring Centre's (IDMC) 2021 Global Report on Internal Displacement, Syria (ranked seventh worldwide in displacements) had over 1.8 million new displacements in 2020, Iraq more than 68 000 and Turkey over 40 000. So far, most of these displacements have been caused by conflict, but disasters are also starting to play a role.

2. As reported by the Physical Basis Task force

3. As reported by the Health Task Force.

4. Sources: University of Notre Dame and UNHCR Data Finder; UNHCR, 2021a; <https://storymaps.arcgis.com/stories/065d18218b654c798ae9f360a626d903>.

3. Migration, displacement and climate change

“From the Sahel to Central America, climate change is driving displacement and increasing the vulnerability of those already forced to flee.” (UNHCR⁵)

Climate-related human displacement, and migration in general, are not new phenomena: climate change has been intimately linked to the geographic displacement of human populations throughout the history of our species, and might even have played an important role in shaping early societies. Indeed, environmental change has always featured among the drivers of human movement (Finlayson, 2005;⁶ MedECC, 2020; IOM, 2017). In recent history, climate change has been associated with such notable events as the mass migrations resulting from the “Little Ice Age” in 17th century Europe and the population displacement prompted by the 19th century Irish potato famine, among many others (McMichael, Barnett and McMichael, 2012; Fraser, 2003⁷).

The EMME region in particular is no stranger to human movements. When the first humans left Africa, they had no choice but to pass through, and settle in, the EMME region. Interestingly, some authors have even suggested that the out-of-Africa migrations in prehistory were themselves influenced by complex “push” and “pull” climatic factors. For example, a warm and wet climate from 120,000 years ago to 90,000 years ago could have facilitated migration towards the EMME, while the first major migration out of Africa (65,000 to 55,000 years ago) happened during a period of cold and dry climate (Tierney *et al.*, 2017). More recent historical data for the Eastern Mediterranean region suggests that the civilizational and societal collapse of the late Bronze Age (ca. 3,200 years ago), likely followed by increased human migration, coincided with the onset of a 300-year drought (Kaniewski *et al.*, 2015).

In modern times, and in particular during the past 50 years, the movement of human groups has surged significantly due to a confluence of environmental, economic and socio-political issues. Currently, it is estimated that approximately 13% of the world’s population (i.e. about 1 billion people) do not live in their place of birth, and approximately 3.5% of the world’s population (i.e. about 270 million people) have moved between countries (Balsari, Dresser and Leaning, 2020⁸). The United Nations High Commissioner for

5. <https://storymaps.arcgis.com/stories/065d18218b654c798ae9f360a626d903>

6. As reported by the Health Task Force.

7. As reported by the Health Task Force.

8. As reported by the Health Task Force.



Refugees (UNHCR) reports that in 2019, the global number of forcibly displaced persons reached 79.5 million, 40% of which were children. Of great relevance to this report, just five countries accounted for more than two-thirds of the refugees globally, and of these, the largest source by far was Syria (with 13.2 million displaced people, of which 6.6 million were internationally displaced). Meanwhile, another country in the EMME was hosting the largest number of refugees worldwide (Turkey, with 3.6 million refugees), and three countries in the region came in the top five globally in terms of refugees *per capita*, namely Turkey (1 in 23), Jordan (1 in 15) and Lebanon (1 in 7). Iraq ranks 9th in the global list of countries with the highest number of displaced persons, at 0.6 million (UNHCR, 2020a).

In other words, countries in the Middle East and Mediterranean have some of the largest shares of migrants, IDPs and refugees anywhere in the world (Baldwin-Edwards, 2005).

The reasons behind this massive movement of people can be traced to failing economies, natural hazards or violence (Al-Delaimy, 2020; Mowafi, 2011). In the EMME, which is characterised by low-income countries and resource limitations, combined with high levels of population growth, urbanisation, political conflicts and migration, climate change is predicted to exacerbate existing vulnerabilities, while these vulnerabilities, in turn, affect the ability of countries in the region to deal with climate change (Crawford and Brown, 2009). Social tensions and violence triggered by a complex mixture of factors are not new to the EMME region and do in fact predate climate change, and the resulting armed conflicts drive the displacement of entire groups of people from their homelands, forcing them to become refugees or IDPs (Health Task Force Report).

IOM reminds us in its migration data portal that *“Quantifying environmental migration is challenging given the multiple drivers of such movement, related methodological challenges and the lack of data collection standards. Some quantitative data exist on population displacement within a country, and to a lesser degree across borders, due to natural hazards. However, for migration due to slow-onset environmental processes, such as drought or sea-level rise, most existing data are qualitative and based on case studies, with few comparative studies”*⁹. The number of publications relating to the migration-climate nexus is increasing, and methodologies are continuously being improved. Data for the EMME region are scarcer than for other parts of the world, but we can still draw a broad outline of the current situation and make some predictions for the future.

Overall, internal displacement is still driven by conflict and violence: according to IDMC (2021), there were 55 million internally displaced persons (IDPs) across the world at the end of 2020, of which 48 million were displaced because of conflict and violence, and 7 million as a result of disasters. In the Middle East and North Africa (MENA) region, which has considerable geographic overlap with the EMME region, the pattern was similar: there were 2.1 million new displacements because of conflict and 341 000 as a result of disasters (one must note that disaster-related displacements also include a minority of nonclimate-related events such as earthquakes). However, this only captures the direct linkages between disasters and conflict, and not the more complex, slow-onset impacts that climate change might have in the long term, including possibly in worsening certain conflicts.

9. https://www.migrationdataportal.org/themes/environmental_migration_and_statistics

55 million people were internally displaced across the globe by the end of 2020:



48 million
due to conflict and violence



7 million
due to disasters



The pattern was similar in the MENA region, which has considerable geographic overlap with the EMME region, with **2.1 million** new displacements due to conflict and **341,000** due to disasters

Source: IDMC (2021).

Also, these trends are changing. In the past decade, weather-related events triggered an average of 21.5 million new displacements¹⁰ each year around the world – which was more than twice as many as displacements caused by conflict and violence (UNHCR, 2021a).

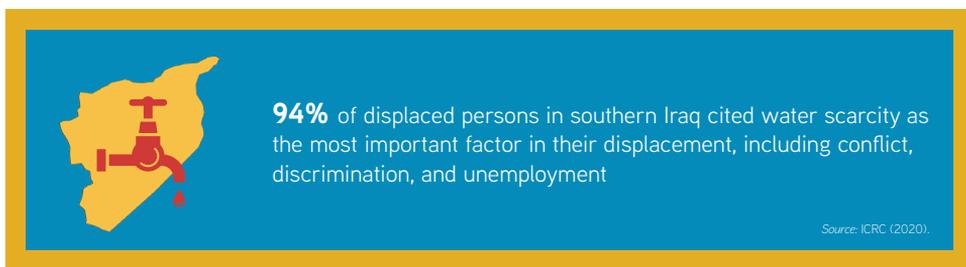


An average of **21.5 million new displacements per year** have been triggered by **weather-related events** over the past decade—twice those triggered by **conflict and violence**

Source: UNHCR (2021a).

Many displaced people are referring to climate-related drivers as the major cause of their displacement. For example, according to the World Bank, 94% of displaced persons in southern Iraq cited water scarcity as a more important factor in their displacement than any other, including conflict, discrimination or unemployment (ICRC, 2020).

10. This refers to the number of movements (one individual could be forced to move more than once).



Meanwhile, climate change is increasing the vulnerability of people and worsening several drivers of displacement, such as poverty, food insecurity, water shortages and access to various natural resources that communities need to survive (UNHCR, 2021a). In addition to its role as a driver, climate change can also complicate the return of refugees and IDPs by making the areas of return unviable ecologically or in socio-economic terms. It can also threaten the integration of displaced populations in the urban centres towards which they gravitate, since those displaced by climate change impacts are, for example, subsistence farmers who may not have the skill sets suitable for urban markets; meanwhile, poor urban settlements are themselves particularly vulnerable to climate impacts (UNHCR, 2020b). Finally, climate change can deepen the vulnerability of populations who were originally displaced for other reasons (ICRC, 2020).

Thus, Climate change can influence population displacement in several ways, including increases in the intensity and frequency of extreme weather events, loss of land due to sea-level rise and the deterioration of life-sustaining ecosystems and livelihoods, among others (McMichael, 2015; Schultz et al., 2019¹¹). Furthermore, it has been proposed that the negative effects of environmental events and processes might influence people's reaction to pre-existing socio-political problems, sometimes leading to turmoil and violence, which in turn forces people to move out of their lands (Bowles, Butler and Morisetti, 2015;¹² Klepp & Fröhlich, 2020).

Although the association between climate and socio-political factors is complex and difficult to quantify, and while the research on this subject is still inconclusive (Buhaug, 2015; Bastien, Baillat and Gemenne, 2017), it is likely that at the very least, climatic change can act as a risk multiplier, which interacts with (and further exacerbates) existing conflicts triggered by other reasons. For those arguing for a climate-conflict linkage, climate-driven limitations in water and other resources (e.g. due to prolonged drought events) are found to directly or indirectly trigger or augment conflicts and disputes in the region (Gleick, 2014; Kelley et al., 2015¹³). Looking at the Middle East region, Crawford and Brown (2009) identify two key insights as regards linkages between climate and conflict:

11. As reported by the Health Task Force.

12. As reported by the Health Task Force.

13. As related by the Physical Basis Task Force.

- The legacy of current and past conflicts in the countries of the region undermine the ability of those countries and communities to adapt to climate change.
- Climate change itself poses a direct security risk to the region, for example, by increasing competition for scarce water resources, and making it more difficult to secure lasting peace agreements.

However, there is still a great deal of controversy around the climate-conflict-migration nexus, with some authors disagreeing that there are direct links (Selby et al., 2017, Delaimy, 2020), although most studies support such a connection (Ide, 2018). In fact, a recent meta-analysis of 45 different conflicts since 1950 confirms that “the magnitude of climate’s influence on modern conflict is both substantial and highly statistically significant. Each 1SD [standard deviation] change in climate towards warmer temperatures or more extreme rainfall increases the frequency of interpersonal violence by 4% and intergroup conflict by 14%” (Hsiang, Burke and Miguel, 2013).¹⁴ However, as is the case with so many studies on the climate-conflict nexus, this one was heavily criticised by others (e.g. Buhaug et al., 2014).

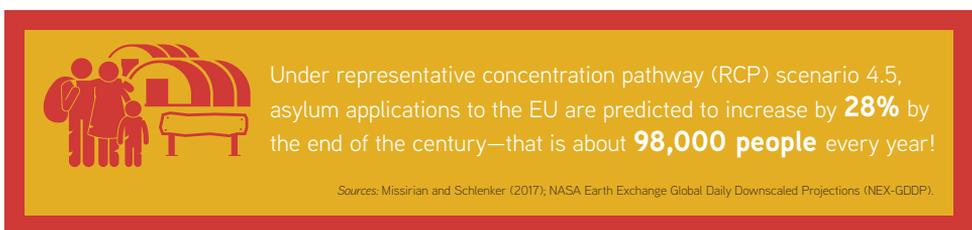
Studies supporting a climate-conflict-migration linkage in the recent civil war in Syria (e.g. Kelley et al., 2015) propose that the severe drought that affected the greater Fertile Crescent region between 2007 and 2010 caused a devastating loss of crops and livestock, forcing as many as 1.5 million Syrians to migrate from rural areas towards urban centres in search of better livelihoods. In the authors’ opinion, the intense pressure this migration exerted in urban areas, together with pre-existing problems such as overcrowding, unemployment, corruption and poverty, contributed to the social uprising that started in 2011. What is problematic is that aside from meta-analyses such as Hsiang, Burke and Miguel (2013), many of the discussions about the climate-conflict-migration nexus centre on a single conflict (e.g. the Syrian conflict), and even those studies admit a range of other proximal and ultimate causes, ranging from other conflicts, social cohesion, geopolitical changes sweeping the MENA region, to economic and religious factors, etc. Indeed, it is important not to de-contextualise and de-politicise conflicts such as the one in Syria in a drive to establish climate as the main driver. In any case, even if we cannot in many cases establish conflict-climate-migration linkages, the fact remains that populations afflicted and displaced by conflict (whatever its causes) have higher general levels of vulnerability, and lower levels of resilience, including to climate change impacts. To make matters worse, the countries most afflicted by conflict are often also those most at risk of climate

14. The full quotation reads: “deviations from normal precipitation and mild temperatures systematically increase the risk of conflict, often substantially. This relationship is apparent across spatial scales ranging from a single building to the globe and at temporal scales ranging from an anomalous hour to an anomalous millennium. Our meta-analysis of studies that examine populations in the post-1950 era suggests that the magnitude of climate’s influence on modern conflict is both substantial and highly statistically significant ($P < 0.001$). Each 1SD change in climate towards warmer temperatures or more extreme rainfall increases the frequency of interpersonal violence by 4% and intergroup conflict by 14%.”

change. For example, of the 20 countries most at risk of climate change, 12 are also conflict zones, and to make matters worse, the conflicts also mean that climate action is at its most difficult, for example, because of constraints to vulnerable populations' access to resources (UNHCR and IOM, 2021a).



On the direct climate-migration nexus, a study on Sahelian migration to Italy between 1995 and 2009, which cross-referenced climatic factors and migration data, suggested average annual temperatures as a dominant factor in explaining migrations (Pasini and Amendola, 2019). Another clue in the same direction is provided by Missirian and Schlenker (2017), who found a correlation between temperatures in 103 source countries and asylum applications in the European Union, finding that temperature deviations from a “moderate optimum” (ca. 20°C) were correlated with increased asylum applications, with a predicted accelerated increase under continued future warming: depending on the warming scenario, asylum applications by the end of the century were projected to increase by 28% (i.e. 98 000 additional applications a year under an RCP 4.5 scenario) to 188% (660 000 additional applications under an RCP 8.5 scenario).



It is difficult to know with certainty whether environmental factors are direct triggers of conflict, or migration, but a widely accepted notion is to understand climatic events as “risk multipliers” – that is, elements that exacerbate pre-existing tensions and increase the likelihood of violent confrontations being triggered by economic, social or political factors (Bowles, Butler and Morisetti, 2015; Al-Delaimy, 2020¹⁵). Furthermore, it has been proposed that in regions experiencing active turmoil, climatic events can act as “peace

15. As reported by the Health Task Force.

inhibitors” by creating conditions that undermine conflict resolution efforts (Bowles, Butler and Morisetti, 2015¹⁶), and thus increasing migration pressures. Conversely, factors that reduce risk also exist, which might further confuse the picture. For example, the increasingly reduced dependence in the Mediterranean on subsistence agriculture might reduce direct causalities between environmental change and migration (MedECC, 2020). It is also important to examine the impact of conflict on resilience and adaptation to climate change. For example, a recent report by the International Committee of the Red Cross (ICRC, 2020) illustrates how countries mired in conflict are disproportionately affected by climate variability and extremes, due to the limited adaptive capacity of people, systems and institutions already coping with the consequences of conflicts. This is confirmed by data from the Notre Dame Global Adaptation Initiative Index, which reveal that 60% of the 20 countries considered most vulnerable to climate change are also enduring an armed conflict (Rüttinger, 2020).

While acknowledging that there is still no consensus on the magnitude of direct climate-conflict causalities, a recent report by the Observatoire Défense et Climat (Bastien, Baillat and Gemenne, 2017) reminds us of the full complexity of this relationship, in particular encouraging more research on the impact of armed conflicts on the environment (which can further reduce resilience to climate change) as well as the potential impact on conflict of poorly conceived climate adaptation measures themselves.

Overall, climate change can at least *in theory* threaten human security by:

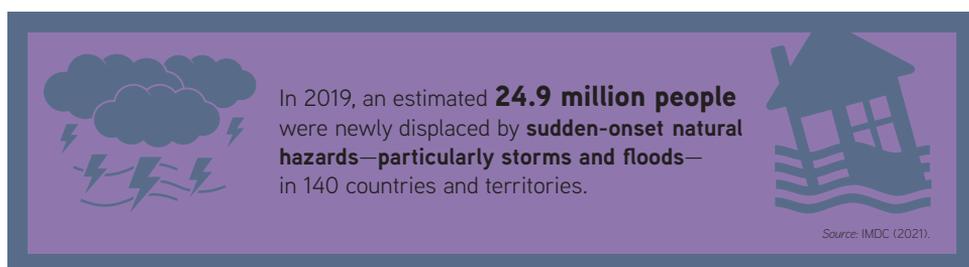
- Undermining livelihoods and cultures (see the report of the Agroforestry Task Force and the Cultural Heritage Task Force, as well as Box 5 below).
- Having a major impact on public health (see the report of the Health Task Force and Box 4 below), which also threatens human security.
- Threatening the physical and environmental security of people (as sea-level rise and other land degradation affect people’s right to live in a safe environment).
- Restricting access to water and other resources directly needed for human survival.
- Prompting climate adaptation measures that might create further conflict.
- Contributing to migration through the threats listed above.

Regarding the latter point, it is common practice to distinguish between **sudden-onset** climatic events and processes (e.g. floods, storms, etc.), which can lead to sudden, but often temporary, and short-distance displacement; and **slow-onset** climatic events and processes (e.g. sea-level rise, erosion, desertification), whereby the impact on migration

16. As reported by the Health Task Force.

is more complex, under-documented and inter-related with other factors, which could *inter alia* result in more permanent migration (MedECC, 2020). In any case, even if individual sudden-onset climatic impacts have technically reversible effects, the socio-economic damage may persist long term, and if the frequency of these events increases, resilience will be seriously eroded. Indeed, IDMC warns against underestimating disaster (i.e. sudden-onset) displacement: “Persistent misconceptions surround disaster displacement, with serious implications for people, policy and responses. These misconceptions include, for example, that disaster displacement is short-term, when in reality it often becomes protracted.” Conversely, it also warns that “The role that climate change plays in driving disaster displacement is also often seen as a direct one. However, not all weather-related disasters and their associated displacement are directly related to climate change” (IDMC, 2021).

Whatever the proximate causes, the magnitude of such events should not be underestimated. For example, IDMC estimates that in 2019, 24.9 million people were newly displaced by sudden-onset natural hazards (in particular by storms and floods) in 140 countries and territories (which is almost three times the number of people newly displaced by conflict and violence that year) (IDMC, 2021).



It is also important to understand that although the *current* impact of climate change as a driver of migration is subject to differing interpretations, *projections* into the future outline an increasing impact of climate change on human populations in the region. For example, Zittis et al. (2021) predict that as a result of annual extreme heatwaves in the region, combined with extreme urbanisation, “Humanity in such locations will depend on indoor and outdoor cooling **or will be forced to migrate,**” while Lelieveld et al. (2016) anticipate that in the near to medium term, “climate change and increasing hot weather extremes in the MENA, a region subject to economic recession, political turbulence and upheaval, may exacerbate humanitarian hardship and contribute to migration.”

In terms of future predictions at the global level, the key reference is the World Bank's Groundswell report (Rigaud *et al.*, 2018), which provides estimates of internal climate migration by 2050 (it is projected that most climate-driven migration will be internal). This predicts that "without urgent global and national climate action, Sub-Saharan Africa, South Asia and Latin America could see more than 140 million people move within their countries' borders by 2050." A follow-up report noted that by 2050, unless urgent climate action was taken, climate change could drive the internal displacement of over 215 million people across the world (Clement *et al.*, 2021). Although these reports do not focus specifically on the EMME region, and the three main case studies (Ethiopia, Bangladesh and

Box 1. Groundswell - Preparing for Internal Climate Migration - A Pioneering Approach to Modeling

The World Bank's flagship report, **Groundswell: Preparing for Internal Climate Migration** (Rigaud *et al.*, 2018) report produced, for the first time, a novel scenario-based approach, implemented in the context of a population gravity model, to isolate the portion of future changes in population distribution that can be attributed to slow-onset climate factors – over the longer term and across scale⁹. The study focused on Sub-Saharan Africa, South Asia and Latin America. **Groundswell Part 2: Acting on Internal Climate Migration** (Clement *et al.*, 2021) – extended the analysis, using the same model to East Asia and the Pacific, North Africa, and Eastern Europe and Central Asia. The combined results across the six regions show that without early and concerted climate and development action, as many as 216 million people could move within their own countries due to slow-onset climate change impacts by 2050.

Key features of the model

- A gravity model is used to project future population distribution for each country based on two development scenarios: an unequal development scenario representing a divided world with poor development prospects in developing countries, versus a moderate development scenario representing a more equitable future world.
- Climate impacts on water availability and crops/pasturage are added to the two development scenarios, which affect the relative attractiveness of regions within countries. Areas projected to see higher water availability and productivity attract people; areas projected to see lower water availability and productivity will tend to repel people. Areas affected by sea level rise are "masked" out in a way that people cannot move into them.
- The model is calibrated by looking at the relationship between past climate impacts and changes in historical population distributions between 1990 and 2010 (in two 10-year increments), which generates parameter estimates used to project future changes.

(Continued next page)

Box 1 (continued)

- The climate impacts are included with the development scenarios in three combinations: a pessimistic scenario with high emissions and poor development prospects, a more inclusive development scenario with high emissions and more equitable development prospects, a more climate-friendly scenario with low emissions and poor development prospects.
- Future population projections without climate impacts are subtracted from population projections with climate impacts to yield a map of population differences. Positive differences are assumed to reflect net climate in-migration and negative differences are assumed to reflect net climate out-migration due to climate change impacts.
- Climate migration hotspots reflect areas of high certainty (with agreement across at least two of the three scenarios at the top 5th percentile) in which the largest spatial populations will shift into (climate in-migration) or out (climate out-migration) of a grid cell over time. Confidence levels are assigned based on the number of scenarios that agree. When all three scenarios agree, it is a high certainty hotspot, and when two out of three scenarios agree, that is a medium certainty hotspot.

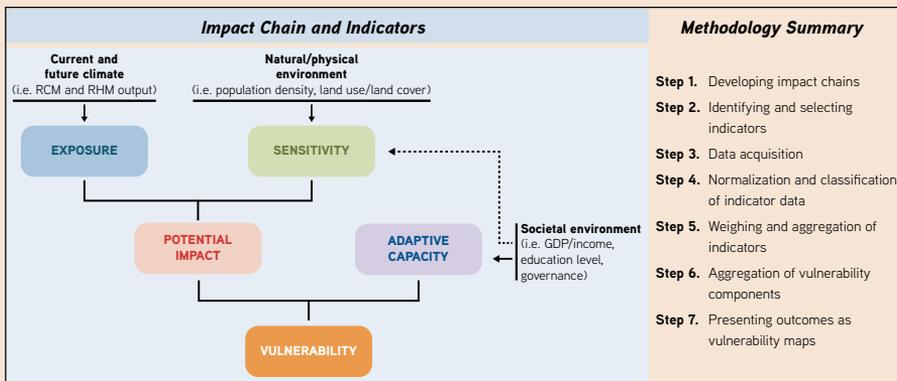
Ongoing and Future work. Enhancements to the Groundswell model have been conducted for West African countries (Rigaud *et al.*, 2021) and for the Lake Victoria Basin countries (Rigaud *et al.*, 2021). The new modeling includes shorter time steps, higher spatial resolution, and more climate impact parameters (that is ecosystem impacts through net primary productivity) and rapid onset events (as flood risk projections); and an incorporation of conflict areas as an additional data layer. It includes a consideration of non-climate factors, including demographic variables (median age, and sex) and incorporation of conflict data as an additional layer

a. The full methodology is available in Appendix 1 of the Groundswell report. <https://openknowledge.worldbank.org/handle/10986/29461>

Mexico) are from different contexts, it can be assumed that similar patterns could apply in the EMME region. Moreover, the second iteration of the Groundswell report explicitly covers Egypt. Indeed, the report, entitled “Groundswell Part 2: Acting on Internal Climate Migration” (Clement *et al.*, 2021) includes projections and analysis of the potential movement of people within their countries due to the slow-onset impacts of climate change for three new regions: East Asia and the Pacific, North Africa, and Eastern Europe and Central Asia. It builds on the scenario-based modelling approach of the previous Groundswell report from 2018, which covered Sub-Saharan Africa, South Asia, and Latin America. The new report also presents a more in-depth analysis for North Africa as a sub-region of focus, comprising Algeria, Egypt, Libya, Morocco, and Tunisia, in terms of the potential scale, trends, and spatial patterns of internal climate migration by 2050. Regarding projected spatial patterns of internal climate migration, the report finds that by 2030, climate

Box 2. RICCAR Integrated Vulnerability Assessment: Methodology Summary

The integrated vulnerability assessment methodology applied in the Regional Initiative for the Assessment of Climate Change Impacts on Water Resources and Socio-Economic Vulnerability in the Arab Region (RICCAR) is based on an understanding of vulnerability as a function of a system's climate change exposure, sensitivity and adaptive capacity to cope with climate change effects, consistent with the approach put forward by the Intergovernmental Panel on Climate Change (IPCC) in its Fourth Assessment Report (AR4). It combined a series of individual vulnerability assessments for water-related climate change impacts on different sectors in the Arab region. This type of assessment provides an integrated and cross-sectoral understanding of a geographical region's vulnerability to potential climate change impacts.



The methodology considers indicators that contribute to the characterization of the sensitivity, exposure, potential impact and adaptive capacity components and dimensions of vulnerability with respect to climate change as represented in an impact chain, which help describe the cause/effect relationships between indicators and climate change vulnerability for a given system. Exposure indicators were derived from the regional climate modelling and regional hydrological modelling outputs carried out in RICCAR for different time periods and emission scenarios. Sensitivity and adaptive capacity indicators are retrieved from available statistical databases or synthesized from multiple datasets. Based on regional consultations and expert opinions, weights are then applied to each indicator and these weighted dimensions are then reflected in a geometric aggregation method used to combine these components to determine climate change vulnerability. Using the ArcGIS software vulnerability assessment results can ultimately be presented as maps describing locations where specific sectors are at high risk.

(Continued next page)

Box 2 (continued)

Findings from this integrated climate change vulnerability assessment for the Arab region have shown that projected vulnerability is largely moderate to high and exhibits a generally increasing gradient from north to south across the Arab region. More specifically, outputs have allowed the identification of potential vulnerable areas and vulnerability hotspots for specific sectors based on different time periods and emission scenarios, as well as the part that the different vulnerability components such as adaptive capacity play in these different contexts. In addition, Arab States have drawn upon the RICCAR impact assessment and integrated vulnerability assessment findings to inform their national work on climate change. One example is the study assessing the vulnerability of the Lebanese agricultural sector to climate change with a focus on water availability for crops. Based on the RICCAR integrated vulnerability assessment methodology, vulnerability maps displaying current and potential future vulnerabilities for the sector were produced, with detailed outputs on hotspots areas and impacted crops. Other assessments on the agricultural sector have been carried out in the region drawing upon the RICCAR methodology in combination with the AquaCrop simulation programme, such as a series of country assessments on selected irrigated and rain fed crops to identify the impact of climate change on crop productivity. Findings have helped identify a variety of country-specific recommendations on adaptation measures for the sector.

Region-specific integrated vulnerability assessments can thus be drawn upon to inform regional cooperation, as well as basin-level, country-level and sector-level analysis to advance understanding and collective action on climate change.

Detailed guidance on the methodology is available in the RICCAR technical note “Integrated Vulnerability Assessment: Arab Regional Application” (RICCAR, 2017a). Additional information is also provided in the Training Manual on the Integrated Vulnerability Assessment Methodology (RICCAR, 2017b). More information on RICCAR is available at: www.riccar.org.

migration hotspots begin to emerge, and by 2050, these spread and intensify all over North Africa, including in Egypt. Climate out-migration hotspots include important coastal areas, such as the eastern and western parts of the Nile Delta (including Alexandria). In the Nile Delta, sea-level rise and projected decreases in water availability would drive climate out-migration. Along the coastline, rising sea levels already threaten many urban areas, agricultural lands, and economic assets. Alexandria is among the top cities vulnerable to damages from sea-level rise by 2050. In the vast agricultural lands along the Nile Delta, rising sea levels could lead to agricultural land loss, saltwater intrusion, threatening access to freshwater for drinking and agriculture. Climate in-migration hotspots are expected in the Nile Valley and central Delta and include large and mid-size urban areas such as Cairo. Climate in-migration hotspots coincide with areas projected to have increased crop

productivity and water availability in the water and crop impact models used in the report. Impacts of sea-level rise may be less pronounced in the central Delta due to topography and moderately higher elevations. These patterns do not take into account the current carrying capacity of agricultural lands in the Nile Valley and arid areas. If the model placed limits to growth in already heavily populated or resource-constrained agricultural regions, it is likely that migrants would be pushed elsewhere, perhaps further to cities (Clement *et al.*, 2021).

Whatever the conclusions related to the exact influence of climate on conflict, it is clear that the projected climatic changes will likely further increase regional energy and water demand and may lead to reduced crop yields. This would increase already existing social tensions in the region, which could in turn potentially increase food insecurity, prices and malnutrition. Such changes can then lead to increased political tensions and instabilities that can potentially lead to wars and humanitarian crises. Regional economic, political, demographic and social drivers, as well as climate-related environmental stressors (including sea-level rise, droughts, extraordinary heatwaves or vector-borne diseases), could result in forced migration flows, and climate change acts as a push factor towards this direction (Black *et al.*, 2011; Lelieveld *et al.*, 2016; Tabari and Willems 2018; Abel *et al.*, 2019¹⁷). The scale and geographic scope of this type of population displacement could be one of the greatest human rights challenges of our time¹⁸. Certainly, migration is not solely driven by climate change, but it is influenced by a mix of climatic, socio-economic, cultural and political factors (Boas *et al.* 2019¹⁹). Nevertheless, at least in the arid to semi-arid areas of the Middle East, there is evidence that such changes in the past have acted as the main drivers of historical human settlement and population migrations at timescales of 100 to 1 000 years (Kaniewski *et al.* 2012²⁰). The coupling of climatic changes with conflicts between countries and populations has dire consequences for already vulnerable populations, exposing them to high risks and possibly prompting an exodus or protracted displacement, with migrants and displaced people then suffering from malnutrition, poor sanitation and lack of proper medical and mental help in their host countries (Physical Basis and Health Task Force reports). Of course, it is important to remember that migrants are not only exposed to health risks, but also to increased risks of human trafficking, discrimination, inequalities, lack of access to education and employment, etc.

17. As related by the Physical Basis Task Force.

18. As reported by the Physical Basis Task Force.

19. As reported by the Physical Basis Task Force.

20. As reported by the Physical Basis Task Force.

But whatever the exact nature of these linkages, it is apparent that efforts aimed at mitigating the direct effects of climate change can also help mitigate socio-political issues such as migration and refugee displacement (Health Task Force report). It is also important to emphasise that most of the migration in the context of climate change will be internal (Rigaud *et al.*, 2018; IOM Migration Data Portal, 2021), and as we will see in Chapter 4, this has important policy implications (i.e. the importance of local and national measures to address migration).

4. Policy landscape

“Risk reduction, resilience-building and solutions programming are arguably at their most challenging in locations where conflict, disaster and climate change converge.”

—UNHCR and IOM (2021a)

As illustrated in the previous chapter, relationships between migration and climate change are both complex and can be indirect and rather subtle. Migration can be a direct or indirect result of climate change, while displaced populations, whatever the reason for their displacement, are highly vulnerable to the impacts of climate change. Some countries of the EMME (e.g. Turkey, Jordan, Lebanon, Yemen, Cyprus) are among those with the highest absolute and relative number of migrants and IDPs in the world.

So far, war and conflict in general have been the main causes; dire economic and social situations are next. But the situation is evolving and, in the future, climatechangeinduced migration is expected to increase sharply and suddenly, as discussed earlier in this report. In this sense, and despite the best prevention efforts, migration can become a viable climate change adaptation strategy, if the means to move are available (Gemenne, 2010; Mosello et al., 2021). Indeed, a recent report by the UNHCR and IOM (2021a) reminds us that the threat of displacement is at its greatest when conflict and disasters converge: “Together they undermine resilience, heighten risks, compound conditions of vulnerability and exacerbate protection needs. The combined effects of conflict and disaster complicate efforts to prevent and mitigate displacement, protect affected and displaced people and promote sustainable solutions to internal displacement.”

The same UNHCR/IOM report reminds us that countries that are afflicted by both conflict and disasters need “instruments, institutions and coordination mechanisms to address displacement associated with each trigger.” (The same could be said for countries facing both climate change and conflict.) The report continues, “When conflict, disaster and associated displacement converge, government authorities and supporting actors must also engage in policy and programmatic interventions – on prevention and preparedness, humanitarian and emergency response and sustainable solutions – that account[s] for the interplay” (UNHCR and IOM, 2021a). In a region such as the EMME, which is disproportionately affected by climate change and conflict, this call to action is at its most relevant, and indeed forms the basis of the policy recommendations described below.

Box 3. Migration, climate change and energy

Conceptualizing the migration-climate-energy nexus offers an important angle, with significant policy implications, on the work of the Energy Task Force of the Eastern Mediterranean and Middle East Climate Change Initiative. According to the United Nations High Commissioner for Refugees (UNHCR 2020c), 90% of forcibly displaced people staying in rural settlements live in conditions of energy poverty, with only 10% of refugees having access to electricity for more than four hours per day, a situation which exacerbates crises experienced by already vulnerable populations. Meanwhile, camps of refugees and internally displaced persons often run on diesel generators with high local particulate pollution and greenhouse gas emissions. The burning of solid fuel for cooking purposes, a major source of black carbon, is a significant health hazard for those who are frequently and directly exposed to its emissions. And yet national energy access policies often overlook displaced people, while energy is rarely at the top of the humanitarian assistance agenda. The UNHCR's "Clean Energy Challenge" envisions a high-energy, low-carbon future for displaced populations by 2030 (UNHCR, 2020c), to be supported by governments, private sector actors and humanitarian organisations.

Box 4. Migration, climate change and health

One cannot study the impact of climate change on migration without also taking into account public health. First, migration may in some cases be driven by climate-induced public health effects. Indeed, extreme climate events can seriously disrupt already strained public health infrastructure while, in the longer term, climate change can worsen the conditions of already vulnerable populations, through the spread of vector-borne diseases or reduced access to clean water. If such populations are displaced, they may end up in crowded refugee camps, where sanitary conditions are conducive to the spread of various illnesses. Climate change will further the spread of vector-borne diseases to areas housing large numbers of refugees as the frequency of extreme heat events increases. Acknowledging these interconnections, the Migration and Health task forces of the Eastern Mediterranean and Middle East Climate Change Initiative have jointly produced a policy recommendation for the control of vector-borne diseases in refugee camps, which can be found in Chapter 5 of this report.

Overall, we can summarise our knowledge as regards the climate-migration nexus in the EMME region as follows:

- Information capturing the full range of policy measures to address the climate-migration nexus in the EMME region is limited.
- Policies and measures to mitigate climate change would in theory ultimately reduce migration although the effect would not be instantaneous, nor easy to quantify given the current levels of knowledge about the EMME region. **A research tool is needed to help better target such policies for maximal impact.**

Box 5. Migration, climate change and cultural heritage

Cultural heritage is both at risk directly from climate change (e.g. flooding, sea-level rise, etc.) but also indirectly, as a result of emigration, which in some cases can itself be driven by climate change. As more people move, important cultural sites may lose their custodians, and therefore be endangered. Meanwhile, rituals and traditions are often the only forms of cultural heritage that displaced persons can take with them. Yet the traditions of climate-driven migrants and other displaced persons may not be protected in their new host areas or in the countries to which they migrate. It is therefore important to consider policies for the global protection of intangible cultural heritage, perhaps building on the 2005 United Nations Educational, Scientific and Cultural Organization Convention on the Protection and Promotion of the Diversity of Cultural Expressions. It may also be worthwhile to consider how to protect cultural heritage sites that have been abandoned due to climate-driven emigration.

- For areas at particular risk, policies supporting green development would be most effective, thus reducing on the one hand the need for emigration and on the other contributing to the mitigation of climate change. Once again, a tool is needed to better identify the most vulnerable areas, in order to better target such policies.
- Because preventive measures take effect only with a considerable time lag, it is important **to accept migration as a valid climate adaptation measure**. This calls for the implementation of measures to integrate climate-driven migrants in their host communities and to render displaced populations less vulnerable to climate change impacts.
- Migrants can themselves contribute to climate adaptation efforts (Gemenne and Blocher, 2016, 2017), both in their areas of origin (through remittances supporting specific actions on the ground) and in their destination areas (by contributing their human capital to provide new and innovative solutions). How this can be best achieved in the context of the EMME region requires further study.
- Whether or not there is a direct climate-conflict-migration linkage, climate is a threat multiplier in a region where conflict is undermining the ability of countries to co-operate in dealing with climate change. As Crawford and Brown (2009) argue in their analysis of these linkages for the Middle East, there is much that national authorities and other actors can do to address the challenge of climate change, and as a result mitigate some of the threats it may pose to regional peace and security: “They can promote a culture of conservation in the region, help communities and countries adapt to the impacts of climate change, work to reduce greenhouse gas emissions and foster greater cooperation on their shared resources.” As we will

see, much of this thinking is mainstreamed into the policy recommendations listed in Chapter 5 of this report. In any case, focusing on the convergence of peacebuilding and climate action (Crawford & Donaldson, 2021) is particularly important in areas of the EMME prone to conflict.

Climate-migration nexus in the EMME region: Overview of knowledge base



A research tool is needed to better identify climate and migration vulnerabilities in the region, and better target policies.

Migrants can contribute to efforts at climate adaptation in their areas of origin through remittances as well as in their destination areas by contributing human capital to innovative solutions.



Policies supporting green development would be most effective in areas at particular risk, reducing emigration and mitigating climate change.



Due to the considerable time lag between preventive measures and their effects, climate-driven migration must be considered a valid climate adaptation measure. Integrating migrants into host communities is vital.



Sources: Gemenne and Blocher (2016, 2017); Crawford and Brown (2009).

Before concrete policy measures can be set up, it is important to address the massive gaps in knowledge about climate and migration in the EMME region, and to consider the policy frameworks already in place in the region to deal with this situation. At the global level, in addition to UNHCR's own Framework for Climate Action (UNHCR, 2021b), the UNHCR and IOM identify several frameworks to address the climate and displacement nexus (UNHCR and IOM, 2021b; IOM, 2018):

- **The 2015 Nansen Initiative Protection Agenda.** Endorsed by 109 states, this proposes actions for preventing and preparing for displacement before disasters occur. In situations where displacement cannot be avoided, it helps countries to improve their responses to IDP or refugee movements. With the 2018 adoption of the Global Compact for Safe, Orderly and Regular Migration and the Global Compact on Refugees, these measures were taken further, with signatory states committing action for migrants and refugees in the context of disasters, climate change and environmental degradation. Another follow-up on the Nansen initiative was the Platform on Disaster Displacement,²¹ a state-led initiative established in 2016, which led to the adoption of the Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change (IOM 2015).
- **The 201530 Sendai Framework for Disaster Risk Reduction.** This outlines seven clear targets and four priorities for action to prevent new and reduce existing disaster risks (UNDRR, 2015). Although references to migrants do not form the core of this framework, it clearly promotes empowering and working with migrants on disaster risk reduction through:
 - Understanding disaster risk
 - Strengthening disaster risk governance to manage disaster risk
 - Investing in disaster reduction for resilience
 - Enhancing disaster preparedness for effective response, and to “build back better” in recovery, rehabilitation and reconstruction
- The **Paris Agreement under the United Nations Framework Convention on Climate Change** (UNFCCC, 2017; United Nations, 2015). Before 2010 (COP16), mobility was not formally recognised in international climate policy discussions, until the Parties to the UNFCCC adopted the Cancun Adaptation Framework, which included a call for action that addressed the full range of movements people may take when faced with climate risks. In 2015, further progress was made when a Task Force on Displacement²² was established under the Paris Agreement.
- The **Global Compact for Safe, Orderly and Regular Migration (GCM).**²³ The GCM is the first non-binding, comprehensive and co-operative migration framework negotiated by UN member states, and as such is a major milestone in the international governance of migration. The GCM consists of a series of common commitments,

21. <https://disasterdisplacement.org/>.

22. <https://unfccc.int/process/bodies/constituted-bodies/WIMExCom/TFD>

23. <https://www.iom.int/global-compact-migration>

distributed across 23 objectives. Ionesco and Chazalnoel (2018) identify a range of references in the GCM to environmental migration. The GCM:

- Clearly identifies slow-onset environmental degradation, natural disasters and climate change impacts as drivers of contemporary migration.
- Acknowledges the multi-causality of migration as environmental drivers interact with political, economic and demographic drivers.
- Articulates comprehensive potential responses to address these drivers: design of appropriate measures in the countries of origin to make migration a choice rather than a desperate necessity; disaster preparedness, disaster risk reduction and disaster response; and facilitation of population movements.
- Recognises that climate change mitigation and adaptation measures in countries of origin need to be prioritised to minimise drivers of migration.
- Acknowledges that adaptation in situ or the return of migrants might not be possible in some cases and that the strengthening of regular migration pathways (planned relocation and visa options) needs to be part of migration management.
- Outlines the need for states to co-operate to identify, develop and strengthen solutions for people migrating in the context of slow-onset environmental degradation (in particular desertification, land degradation and sea-level rise) and slow-onset disasters (drought).
- Outlines the importance of working at the regional level to address the environmental drivers of migration.
- Encourages policy coherence by highlighting that the GCM rests on several global instruments related to climate change, disaster and environmental governance: the United Nations Framework Convention on Climate Change and the Paris Climate Agreement, the United Nations Convention to Combat Desertification, the 2030 Agenda for Sustainable Development and the Sendai Framework for Disaster Risk Reduction.
- Highlights the need to consider recommendations stemming from state-led initiatives with a focus on mobility linked to natural disasters outside the UN context: the Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change, and its follow-up, the Platform on Disaster Displacement, as well as the Migrants in Countries in Crisis Initiative.
- Recognises the need for more investments in strengthening evidence, data and research to address environmental migration challenges.

- **UNHCR's 2021 Strategic Framework for Climate Action**, which contains a range of useful legal and policy actions to address the climate-migration nexus (UNHCR, 2021b). It identifies several priorities, including to:
 - Guide legal interpretation and comprehensive application of the relevant legal frameworks in the context of climate change and disaster-induced displacement.
 - Support states to develop and implement legal and institutional policy frameworks to prevent and respond to displacement and to facilitate solutions to internal displacement due to disaster.
 - Catalyse international discussions and developing legal and normative guidance to promote and support access to international protection of persons in need, including refugees.
 - Advocate and advise on the integration of protection-centred measures addressing displacement and statelessness risks and the inclusion of displaced people in disaster risk reduction/management policies, strategies and climate adaptation plans.
 - Monitor legal and policy developments.
 - Conduct research and evidence-based advocacy, such as on protection-centred climate action in complex emergencies, cross-border displacement due to disasters and risks of statelessness in the context of disasters and climate change.
 - Guide the international community and states to assess and mitigate the risks of statelessness as a result of climate change impacts.
 - Advise governments on planned relocation away from unsafe or uninhabitable areas as an anticipatory and adaptive measure of last resort.

The following chapter, in which possible interventions are outlined, is based upon the premise that the countries in the EMME region, as well as the international agencies intervening in the region, have finite (and often limited) resources to address the challenges posed by climate change. In particular, it will be important to identify the precise location of climate-migration hotspots. Here, communities are not only disproportionately affected by climate change, but social cohesion is so fragile that climate-induced disruption could be a tipping point towards conflict and/or migration.

While recognising the need for transboundary co-operation to face these challenges, we also recognise that a large proportion of migration is internal to states. Also, there is no immediate solution for putting an end to some of the more intractable conflicts in the region, which are an impediment to putting in place a truly regional approach to the

problem. While it is important to put in place measures to enhance the well-being of refugees and migrants, a major focus is preventing forced migration in the first place. For this to happen, as Chazalnoel and Ionesco (2021) remind us in a recent article:

Priority should be given to addressing the adverse climate and environmental drivers of migration. This means increasing investments in climate mitigation and adaptation, and in interventions that reduce the risk of natural disasters and improve environmental conditions, such as land rehabilitation. Most people wish to live productive and dignified lives at home and avoid migrating out of necessity. Policy options should help them reach this goal.

Concrete climate and migration proposals adapted to the EMME region are few and far between. The network of Mediterranean Experts on Climate and Environmental Change (MeDECC) is working on a report on climate and migration for the Mediterranean region, but this has yet to be completed, and covers a region with only some overlap with the EMME. IDMC (2021) has some important policy examples and recommendations from other regions. For example, a growing number of countries officially recognise disasters (i.e. rapid onset) as triggers of displacement, although many of those countries have as yet failed to integrate this factor into their national climate adaptation plans. Nevertheless, 27 out of 46 countries on the 2020 Internal Displacement Index explicitly recognise that displacement is associated with the slow-onset effects of climate change. Ghana and Peru, for example, have climate change policies that address internal displacement associated with climate change, while South Sudan's national adaptation plan recognises that people displaced by conflict are also among the most vulnerable to climate change impacts, and that the extreme weather-conflict nexus implies the need for climate change adaptation projects to promote conflict prevention and peacebuilding. IDMC provides one example from the EMME region, stating that the **Arab Strategy for Disaster Risk Reduction** acknowledges disaster displacement as a major risk and highlights the need to consider linkages between conflict and disaster (if not explicitly between climate and migration) (IDMC, 2021).

It is important to remember, as explained earlier, that the bulk of climate-driven migration will result in internal displacements. In this context, the IOM (2018) recently submitted a report examining internal displacement in the context of slow-onset climate change effects. It recommends the following steps toward meeting this challenge:

- Prevent the conditions that might lead to displacement.
- Promote mobility as a strategy to minimise the factors compelling people's movement (including planned relocations).

- Recognise that despite these measures, some amount of population displacement will occur, and therefore prepare for this.
- Protect and assist those internally displaced in disaster situations.
- Design durable solutions to deal with protracted displacement, including giving displaced populations a free choice between the options of return, local integration and relocation.

Beyond the narrower context of slow-onset climate events and internal displacement, the IOM (2018) has also produced a broad-ranging review of the climate-migration nexus within the context of international processes, policies and legal frameworks. It finds some encouraging trends globally:

The inclusion of human mobility and climate change concerns has grown significantly across relevant international processes, policies and legal frameworks, especially from 2015 onwards, with the Paris Agreement playing a key role in this shift.

The development of global policy frameworks towards broader approaches, for example, the finalisation of the GCM, is ongoing.

Significant gaps and challenges remain, however, particularly in terms of including human mobility and climate change issues in global policy frameworks dealing with cross-cutting domains such as oceans, wetlands, ecosystems or water, or the need to further cross-reference information on the climate and migration with the Sustainable Development Goals (SDGs) relating to energy, land or water. But perhaps the most important gap is that **“international law still lacks specialized provisions applicable to climate-related migrants and displaced persons”** (IOM, 2018).

In a recent analysis of the GCM in the context of the Arab Region, the United Nations Economic and Social Commission for Western Asia (UN-ESCWA) reports that “environmental pressure aggravated by the effects of climate events, such as drought, sea level rise, flash floods and desertification, often acts as a threat multiplier exacerbating other drivers of migration”; meanwhile, host populations rarely have the means to deal with the additional pressure of climate change (ESCWA, 2019, 2020). To build resilience to climate change in the most vulnerable areas is thus an urgent necessity (ESCWA, 2020).

But beyond such reports, there are major gaps in knowledge about climate and migration, making the establishment of realistic policy frameworks difficult. It seems that this nexus is thus both a hotspot and a blind spot.

The first priority is therefore to strengthen data and evidence on climate change impacts on migration and displacement in the EMME region, in order to better understand the nexus and design informed policies. States and international organisations operating in the EMME region should be supported and encouraged to develop this knowledge and evidence base by undertaking research projects on climate migration in the region, and using tools such as the CLIMIV Index (Policy Recommendation No. 1).

It may be necessary to draw upon policy examples from other regions. One good practice to be highlighted is the recent adoption of the Free Movement Protocol for the IGAD²⁴ region that allows for IGAD citizens to cross borders in anticipation of, during or in the aftermath of a disaster (Platform on Disaster Displacement, 2020). A growing number of countries have planned relocation frameworks in place (Bower and Weerasinghe, 2021; Government of Fiji, 2018; IOM, Georgetown University and UNHCR, 2017).

It is also important to be realistic and acknowledge that although the priority is policies designed to promote climate adaptation and resilience, many of them will be insufficient, and come too late to avoid climate-influenced migrations (MedECC, 2020). “In some cases, it is not possible for people to remain in or return to areas that are irreversibly damaged by climate impacts. This means that states would benefit from looking at legal and policy options that facilitate migration, both within countries and across borders, and provide protection to vulnerable migrants” (Chazalnoel and Ionesco, 2021).

So, the necessary prevention measures to address drivers of migration must be accompanied by measures to protect internally or internationally displaced people, and ensure safe, orderly and regular migration in the context of climate change, environmental degradation and disasters.

It is also important to consider that some migration movements are *towards* risk areas rather than *away* from them, with some migrating populations ending up trapped in areas that actually expose them to greater risks (Geddes, 2015). There are also trapped populations unable to move from degraded areas, who need further attention and policies helping them to move when necessary, or populations unwilling to move and who in consequence remained trapped and need help (Zickgraf, 2019; Mallick and Schanze, 2020; Benveniste et al., 2020).

As such, it is of critical importance to develop policies to better prepare and adapt infrastructure to sustain and protect migrants in their destinations (MedECC, 2020), or to help

24. The Intergovernmental Authority on Development (IGAD) is an eight-country trade bloc in Africa. It includes governments from the Horn of Africa, Nile Valley and the African Great Lakes.

populations who don't have the option of migrating. Finally, although it is obviously crucial to address the root causes of migration, **it is essential to move away from rhetoric that characterises migration as a negative phenomenon**. Migration has multiple benefits to those emigrating (moving out of harm's way, easing pressure on vulnerable areas, etc.) and to host societies (skills, labour, remittances, intangible cultural heritage, etc.). As such, migration is one of several possible climate adaptation measures, a strategy that will be even more successful if a conducive policy environment is created to protect those who have no other choice but to migrate. Indeed, Ionesco and Chazalnoel (2015) remind us that:

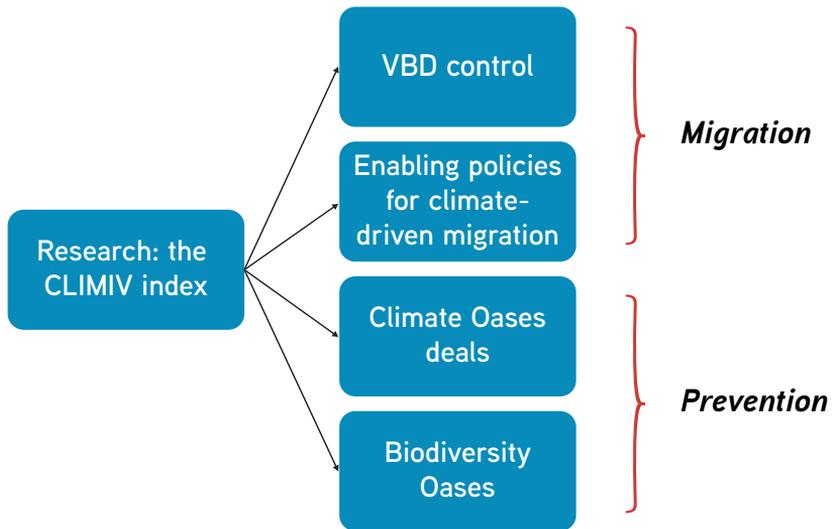
In simple terms, adaptation refers to any human response taken to cope with changes in the external environment in order to survive these impacts with minimal damage and improve living conditions in a given habitat. When people decide or are forced to move due to environmental and climatic changes – whether sudden or slow – their mobility is an adaptation strategy that allows them to minimize harm for themselves and/or improve their overall lives.

In this context, Mosello et al. (2021) have identified five ways in which authorities and international actors could foster mobility as an adaptation strategy and support those affected by climate change:

- Increase knowledge and awareness, to contextualise relevant policies (i.e. via the CLIMIV Index).
- Promote adaptation and development in destination areas.
- Strengthen and develop national policies, strategies and legal frameworks, that is, mainstream the displacement-migration-climate nexus at all levels of government policy making.
- Finance the responses.
- Drive strong global action and co-operation.

The first of the many recommendations outlined in the next chapter centres on the CLIMIV Index, a research tool to address the massive knowledge gaps relating to the climate-migration nexus in the EMME region. Without use of this tool, most of the ensuing policy recommendations cannot be applied effectively (an interconnection illustrated in Figure 2).

FIGURE 2. The Migration Task Force research and policy recommendation framework



Note: CLIMIV = Climate-Migration Vulnerability; VBD = vector-borne disease.

5. Research and policy recommendations

5.1. Policy recommendation 1

Short policy name

EMME Climate-Migration Vulnerability Index (CLIMIV Index)

Policy objective

Produce an evidence-based policy tool that is endorsed by policy makers in the majority of countries in the EMME, for identifying climate-driven migration hotspots.

Expected policy impact

The policy impact of this tool is to enable policy makers in the entire EMME region, as well as international aid agencies, to target their investments, efforts and policies on climate-migration hotspots, in a conflict- and climate-sensitive way, thus ensuring better and more targeted results of their policies and interventions. In other words, this initiative would allow evidence-based policy making that brings together climate and migration considerations.

Policy type

This would be an overall policy framework, focused on climate change adaptation, which can be modified and adapted to suit the specific circumstances of participating countries and communities.

Coverage territory

This policy, while it would target specific, localised climate and migration hotspots, is intended to cover the entire EMME region.

Short description

A Climate-Migration Vulnerability Index is an online tool for policy makers and international agencies which takes into account climatic and social cohesion factors to map and identify climate-migration hotspots throughout the EMME region, where interventions by governments and the international community should be strategically targeted to build community climate adaptation, resilience and social cohesion in order to better understand climate-driven exodus (MedECC, 2020; EMME-CCI, 2021; IOM, 2021; SeeD, 2021).

Linkages

Goal(s)

- Community resilience and adaptation to climate change
- Evidence-based policy making and interventions
- Forecast of climate-driven migration

Measures

- Creation of the CLIMIV Index and its acceptance as an evidence-based policy-making tool by decision makers throughout the EMME region.
- Targeting of policy measures and interventions by international organisations informed by the CLIMIV Index.

Other EMME-CCI recommended policies towards the same goal

This policy builds on the research of the EMME-CCI Physical Basis Task Force, which points to climate change as a future driver of migration on a large scale. The policy framework itself links into the work of several task forces, including Water, Agroforestry and Energy. A lack of water, an inability to continue farming and energy poverty are all factors that can drive people towards an exodus.

Related broader initiatives

- The World Bank's **Groundswell reports** (e.g. Rigaud *et al.*, 2018) uses a methodology which might very well be applicable to the CLIMIV index (see Box 1 earlier in this report). Combined with the SCORE methodology, this could produce a very powerful model. The full methodology is available in Appendix 1 of the Groundswell report²⁵.
- The RICCAR Integrated Vulnerability Assessment methodology, described in Box 2 earlier in this report, should also be examined in the development of the CLIMIV tool. Detailed guidance on the methodology is available in the RICCAR technical note "Integrated Vulnerability Assessment: Arab Regional Application" (RICCAR, 2017a). Additional information is also provided in the Training Manual on the Integrated on RICCAR is available at: www.riccar.org.
- This policy tool would serve the interest of all foreign aid efforts and the work of all national authorities and international agencies operating in the EMME region, as it would help them focus their resources and efforts more strategically on specific climate-migration hotspots in a preventive way rather than more generally in a responsive way. Indeed, it would help provide an early warning system for areas at high risk of climate-driven migration, which can be used by all actors in the field.

25. <https://openknowledge.worldbank.org/handle/10986/29461>

- The MedECC network, founded in 2015, is developing a special report on environmental change, conflict and human migration. It is important to build synergies between its work and all the policy measures of the EMME-CCI Migration Task Force.
- In 2021, the IOM launched the International Dialogue on Migration, and the first session, in May 2021, was entitled: “Accelerating Integrated Action on Sustainable Development: Migration, the Environment and Climate Change.” One of the conclusions of this session was that “Focus must be on early action, prevention and preparedness, as well as protection of the most vulnerable populations through human-rights based and gender-sensitive approaches, to help communities become more resilient and less prone to disaster risks, to the effects of climate change and to conflict. Strengthening national institutions and local capacities, and promoting risk awareness among the population through awareness raising and education programmes are among key areas of intervention.” This proposed policy measure would go a long way towards addressing many of these points, including early action, prevention and preparedness, and the identification of the most vulnerable populations to be protected.
- The Global Compact for Safe, Orderly and Regular Migration is the first, intergovernmentally negotiated agreement, prepared under the auspices of the United Nations (adopted by the UN General Assembly in December 2018), to cover all dimensions of international migration in a holistic and comprehensive manner. It has recently started raising the profile of environmental and climatic drivers of migration. A recent report focused on the Arab region called for urgent action in terms of increasing community resilience to climate change (ESCWA, 2020).

Connection to policy frameworks

- **Climate observation hub:** Modelling of the climate-driven spread of vector-borne diseases can be used to inform this policy framework.
- **Climate and biodiversity policy framework:** It is important to expand the carrying capacity of ecosystems to cope with increased displaced populations, and increasing the overall biodiversity of ecosystems as a buffer to mitigate the impact of climate change and thus reduce the risk of climate-induced migration.

Connection to Sustainable Development Goals

First and foremost, this policy is connected to Sustainable Development Goal (SDG) 11 (sustainable cities and communities), but also to SDG 3 (good health and well-being), with climate as a major driver, and hence SDG 13 (climate action). Because water and energy will eventually be the main limiting factor for people to decide whether to stay or leave, SDG 6 (clean water and sanitation) and SDG 7 (affordable and clean energy) are also a key

part of this initiative. This is tightly linked to the more strategic use of overseas development assistance and to maintaining the harmony and social cohesion of communities, and thus SDG 16 (peace, justice and strong institutions) and SDG 17 (partnership for the goals) will also be critical components of this initiative.

Timing

Implementation timing

This policy recommendation has the advantage of having the potential to be rolled out relatively rapidly (i.e. in a matter of months), although to realize the index's full potential it would be best to consider this initiative as a three-year project, where the first year is dedicated to research, the second to analysis and the third to the production and advocacy of the emerging policy recommendations.

Effect/impact timing

The tool can be fully operational within three years, as described above. But for it to then be mainstreamed into policy making, and for the results of those policies to be visible, it could take another three years – hence a total of six years from inception.

Preconditions and challenges/objections

Policy makers around the EMME region need to be willing to use this tool and mainstream it into their policy making when it is ready. The same applies to international aid agencies. No matter how precise and advanced, the CLIMIV Index will have no value unless it obtains this endorsement.

Description

As identified in the report of the Migration Task Force, there are major gaps in our knowledge of the climate-migration nexus, gaps which need to be filled before we can move forward with evidence-based policy proposals. Indeed, even at the wider global level, IOM reminds us that: “Better predictive analytics are needed: When it comes to predicting future trends, the disconnection between the environmental sciences and social sciences communities constitutes an additional challenge, in a context where environmental migration research would greatly benefit from multidisciplinary research and better integration of climate and population data” (IOM Migration Data Portal, 2021).²⁶

In its recommendations to the Special Rapporteur on the Human Rights of Internally Displaced Persons, IOM also suggests a focus on “supporting innovative research, data, and evidence work on internal displacement in the context of slow onset adverse effects of

²⁶ https://migrationdataportal.org/themes/environmental_migration_and_statistics

climate change.”. It can be argued that this approach should be extended to all aspects of the Climate-Migration Nexus.

In an analysis of the current state of climate-conflict research, Buhaug (2015) identifies several research orientations which would be equally beneficial for climate-migration research:

- Specify relevant climatic conditions: which specific conditions and events are considered a threat?
- Specify causal mechanisms and context: consider the mechanism(s) through which a climatic phenomenon might translate into a social outcome.
- Specify actors, agencies and social outcomes: which segments of society are affected, and how are they likely to react to a climate-related challenge? Which chain of events and reaction can lead to conflict (or in our case migration)?
- Justify the spatiotemporal domain: what is a reasonable time lag from when a given climatic phenomenon occurs to a when social response is observed?

The CLIMIV Index is a direct response to this need. Its creation includes two stages:

- Multidisciplinary research and development (i.e. developing the CLIMIV tool itself)
- Integration into policy (i.e. as policy makers and international agencies endorse the tool and mainstream it into their evidence-based policy and implementation processes).

Developing the CLIMIV tool

Various indices exist around the world to measure human development (e.g. the United Nations Development Programme’s Human Development Index), and through the modelling work of the Cyprus Institute and other partners in the region, detailed climate models and projections exist for the EMME region. Fewer data exist, as detailed in this report, on the proximate and ultimate causes of migration in the region, and on future migration patterns, and even fewer data are available regarding the social cohesion of societies in the EMME. However, the Centre for Sustainable Peace and Democratic Development (SeeD²⁷) has developed a detailed statistical tool to measure social **cohesion** and reconciliation in post- or pre-conflict environments, known as the Social Cohesion and Reconciliation Index (SCORE²⁸). This tool has been tested extensively in a range of conflict zones, including Cyprus, Bosnia and Herzegovina, Eastern Ukraine, Nepal, Liberia, etc. (UNDP, 2015).

27. <https://www.seedsofpeace.eu/>

28. <https://www.scoreforpeace.org/>

Below is a short description of the SCORE approach and how it could be adapted to the CLIMIV Index.

SCORE methodology

The SCORE methodology combines an extensive participatory research process with advanced data analysis to identify the drivers of conflict dynamics and peaceful social change. It draws inspiration from multiple scientific disciplines such as sociology, psychology, international relations and security studies and is flexible enough to incorporate new research findings, global policy guidelines and the realities of each local and regional context.

As a Participative Action Research (PAR) tool, the SCORE process relies on a collaborative design and ensures local ownership of project results. The first step of the process involves a qualitative assessment of the situation with the local partners. Focus groups and key informant interviews are implemented to evaluate the local dynamics at stake. The second step consists of a large quantitative survey aiming to provide scores on several dimensions, such as social cohesion and reconciliation, for different groups, and also for various demographic categories within these groups. The questionnaire²⁹ draws from the extensive SCORE library of measurement instruments and indicators and is administered as a household survey based on a sample frame agreed by SeeD and partners. The scope and size of the quantitative survey is adapted to the needs of the project, with the goal of ensuring there are enough responses to allow SeeD to undertake advanced data analysis.

To put it in a nutshell, the content framework of SCORE covers several dimensions such as human security (e.g. political security, personal security, etc.), citizenship and civic behaviours (e.g. civic engagement, information consumption, etc.), institutional and economic development (e.g. provision of basic services, level of corruption, etc.) and human capability and social cohesion (e.g. inter-group relations, pacific coexistence, etc.). A library of indicators is available to assess these dimensions. Nevertheless, the tool is flexible enough to allow a contextualisation of these indicators according to the specificities of the research scope and the local dynamics of the area.

The data analysis toolkit is designed to answer critical research questions, with the aim of understanding the root causes of conflict and factor which disrupt routes to optimal development outcomes. This is done by analysing the statistical significance of causal pathways which predict relationships between different socio-economic and political phenomenon (variables) or assessing the strength of the correlation between interdependent variables. The toolkit includes the following techniques:

²⁹ The SCORE questionnaire follows a Likert scale approach.

- **Regressions and structural equation modelling** will help to define the causal relations between different variables and identify the drivers of certain outcomes.
- **Analysis of variance** will compare the characteristics of specific groups and profile the preferences of each group, and can identify specific needs or challenges that particular groups face.
- **Resilience analysis** identifies the characteristics of people and groups who demonstrate unique resilience capacities despite having been exposed to the same adversity as their group or general population.
- **Cluster analysis** groups people according to shared traits and attitudes (e.g. their responses to certain indicators) rather than their demographic characteristics.
- **Frequencies** provide the proportion of responses in percentages to specific value statements disaggregated by demographics if needed.

These analyses help to design evidence-based policy recommendations and to implement intervention programmes according to the statistical findings.

The SCORE Resilience Analysis (SRA)

Resilience modelling has been recently developed by SeeD in different programmes in Liberia, Mali and South Sudan. The aim of such analysis is to identify the adversities which threaten human security and then to identify the capacities which help people to cope with those adversities. Human security should be seen as a multi-dimensional reality which should ensure “freedom from fear” and “freedom from want”. The Human Development Report refers to several dimensions of security such as personal, economic, food, health, community and political security.

In the face of stressors and shocks, people cope differently. The aim of a resilience analysis consists of identifying the skills, the capabilities and the assets which help people to cope better. The essential outcome of the analysis is to understand how some people maintain a certain level of human security despite the existence of adversities. It consists of understanding, for example, why two households who face the same level of adversity will end up with a different level of livelihood security (SeeD, 2021). Households are considered resilient when they can mitigate the impact of the adverse drivers and overcome the shocks by implementing adaptive strategies which allow them to guarantee a certain level of livelihood security.

The SRA aims to evaluate how citizens and communities activate capacities, at the individual, household, community and institutional levels, to recover, adapt and thrive in the midst of adversity. **The goal will be to develop evidence-based trajectories towards**

transformational resilience, in which resilience factors can be leveraged to design and implement durable social change programmes and policies.

The SRA framework relies on five dimensions. Table 1 offers insight into the architecture of the framework analysis. It describes (not exhaustively) the types of capabilities and skills which could be measured through the implementation of the SRA.

The use of SCORE within the CLIMV Index

Resilience during conflict is widely accepted to be multi-systemic. The decisive aim of resilience assessment in any given conflict context should be to enhance the capacity of agents across all system levels to implement resilient strategies (Lordos and Hyslop, 2021). The adverse effects of climate change are multi-dimensional: they aggregate and link into a network of social, economic, ecological and physical threats. In other words, the climate adversities generate socio-economic and political disruptions: scarcity of natural

TABLE 1. Dimensions of the SRA framework

Transferable life skills	Task-specific competencies	Social cohesion	Adaptive institutional practices	Access to natural, physical and financial assets	
Emotion regulation	Growing food sustainably	Inclusive sense of identity	Mission clarity	Fertile agricultural land	Positive resilience: Challenges are addressed through virtuously interacting positive capacities, leading to eventual system transformation
Distress tolerance	Entrepreneurial and financial literacy	Respect of diversity	Service orientation	Suitable seeds	
Sense-making	Health, hygiene and sanitation skills	Gender equality and partnership	Problem-solving orientation	Livestock	
Critical thinking	Water management	Inter-generational partnership	Institutional versatility	Grazing land	
Flexibility	Construction skills	Family coherence	Culture of empowerment	Rivers and waterholes	
Growth mind-set	Tailoring skills	School connectedness	Functional redundancy	Farming and construction tools	
Creativity	Parenting skills	Community dialogue	Science-based practices	Food storage equipment	
Negotiation	Conflict mediation skills	Local-national collaboration	Reflective management	Income from work or wealth	Negative resilience: Challenges are addressed in ways that eventually undermine system's adaptability
Avoidance	Securing preferential access	Suppression of diversity	Authoritarian leadership	Slaughtering resource-generating livestock	
Exploitation	Post-conflict retribution	Outgroup dehumanisation	Ethno-cultural restrictions to service delivery	Child labour	

resources, decrease of agricultural productivity, land pressures, inter-group tensions, land grabbing, corrupt practices and the weakening of governance are several of the detrimental inter-connected outcomes generated by climate change.

In specific conflict- and climate-sensitive areas, some people take the decision to migrate, whereas others decide to stay. Despite the existence of a spectrum of threats some people manage to deal with the adversities and develop adaptive or transformative strategies which allow them to maintain a certain level of human security. Those strategies rely on a complex network of individual life skills, specific knowledge and task-competencies, assets and physical endowments and social relationships. They are also inter-linked at different levels: they not only concern individual abilities and assets but also involve the household, the community and the institutional level.

The ultimate end goal of SRA consists of identifying the assets, competences and skills located at the individual, household, community and institutional level which allow some categories of the population to cope with adversities and make them decide to stay in climate-migration hotspots. It aims to answer a simple question: what are the competences, assets and beliefs which make some people stay? Understanding the positive multi-dimensional and multi-level positive factors which help households and communities to strengthen their resistance to adversities will help to design targeted interventions and policy programmes aiming to tackle climate migration dynamics.

Table 2 draws a standardised framework of the capacities which could be assessed by the SRA. The measurement of these skills, knowledge and assets will be then associated with the measurement of the level of stressors and shocks experienced by the populations considered.

The assessment of individuals' exposure to adversities could be paired with climate modelling: the aim would be to merge both individual and climate datasets. Using the methodologies already tested for the SCORE, but combining them with scientific datasets relating to climate predictions and models for the EMME region, we can then develop a tool, the CLIMIV Index, to map the most at-risk climate-migration hotspots throughout the EMME region, which can then be used both as an earlywarning system and a policy/intervention guide for governments and international agencies operating in the region.

Integration of the CLIMIV Index into interventions and policy making

As the tool is being developed, it must be demonstrated to, and discussed with, policy makers throughout the EMME region, so as to be integrated into mainstream policy frameworks. The central idea is that such a tool can help governments target policies, and international agencies target interventions, much more strategically to areas which are most vulnerable

TABLE 2. Potential capacities to be addressed by the SRA

	Not applicable	Negligible	Limited	Substantial	Critical
Natural disasters					
Flooding	0	1	2	3	4
Land slides	0	1	2	3	4
Endemic and epidemic diseases	0	1	2	3	4
Other	0	1	2	3	4
Natural stressors					
Land erosion	0	1	2	3	4
Degradation of the soil fertility	0	1	2	3	4
Degradation of the air quality	0	1	2	3	4
Other	0	1	2	3	4
Human-induced stressors					
Overgrazing	0	1	2	3	4
Bush burning	0	1	2	3	4
Charcoal burning	0	1	2	3	4
Other	0	1	2	3	4
Economic shocks					
Confiscation of crops or farming land	0	1	2	3	4
Slaughter or theft of livestock	0	1	2	3	4
Loss/bad crops	0	1	2	3	4
Other	0	1	2	3	4
Violent experiences					
Conflict related to natural resources	0	1	2	3	4
Terrorist attacks	0	1	2	3	4
Burglary	0	1	2	3	4
Other	0	1	2	3	4

to climate-driven migration. The advantage of such a framework is that although the climate migration hotspot mapping of the CLIMIV Index covers the whole EMME region, the recommended policies can then be applied unilaterally in one context or another.

Implementation issues

Action plan

At this stage, an action plan does not exist, and the authors are not aware of similar policies in place. But it is precisely this gap which justifies this particular policy proposal.

Actions needed for implementation

- Significant resources need to be deployed to develop the CLIMIV Index, including a massive social cohesion research exercise in all the EMME countries, as well as the creation of a large inter-disciplinary team of social scientists and climate scientists who can weave together climate data with social cohesion data into a unified index.
- Once the CLIMIV index has been developed, a substantial regional political negotiation process must be conducted for receptive countries and international agencies to create an enabling policy environment to mainstream this tool in their decision-making processes.

Agencies responsible for implementation

The research underlying the tool's development could be undertaken by a consortium of research institutions, including the Cyprus Institute and SeeD, as well as other partners established in target countries. But the wider rollout of the CLIMIV Index will depend on the co-operation of international agencies operating in the region as well as national governments.

Level of readiness for implementation

- **Development of the CLIMIV Index:** High readiness (all the methodological elements of such a tool exist, but need to be put together).
- **Mainstreaming the tool into policy making:** This will require a lengthy negotiation process with national authorities and international agencies.

Funding needed

- **Development of the CLIMIV Index and data collection for the entire EMME region:** EUR 1.5 million. However, a “proof of concept” pilot could be delivered in a selected area of the region for under US\$ 150,000.
- **Rollout:** Will depend on the size of each country, the agency and the purpose for which the tool will be used.

Suggested funding sources (national governments in co-ordination with the World Bank, specific funds, etc.)

- The “**Science meets Regions** – Advancing Evidence for Policy at Local and Regional Level” preparatory action of the European Union aims at building capacity for **evidence-informed policy making at the local and regional level**. It supports networking initiatives to share practices, methods and instruments for evidence informed policy making at the sub-national level and focuses on topics of relevance to regions and cities, in line with the European Commission's policy priorities. In

charge of implementing this action, the Joint Research Centre adopts a bottom-up approach: cities, regions and territories that participate in the project take full ownership of the topics and the processes. The centre provides financial, methodological and scientific support. To that end, it is launching a call for expression of interest to organise:

- Innovation camps and participatory events, focusing on specific policy topics (for individual regions and cities)
- Networking initiatives for consortia of regions and/or cities on issues of common concern to boost inter-regional collaboration

A second call on these same work packages will follow in early 2022 (precise timing to be confirmed). However, the major drawback is that only EU members of the EMME region would be able to apply for this call.³⁰

- Other calls that cover the entire EMME region include EU neighbourhood programmes, EuropeAid (e.g. a recent call for proposals on climate and conflict), international organisations and national governments.

Potential role of scientific organisations in supporting the policy

The CLIMIV Index is at its heart a statistical modelling tool, requiring inputs from two very different branches of research: social science and climate science. Interested research institutions will be at the centre of the consortium to develop the CLIMIV tool, and must create a multidisciplinary team of experts in those two fields, as well as practitioners with a strong regional knowledge of migration patterns, social cohesion, conflict resolution and the geopolitics of the region.

Other players in the area potentially involved with the policy

Once the CLIMIV Index has been developed, policy makers in target countries throughout the EMME region as well as international organisations operating in the region will mainstream the tool into their decision-making processes.

Opportunities to be generated

The potential opportunities to be opened by the tool's integration into policy making are enormous:

- Significant cost savings and increased effectiveness of climate adaptation measures, which can be targeted to the most vulnerable communities.
- Reduced pressure for large-scale climate migration.
- Increased resilience of communities to climate change, dampening its role as a driver of migration.

³⁰. More information at: <https://ec.europa.eu/jrc/en/science-meets-regions/call-expression-interest>.

Local content/value added/generation of local value/jobs, regional value added

The local value will come in the form of reinforced social cohesion, better climate adaptation and reduced wastage of aid resources.

5.2. Policy recommendation 2

Developed jointly with the Health Task Force

Short policy name

Enabling community engagement to control vector-borne diseases (VBDs) among populations displaced within and between the EMME countries

Policy objective

Community-based groups within refugee camps and residential slums throughout the EMME region will be tasked with monitoring disease vectors, as well as providing education to displaced populations about VBDs (on hygiene measures, health measures, vaccination campaigns, etc.), early warning to authorities of VBD outbreaks and implementation of simple measures to reduce the likelihood of insects and other vectors breeding in refugee camps. Ultimately, the objective is to achieve a 25% reduction in the incidence of VBD cases within refugee camps within a decade.

Expected policy impact

This effort would effect a paradigm shift among authorities in countries hosting displaced populations, moving towards a participatory approach that:

- Acknowledges the enhanced vulnerability of displaced populations to VBDs.
- Empowers displaced individuals as actors in the fight against VBDs.
- Recognises the impact of climate change in worsening the spread of these diseases.
- Recognises that when it comes to VBDs, no boundaries exist between refugee camps and the rest of the population. Therefore, co-operation between displaced and hosting populations is essential.

Policy type

This would be an overall policy framework, focused on climate change adaptation, which can be modified and adapted to suit the specific circumstances of participating countries and communities. This policy would be unusual in being very much bottom-up, and driven by participatory processes and engagement with affected communities.

Coverage territory

This policy is important at a regional level. Although its application would be primarily targeted to countries hosting large displaced populations in the EMME, its direct beneficiaries would be the displaced populations themselves, which originate either from other countries (e.g. Syria, Iraq and Palestine), or within countries of the EMME themselves (e.g. internal migration). Furthermore, because disease vectors can easily move between the dwellings of displaced and local populations, reducing disease vectors in areas occupied by displaced populations would also indirectly benefit local populations by reducing their risk of exposure to VBDs. Furthermore, the lessons learned during the application of this policy could be applied elsewhere in the world, especially in areas into which the range of VBDs is expanding.

Short description

This document proposes to create a policy framework or an enabling policy environment which would allow the active engagement and involvement of displaced populations in the EMME region to contribute to the detection of outbreaks of VBDs, sightings of known disease vectors, reduction of possible breeding sites for vectors and education of communities to create an atmosphere of co-operation on important public health measures. With climate change playing an increasing role both in the spread of vectors and also in the displacement of populations in the region, this is also seen as a major adaptation measure. Policies that empower displaced populations to play an active role in the control of VBDs in their camps and slums will have to be conflict sensitive, and adapted to the predominant cultural mixes of the displaced and host populations. Thus, the concept will evolve based on consultation with displaced and host communities, and therefore this is a proposed policy framework rather than a hard-set policy (Climate Change Initiative, 2021; Thompson, 1995; Anderson, 1994; Waldock et al. 2013).

Linkages

Goal(s)

To reduce within a decade the incidence of VBDs among displaced populations in the EMME region by 25%, through the creation of permanent public health committees within them.

Measures

- Creation of an enabling policy environment that assigns displaced populations a greater role in public health measures affecting their settlements.
- Creation of permanent public health committees composed of displaced populations themselves, paying great attention to diversity.

- Creation of permanent, participatory consultation mechanisms between health officials in the host countries, international organisations and public health committees, with the aim of developing better VBD early warning systems, ensuring better education on required public health measures and empowering displaced communities to play a greater role in the process.

Other EMME-CCI recommended policies towards the same goal

This policy recommendation is co-designed by the Health and Migration task forces, and encompasses the research of both.

Related broader initiatives

This work is complementary to the existing efforts of the UNHCR, the World Health Organization (WHO), Médecins Sans Frontières and other governmental and community actors throughout the region.

The MedECC network, founded in 2015, is developing a special report on Environmental Change, Conflict and Human Migration. It is important to build synergies between their work and all the policy measures of the EMME-CCI Migration Task Force.

Connection to policy frameworks

Climate observation hub: Modelling of the climate-driven spread of VBDs can be used to inform this policy framework.

Biodiversity havens network: Increasing the carrying capacity of ecosystems to cope with increased displaced populations, and increasing the overall biodiversity of ecosystems to reduce the selection pressure in favour of VBDs.

Connection to Sustainable Development Goals

First and foremost, this policy is connected to SDG3 (good health and well-being), but with climate as a major complicating factor, SDG13 (climate action) is also a major part of this. Because many of the vectors involved have a water-borne stage, and because sanitation is a key factor, SDG6 (clean water and sanitation) is also a key part of this initiative. Finally, the educational campaign component is clearly linked to SDG4 (education), while this is part of wider actions to ensure sustainable cities and communities (SDG11).

Timing

Implementation timing

The initial stages (creation of refugee public health committees and initial consultations) can happen quite rapidly, within months of being endorsed by policy makers.

Effect/impact timing

Overall outcomes (i.e. any significant reduction in the incidence of VBDs in refugee camps) will take years, probably a decade, to become visible.

Preconditions and challenges/objections

Important preconditions include:

- Acceptance of a participatory approach by local authorities.
- Trust among the refugee communities that this process will benefit them.
- Enabling policy framework which legitimises this process.

Description

According to the report of the Health Task Force, due to the complex structure of their natural cycles, infectious diseases transmitted by arthropods (VBDs) are particularly susceptible to climatic variability. The biology of mosquitoes, sandflies, ticks and other disease vectors is profoundly influenced by factors such as temperature, rainfall and humidity, creating a direct link between climate change and the epidemiology of VBDs. Variation in climate conditions and other environmental factors can also affect physiological parameters in the life cycle of vector-borne pathogens, altering their transmission patterns. Additionally, human interventions such as increased urbanisation and the disruption of natural ecosystems can further enhance the potential for VBD transmission.

For some endemic infections in the region, such as malaria, leishmaniosis and the West Nile virus, a clear correlation between disease incidence and environmental change has been established. For other VBDs, further variations in climate could shift their geographic spread and/or seasonality, altering the current epidemiological landscape of these infections.

Because disease vectors move freely across national boundaries, co-ordinated region-wide efforts are important for VBD monitoring and control. Currently, levels of preparedness and response capacity vary among countries in the region, and multi-country initiatives are incipient and often dependent on international organisations. Therefore, increased regional collaboration under a well-structured and stable framework may significantly increase resilience to VBDs in the EMME.

To make matters worse, as identified in the report of the Health Task Force, social tensions and violence triggered by a complex mixture of factors have been affecting several countries in the EMME for a long period. Often, armed conflicts drive the displacement of entire groups of people from their homelands, forcing them to become refugees. Although

some authors have argued that environmental events attributable to climate change, such as droughts, can be direct triggers of conflict, others have proposed that the association between climate and socio-political factors is more complex, with extreme climatic events acting as risk multipliers which interact with (and further exacerbate) existing conflicts triggered by other reasons. In either case, it becomes apparent that efforts aimed at mitigating the direct effects of climate change can also help mitigate socio-political issues such as migration and refugee displacement.

The distinct health risks of refugees, who are often housed in densely packed, makeshift dwellings which lack appropriate access to basic resources and sanitation, render this group extremely vulnerable to factors such as extreme temperatures, water scarcity, nutritional deficiencies, infectious diseases and mental health issues. Unfortunately, access to medical and psychiatric healthcare for refugees is limited and often absent, with some aspects (such as mental and reproductive health) being particularly difficult to address, worsened by logistical and cultural challenges.

Historically, refugee populations have always been at higher risk to VBDs.

Prof. George Christophides, for example, relates an incident with the mosquito *Aedes aegypti*, “which caused one of the worst Dengue outbreaks in Europe in 1927–1928, where 90% case prevalence was reported in Athens, Piraeus and other major cities in Greece. This outbreak was largely attributable to financial depression, lack of vector control measures and high human concentration in squatter settlements and refugee camps following a Greco-Turkish war and population exchange.” He ended this historic perspective by saying that the current socioeconomic situation may seem profoundly different from that described, however, the factors that caused that outbreak are comparable for many areas in the region. (Waldock et al., 2013)

Refugee populations continue to be disproportionately affected by VBDs for a wide range of reasons, including (Thompson, 1995):

- A lack of immunity to a specific strain of the disease prevalent in the areas they have migrated to
- The possibility of having passed through areas infested with certain insect vectors on their way to their final destination
- Settlement on lands which were abandoned by local populations because of insect vectors
- Loss of livestock which would previously have borne the brunt of the insect bites

- Living in overcrowded dwellings lacking basic sanitation and running water, where certain vector populations may thrive
- Shortages of running water, forcing people to store water for later consumption (stored water often becomes a breeding site for important disease vectors, such as the *Aedes* mosquito)
- Stress and other co-morbidities resulting from refugee conditions that may exacerbate disease morbidity or may worsen a nutrition-infection-malnutrition cycle

Such problems may be exacerbated by the breakdown of national vector control programmes in the host country (i.e. in the host country local resources may be overwhelmed by a sudden influx of refugees). Additionally, even in countries with functional vector control programmes, areas where displaced populations are located might not be adequately covered.

In turn, there can very well be a spillover effect of this influx of VBDs on the host populations. Therefore, control of VBDs within refugee settlements is beneficial not only to the displaced populations, but also to the hosting community.

According to Thompson (1995), the main factors to be considered in controlling VBDs in refugee settlements are as follows:

- Community awareness and health education
- Choice of settlement site
- Camp construction and organisation
- Shelter
- Sanitation
- Water-supply systems
- Personal protection
- Use of insecticides

Our policy recommendation will focus on the fourth point, namely, empowering refugee communities through community awareness and health education, for several reasons:

- Any vector control programme requires the co-operation of the target communities.
- When provided with the appropriate information and guidance, people living within the refugee camps can be instrumental in activities such as the identification of vector activity hotspots and vector breeding sites and the dissemination of

protective knowledge and behaviours around the community. Working with refugee populations as active participants in vector control programmes would help develop and strengthen social cohesion within the refugee community, providing a much-needed level of empowerment and control over their lives.

A starting point should be the UNHCR's approach of "people-oriented planning" (UNHCR, 1994). The World Health Organization, in its 2015 publication "Vector Control and Personal Protection of Migrant and Mobile Populations in the GMS: A Matrix Guidance on the Best Options and Methodologies," also suggests that to put in place mitigation and control measures for vector-borne diseases, "significant time and resources should be put towards conducting community consultations and formative assessments to develop the appropriate materials." What applies in the GMS (Greater Mekong Sub-region) would equally apply in the EMME region.

Throughout this process, attention must be paid to the diversity of refugee communities, to conflict sensitivity and to participatory processes. The ultimate goal would be the 25% reduction, over a decade, of the incidence of VBDs in the major refugee camps in the EMME region, as well as refugee communities that are permanently empowered and engaged in the implementation of public health policies which affect them.

Implementation issues

Action plan

The action plan will emerge as a result of the participatory processes.

Actions needed for implementation

- Work with the countries involved in the Climate Change Initiative to identify the largest refugee camp in their territory, and to openly endorse the participatory processes.
- Work with international agencies operating in these camps and health officials from those countries to learn more about existing approaches, and identify representatives from these refugee communities, preferably with a medical, educational or healthcare background.
- From these communities, form public health committees in each major refugee camp, which will act as a liaison between their communities and local public health officials and international organisations, as channels for educational initiatives and as sources of information for new outbreaks.
- Create a permanent enabling policy framework which explicitly recognises these refugee public health committees as legitimate interlocutors.

Agencies responsible for implementation

Ideally, this would work best if it were taken on as a project by one of the large international organisations working closely with refugee health in the region: UNHCR, IOM, Médecins Sans Frontières, WHO, the United Nations Children's Fund, etc., in collaboration with local authorities in each country.

Level of readiness for implementation

The concept is sound, but many participatory consultations need to take place before implementation can proceed, as well as a series of high-level meetings with policy makers in the region and with practitioners from international organisations in order to avoid duplicating or hindering existing efforts.

Funding needed

If the work is limited to the creation of a favourable policy environment, and to the participatory consultations, the budget can be low. If it is linked to actual VBD control measures (distribution of protective materials, insecticide campaigns, etc.), then the budget will be high.

Suggested funding sources

EU neighbourhood programmes, EuropeAid (like the recent Climate and Conflict call for proposals), national public health funding sources, international organisations.

Potential role of scientific organisations in supporting the policy

The main role of scientific organisations would be to ensure that the details regarding the linkages between climate change and VBDs, and the necessary measures for control of VBDs, are solidly grounded in the latest epidemiological knowledge. Scientific and academic organisations (i.e. medical schools, research institutes) would play a major role in developing educational material that is technically sound and presented in a format that is appropriate for the target population (correct language, respects cultural protocols, etc.).

Furthermore, advanced college students could, as part of their training, be involved in community education efforts, liaising with the refugee health committees and national public health authorities.

Other players in the area potentially involved with the policy

UNHCR, WHO, IOM, Médecins Sans Frontières, local health authorities – and especially communities within the refugee camps themselves.

Opportunities to be generated

The creation of permanent public health committees within refugee camps can create job opportunities for refugee populations, as well as educational opportunities, but above all ensure improvement of the public health situation not only for refugee communities but

for host communities too. This will be complemented with opportunities for empowerment and the building of self-esteem.

If universities are involved, the proposal could create interesting training opportunities for young professionals in several fields, including medicine, vector biology, public health and social work.

Local content/value added/generation of local value/jobs, regional value added

In addition to the above, there is potential to scale up the local solutions that emerge from this effort into a concerted regional initiative.

5.3. Policy recommendation 3

Short policy name

Climate Oases deals

Policy objective

Criteria for success include:

- Number of green jobs created in each community
- Number of communities adopting the Green Oases deals
- Amount of financing by the European Union and other large donors in the Green Oases deals
- Number of displaced people returning to their home communities as a result

Expected policy impact

The policy impact would be a paradigm shift in the policy approach to migration, refocusing it towards creating community resilience and green jobs, and thus incentives for people to stay or even return to their home communities, in the wake of improved prospects. This policy recommendation would also link policies dealing with climate adaptation to those dealing with migration, recognising that they are inextricably linked.

Policy type

Localised policy measures/demonstration/pilots.

Coverage territory

First applied as pilots in selected communities which are at high risk, the localised “Green Deal” pilots can then be replicated in other areas and connected into a regional network.

Short description

This policy measure involves identifying areas vulnerable to climate-driven migration, and, in consultation with local communities there, developing tailor-made local “Green Deals” which will stimulate green jobs and green entrepreneurship (in particular through innovative climate adaptation measures), build community capacity and resilience, and as a result reduce incentives for emigration.

Linkages

Goal(s)

- Increased community resilience to climate change
- Creation of green jobs
- Creation of incentives to reduce the pressure to emigrate

Measures

- Community consultations/needs assessment
- Training (entrepreneurship, innovation, green jobs)
- Establish incubators for green jobs
- Fundraising among international donors, in particular the European Union
- Creating an enabling policy environment for the Green Deals at the national and local level

Other EMME-CCI recommended policies towards the same goal

- This initiative will be closely linked to the **CLIMIV Index** (Policy Recommendation No. 1), since the CLIMIV will help identify the most vulnerable areas which could benefit from becoming Green Oases pilots.
- Since this initiative emerged from the **Biodiversity Havens** policy framework, it will be intimately linked to that and to the more specific **Biodiversity Oases** policy recommendation (Policy Recommendation No. 5).

Related broader initiatives

- The MedECC network, founded in 2015, is developing a special report on Environmental Change, Conflict and Human Migration. It is important to build synergies between their work and all the policy measures of the EMME-CCI Migration Task Force.
- The European Green Deal: https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en.

- The UNEP Global Green New Deal: <https://www.unep.org/resources/report/global-green-new-deal-policy-brief-march-2009>.
- IOM guidelines for mainstreaming environmental considerations into reintegration programming consider specific elements of the creation of green jobs and support for green entrepreneurship for returnees: <https://environmentalmigration.iom.int/guidance-mainstreaming-environmental-and-climate-considerations-reintegration-programming>.

Connection to policy frameworks

This initiative emerged from the wider Biodiversity Havens Framework.

Connection to Sustainable Development Goals

This initiative is deeply connected to a range of SDGs, in particular: SDG 1 (no poverty), SDG 8 (decent work and economic growth), SDG 9 (industry, innovation and infrastructure), SDG 11 (sustainable cities and communities) and SDG 13 (climate action).

Timing

Implementation timing

Pilots could be implemented within a few months of inception, following identification of vulnerable communities and community consultations. However, putting in place enabling policy environments and scaling up would only be possible on a large scale after the pilots have demonstrated their value (i.e. 45 years after inception).

Effect/impact timing

The initial impacts would be seen after four or five years.

Preconditions and challenges/objections

Preconditions include the willingness of:

- Selected communities to implement the pilot
- International donors, and especially the European Union, to invest in such schemes
- National policy makers to create an enabling policy environment for these pilots to thrive

Description

Sustainable development can lead to good local jobs, if designed and implemented well, which includes active local participation and a holistic approach. They reduce the desire for conflict and even more so for emigration. Good jobs through sustainable development, however, don't just mean the hand-weaving of baskets to replace imported plastic

shopping bags. It means, for example, jobs in the production of electricity-producing wind turbines to replace imported oil for producing electricity.

Policy makers would do well to investigate, study the feasibility, draft a business plan, evaluate and apply “local green deals” or “climate oasis deals” for small, poor and conflict-affected pilot areas (not all conflict areas are poor). A “climate oasis deal” is a long term (1020 year) agreement that would provide to the pilot area (be it a village, an inner-city neighbourhood, a biodiversity-protected area, etc.) investment in know-how, education, training and green production facilities (including agriculture) under a participatory designed and agreed upon plan for neutral carbon and neutral migration.

Mitigation of climate change requires a change in consumption habits and energy use. This is difficult and expensive. It requires education and participation in sustainable development through social, private and personal investment. People in poor areas vulnerable to conflict have other pressing priorities, leading to unsustainable development, high emissions (per energy unit, not per person), increasingly environmentally unfriendly consumption and lack of jobs – a key driver for migration. Clean renewable energy production and good sustainable development jobs are non-extant; older traditional sustainable ways of life are disappearing. What interventions and what resources, monetary and otherwise, would it take to transform a small, but not tiny, poor and conflict-ridden area into a green development oasis? Could a “local green deal” be made with a pilot area under which sustainable development investment would lead to good jobs in return for green consumption and non-emigration?

Implementation issues

Action plan

An action plan will be inspired by a range of Green Deal models implemented around the world, including the European Green Deal and also the 2009 UNEP plans for a New Global Green Deal.

Actions needed for implementation

- Identification of target communities most vulnerable to climate-driven migration
- Community consultations and training
- Establishment of incubators and investment by the international community
- Development of pilots
- Creation of an enabling policy environment
- Scaling up to national and regional levels

Agencies responsible for implementation

Ideally, the European Union would take the lead, in co-operation with national governments of the EMME, or international/UN organisations with experience in sustainable development (e.g. United Nations Development Programme).

Level of readiness for implementation

All the necessary skills exist among the Task Force members to implement such an initiative, but since it requires the creation of an enabling policy environment in host countries, some negotiation with decision makers in those countries will be essential for implementation, as will negotiations with potential investors such as the European Union.

Funding needed

It is estimated that EUR 20 million would be needed over a three-year period for each target community. Thus the total amount will depend on the number of target communities. Estimating a starting number of 10 communities, then a sum of EUR 100 million would be needed, but a large share could be in the form of investments and loans which would eventually yield returns on investment.

Suggested funding sources

The European Union is suggested as the primary source of funding. Investing in the Green Oases deals should be seen as part of the EU strategy to reduce pressures for migration through local development programmes.

Potential role of scientific organisations in supporting the policy

Scientific organisations can help with identifying the most vulnerable target communities, and in particular by providing data on the social cohesion and climate change models for the target areas. In addition, they can provide the necessary educational and training resources, as well as innovation know-how.

Other players in the area potentially involved with the policy

International development organisations (United Nations Development Programme), organisations dealing with migrants and refugees (UNHCR, IOM, etc.), national policy makers and the local communities themselves.

Opportunities to be generated

- Jobs
- Increased climate resilience
- Reduced migration pressure from climate change

Local content/value added/generation of local value/jobs, regional value added

- Job creation
- Increased climate resilience
- Reduced pressure for exodus from climate change

5.4. Policy recommendation 4

Short policy name

Enabling policy frameworks integrating climate-driven migration

Policy objective

Most countries in the EMME region implement a coherent legal framework to protect climate-driven IDPs or refugees, based on existing international climate and migration treaties.

Expected policy impact

The policy impact would be for countries in the EMME region to adapt their legal frameworks so as to officially recognise climate migration as a valid climate adaptation measure as well as protect the rights of climate-driven migrants and ensuring their integration at their destination.

Policy type

This is an overall policy framework focused on adaptation.

Coverage territory

Although each nation within the EMME region would have to go through its own legislative processes to embed these policies within national legal frameworks, the hope is that similar frameworks can eventually be put in place throughout the EMME region. It is likely that at first only a minority of countries will implement this framework, to be later followed by others.

Short description

The idea is to create, based on international best practices and existing international treaties to which EMME states are parties (rather than negotiating a whole new set of international legislation), a set of policy framework guidelines to be included into the national legislation of EMME countries, recognising climate migration as a valid climate adaptation measure and providing an enabling policy environment to capture this reality.

Linkages

Goal(s)

Improving the quality of life and successful integration of climate-driven migrants.

Measures

- **Gather relevant data:** Use the CLIMIV Index and other sources to gather relevant local data on climate and migration in order to adapt policies to the local context.
- **Promote multidisciplinary co-ordination:** Build national task forces to ensure that climate and migration practitioners, researchers and policy makers take concerted action based on the same information base.
- **Involve migrants:** Recognise migrants as actors who can contribute to a green transition through their human capital in their destination areas and through financial support for initiatives in their areas of origin. Develop participatory democracy approaches to include migrant representatives.
- **Link social integration with climate adaptation and mitigation measures:** Promote social integration, create jobs through climate adaptation/mitigation and implement sustainable development initiatives in migration destination areas. Linking migrant integration measures to climate adaptation measures helps to avoid “maladaptation” measures. Create a policy framework that recognises migration as a valid climate adaptation measure.
- **Transposing existing international policy frameworks:** Consolidate national legislation to align them with existing international migration and climate change treaties, to be mutually consistent within and across nations of the EMME. Support the most vulnerable countries to effectively translate relevant international policy frameworks into national ones.
- **Creation of an enabling policy environment,** enshrining the rights of climate migrants, whether they are internally displaced or refugees, into national legislation based on existing international treaties.
- **Funding:** Identify international and national sources of financing for the application of these measures, based on a paradigm shift away from conceiving migration as a negative phenomenon to one of investing in the positive human capital of migrants in destination areas.
- **International co-operation:** In particular, expand regional freedom of movement agreements to allow people to move away from areas which can no longer support them.

Other EMME-CCI recommended policies towards the same goal

- **The Climate and Migration Vulnerability (CLIMIV) Index** (Policy Recommendation No. 1) will be of vital importance here, since it aims to target communities most vulnerable to climate-driven migration. As such, the tool can help inform area-specific policies.
- **Climate Oases deals** could be adapted from areas at risk of emigration to destination areas.

Related broader initiatives

- The Global Compact for Safe, Orderly and Regular Migration³¹ has recently started raising the profile of environmental and climatic drivers of migration.
- The Nansen Initiative:³² At the 16th Conference of Parties of the UNFCCC in Cancun (CoP 16, in 2010), member states for the first time officially recognised climate-induced migration as an adaptation challenge, and agreed to co-operate further to better understand and address this challenge. One outcome of this was the stated Nansen Initiative, initiated by a pledge in 2011 by Norway and Switzerland to develop a more coherent approach. Many countries have since then joined Norway and Switzerland in these efforts, working under the umbrella of the Nansen Initiative towards a protection agenda for people displaced by disasters and climate change.
- The MedECC network, founded in 2015, undertakes work relevant to all the policy measures recommended here.

Connection to policy frameworks

This will link to all the aforementioned policy frameworks and recommendations:

- The CLIMIV Index to help identify vulnerable areas and area-specific policies
- The VBD proposal for the refugee or IDP camps
- Local Green Oases deals – as applied to destination areas
- The Biodiversity Havens policy framework to improve the carrying capacity of ecosystems to handle larger numbers of climate-driven migrants

Connection to Sustainable Development Goals

This policy connects with several SDGs, but in particular SDG 8 (decent work and economic growth), SDG 11 (sustainable cities and communities), SDG 13 (climate action) and most of all SDG 16 (peace, justice and strong institutions).

31. <https://refugeesmigrants.un.org/migration-compact>.

32. <https://environmentalmigration.iom.int/projects/nansen-initiative>.

Timing

Implementation timing

A range of international climate and migration treaties already contain many of the relevant protections for migrants, which should also apply to climate-driven migrants, whether they are refugees or IDPs. But transposing these policies and frameworks into a variety of disparate local legislations, as well as negotiating the assent of decision makers for this process to take place, will require a time frame of several years, if not a decade.

Effect/impact timing

As above.

Preconditions and challenges/objections

- Preconditions:
 - A solid evidence base to convince policy makers of the need for action
 - Willingness among policy makers to work towards the better integration and protection of climate migrants
 - A recognition among decision makers that while prevention is a priority, in some cases, migration is a better option than becoming trapped in a climate-affected area
- Challenge: Very few examples of such concerted and systematic policy changes exist anywhere in the world.

Description

It is important to understand that there are valid reasons for objecting to the creation of a distinct and official “climate refugee” legal status, which is not currently internationally recognised. For example, organisations such as the IOM (Ionesco, 2019) argue, quite rightly, that while migration *is* a climate adaptation strategy:

- Climate migration is mainly internal.
- Migration is not necessarily forced.
- Isolating environment/climatic reasons for migration is difficult.
- A focus on the climate can lead to the exclusion of other categories of people who need protection.
- Opening the 1951 Refugee Convention might weaken refugee status in general.
- Creating a new convention would be a complicated political process, which would require high levels of consensus that might be difficult to attain.

- Climate migration discussions should not lose their focus on preventive measures.
- A broader human-rights-based approach is needed.
- Regular migration pathways can provide relevant protection for climate migrants.

However, that is not to say that climate refugees do not exist. The term “climate refugee”, although not a legally recognised one, might best describe people in specific cases where:

- Migration is forced
- The climate linkage can be conclusively proven (see the CLIMIV Index proposal)
- The migration is transboundary.

So while people who flee climate-related disasters (floods, etc.) or longer-term climate impacts (extreme heatwaves, rising sea levels, etc.) may resemble “refugees”, they generally do not benefit from that legal status, and yet, climate migrants (whether internally displaced or refugees) will need the same protection as other migrants.

In a recent report commissioned by the European Parliament, a very lucid statement was made: “Rather than simply a reaction to climate change or disasters themselves, **migration should also be understood as an adaptation strategy**, a way to cope with related impacts on lives and livelihoods. Migration thus needs to be part of the solution both in respect to internal and cross-border situations, for example, through facilitating migration and making it an option for a larger group of people through planned relocation in internal situations or through considering environmental factors in the context of resettlement, amongst others” (European Parliament, 2020). Indeed, Mosello et al. (2021) also argue that climate migration can be a viable adaptation strategy (as long as it happens within an enabling policy framework). The European Parliament report (2020) also made important policy recommendations which can serve as inspiration for policy in the EMME region:

- Develop a coherent policy to address migration in the context of climate change and natural disasters and mobility in the external dimension.
- Push for forward-looking asylum and migration policies at the internal level, which take into account climate change and natural disasters alongside other emerging challenges.
- Strengthen various forms of assistance to countries particularly affected by environmental disasters as well as environmental and climate change more broadly as well as step up climate change policies more broadly.

Based upon the principles agreed upon at the UNFCCC COP16 in Cancun, and in particular paragraph 14 (f) of the Cancún Outcome Agreement (whereby states recognised climate-change-induced migration, displacement and relocation as an adaptation challenge, and agreed to enhance their understanding and co-operation in this respect) and based upon the principle of the **Nansen Initiative**, the recommended policy framework would achieve the best results if it involves co-operation across the EMME region. Having said that, however, the first step is for individual countries to integrate relevant policy measures into their national policy frameworks.

In support of this, a set of participatory (i.e. involving migrants as interlocutors) and multi-disciplinary consultations and mapping exercises could be conducted throughout the region, to collect information on the current policy environment in each country, identifying best practices from the region and beyond and identifying the needs of the most vulnerable communities. These efforts would rely on the CLIMIV Index (see Policy Recommendation No. 1) to help map the most vulnerable climate-migration hotspots. Once the consultations and research have been completed, policy briefs will be prepared for policy makers in each country, and presented to them in the hope that they will be integrated into the national legislative frameworks. The policy briefs will be adapted to local contexts, taking into consideration conflict, cultural and other particularities and sensitivities.

Implementation issues

Action plan

A policy framework like the one recommended does not exist in the region or indeed in most parts of the world. However, concrete recommendations have already been published by Mosello et al. (2021), UNHCR (2020d, Podesta (2019), Ionesco and Chazalnoel (2015), IOM and many others. The idea is not to create brand-new international policy frameworks but instead to adapt existing ones to local contexts and ensure that these policies create an enabling environment for the successful integration and protection of those who have no choice but to migrate as a result of climate change. The first phase (research, mapping, etc.) would determine the action plan.

Actions needed for implementation

- Consultations, research and mapping
- Production of policy briefs adapted to various countries in the EMME
- Negotiation with member states to:
 - Adopt these policies into national legislation
 - Agree to co-operate regionally to standardise policies and practices

Agencies responsible for implementation

Relevant policy needs to be implemented by governments themselves, although various UN agencies and other actors can support them in this process.

Level of readiness for implementation

Currently, the level of readiness for implementation is rather low, but the entire objective of this initiative is to create a paradigm shift throughout the region.

Funding needed

This project does not require infrastructure or equipment, but it does have a very broad regional scope. A reasonable budget estimate to complete this initiative would be EUR 23 million.

Suggested funding sources

National governments, international agencies, the European Union, etc.

Potential role of scientific organisations in supporting the policy

The first phase of this initiative is a broad consultation and research phase. Academic institutions with strong social science departments will be solicited to contribute to this. Scientific institutions with expertise in climate change will also be solicited to contribute since this measure will rely heavily on evidence-based policy making, and for that we will need detailed climate projections for the region.

Other players in the area potentially involved in the policy

This is a multi-disciplinary effort which needs to bring together and co-ordinate climate and migration experts, researchers, policy makers, civil society organisations and international organisations to pool their knowledge and produce a concerted policy framework grounded in evidence.

The UNHCR and IOM have been particularly active in this domain, being connected on the ground with both policy makers and migrant communities, as well as being knowledgeable about the relevant international treaties and frameworks both relating to climate change and migration.

Most importantly, this needs to be a participatory process which involves the migrant communities themselves, both as interlocutors and as actors, who can both contribute to climate adaptation measures in their destination areas, and provide, for example, through their remittances, support for similar measures in their areas of origin.

Opportunities to be generated

The new consistency in approach afforded by this policy change would result in much better opportunities for the successful and constructive integration of migrants in their areas of destination.

Efforts at climate adaptation would be improved by the acknowledgement that migration is a climate adaptation strategy and by the linking of climate and migration policy frameworks.

The security of climate-driven migrant populations would be enhanced.

Local content/value added/generation of local value/jobs, regional value added

Co-benefits of the policy framework include opportunities for climate-driven migrants to better integrate into host societies and thus contribute more productively to these host societies.

5.5. Policy recommendation 5

Short policy name

Biodiversity Oases

Policy objective

Overall objective

Ultimately, this action would provide pathways to conflict transformation and climate adaptation for the EMME region, based on a series of participatory pilot projects (the “Biodiversity Oases”), centred on the protection of biodiversity, ultimately leading to the creation of incentives to reduce the pressure for climate- or conflict-driven exodus and migration.

Specifically, the aim is the:

- **Creation of Citizens’ Biodiversity Councils (CBCs):** Demonstration of participatory models for local community engagement and participation in the protection of biodiversity as a means to create green jobs, adapt to climate change and transform conflict into co-operation.
- **Establishment of the “Biodiversity Qanat”:** Networking the CBCs into a loose regional network and channel of communication, allowing communities throughout the EMME region to transcend their boundaries and conflicts to protect their shared natural heritage.

Expected policy impact

Final beneficiaries of this policy measure would be the wider societies in the countries involved, as well as decision makers, who would be provided with the tools to transcend such transboundary conflicts and to implement conservation and climate adaptation measures which are accepted by local communities, who have a large share of ownership of those measures since they helped to co-design them.

Policy type

This can best be described as a sustainable development initiative with downstream policy implications (transboundary co-operation on biodiversity conservation, implementation of biodiversity-sensitive climate adaptation policies, an enabling policy environment for participatory development, etc.)

Coverage territory

While the initiative will start with local pilot areas (i.e. the “Biodiversity Oases”), the idea is then to network these oases into a regional, EMME-wide co-operative network (“the Biodiversity Qanat”).

Short description

This proposed initiative will start by identifying communities in the EMME region where climate and conflict are exerting pressure both on the local ecosystems/biodiversity and on the local societies themselves, thus creating pressure for migration away from those areas. Several pilot areas will be selected, where conflicting communities will, through a participatory development process, be trained and empowered to protect their common natural heritage, and as a result, enable improved climate resilience, climate adaptation and conflict transformation. The pilot areas will be known as “Biodiversity Oases”, and they will be networked together into a regional forum known as the “Biodiversity Qanat”, which will allow communities to exchange knowledge and best practices on biodiversity conservation and climate adaptation. The ultimate result of this initiative will be to increase community resilience to climate change, to dampen local conflicts and, as a consequence, to reduce pressures for migration (Jarraud and Lordos, 2012; IPCC and IPBES, 2021; Bowles, Butler and Morisetti, 2015; Kelley et al., 2015; Newbold et al., 2016; Dudley and Alexander, 2017; Le Page, 2021; IUCN, 2020; Sills, 2019; Turoğlun and Uludağ, 2013).

Linkages

Goal(s)

- Climate adaptation
- Community resilience

- Biodiversity conservation
- Conflict transformation
- Reduced pressure to migrate
- Increase in the carrying capacity of ecosystems to handle population movements

Measures

- **Pilot area scoping studies (Year 1)**
- Participatory **Citizens' Biodiversity Councils** in all four to six pilot areas identified in the scoping studies (**Year 1**)
- **Co-designed education and training materials** (sustainable development, biodiversity conservation, climate adaptation, advocacy, etc.) (**Year 2**)
- **Co-designed biodiversity and climate adaptation measures** in all pilot areas (**Year 2**)
- **The Biodiversity Qanat:** network and communications channel for the CBCs to exchange knowledge and best practices, leading to upscaled recommendations (published in a report and online) for protecting biodiversity in the wider region (**Year 3**)
- **A preparatory framework** for a regional plan for biodiversity and climate adaptation measures for the EMME region, composed of best practices and materials emerging from the four to six pilot areas (**Year 3**)
- **Local green deals:** The project will help local communities in one or two of its pilot areas to develop business plans for "local green deals". These would build on the co-designed biodiversity conservation and climate adaptation measures and would help bring these to the attention of potential donors/investors who could invest in providing further know-how, education, training and actual facilities or infrastructure, in participatory dialogue with the CBCs, with the aim of creating green jobs in the pilot area, and thus also reducing incentives for conflict- or climate-driven exodus. (**Year 3**)

Other EMME-CCI recommended policies towards the same goal

- The **CLIMIV Index** (Policy Recommendation No. 1) to help identify the pilot areas
- The **vector-borne diseases proposal** (Policy Recommendation No. 2), insofar as addressing VBDs connects both with biodiversity and climate challenges, and insofar as the VBD proposal will be operating in refugee camps
- The **Climate Oases deals** (Policy Recommendation No. 3): These will be implemented as a subset of the Biodiversity Oases, and both initiatives will originate under the Biodiversity Havens policy framework.

Related broader initiatives

- The **International Union for Conservation of Nature's Green List** of Protected and Conserved Areas is the first global standard of best practices for area-based conservation.
- The **Convention on Biological Diversity (CBD)** is an international legal instrument for the conservation of biological diversity, ratified by 196 nations.
- **EU Natura programme** is the largest co-ordinated network of protected areas in the world.
- The **Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services** is an independent inter-governmental science-policy platform for biodiversity and ecosystem services.
- The **World Network of Biosphere Reserves** of the United Nations Educational, Scientific and Cultural Organization's Man and the Biosphere Programme, is a dynamic, participatory and interactive network.

Connection to policy frameworks

- **Climate observation hub:** Modelling of climate-driven spread of VBDs can be used to inform this policy framework.
- **Biodiversity Havens policy framework:** Increases the carrying capacity of ecosystems to cope with increased displaced populations, and increases the overall biodiversity of ecosystems as a buffer to mitigate the impact of climate change, and thus reduce the risk of climate-induced migration.

Connection to Sustainable Development Goals

This proposed policy touches upon a range of SDGs, but in particular: SDG 13 (climate adaptation), SDG 14 (life below water), SDG 15 (life on land), SDG 16 (peace, justice and strong institutions), SDG 17 (partnership for the goals), SDG 11 (sustainable cities and communities) and ultimately, SDG 3 (good health and well-being).

Timing

Implementation timing

This can be fully implemented as a three-year project.

Effect/impact timing

Impacts will start to become evident towards the end of the project (i.e. from three years on).

Preconditions and challenges/objections

Existing strengths and weaknesses among existing skill sets are listed in table 3, as are opportunities and challenges.

Description

Background

Climate change, conflict and biodiversity loss are among the three most important existential threats to the Anthropocene, and to a certain extent are mutually reinforcing, but are too often dealt with as separate problems. Human conflicts, so prevalent in the EMME region, are often connected to both climatic and biodiversity pressures. Reduced access to essential natural resources (water, arable land, etc.), driven by climate, conflict or biodiversity degradation, can lead to violence in societies already facing other stresses, with some authors suggesting that the Syrian conflict was in part a result of the 2007/10 droughts. Biodiversity is threatened by a range of human activity, with land use, and in particular agriculture, being the largest contributor, but climate change is a clear threat multiplier for biodiversity. Over the past few decades, the rich biodiversity of the EMME region has been in notable decline, and climate change is likely to accelerate this trend. Healthy ecosystems

TABLE 3. Status of preconditions of the Biodiversity Oases

<p>STRENGTHS</p> <p>The Task Force has the skill sets to cover all aspects of this project: education, peacebuilding/conflict resolution, citizen engagement/participatory development, climate change, biodiversity, green/sustainable development.</p> <p>The consortium members are well positioned throughout the EMME region, particularly in the selected pilot areas.</p>	<p>WEAKNESSES</p> <p>This is an ambitious project, bringing together three major axes of biodiversity conservation, climate adaptation and peacebuilding, each of which could be the object of its own self-contained project. Success will therefore depend on the judicious leveraging of the complementary skill sets of the consortium members, and on community uptake.</p> <p>The fact that this region is currently characterised by poor co-operation on environmental issues is a major structural weakness. The training of policy makers will be a critical component in addressing this.</p>
<p>OPPORTUNITIES</p> <p>This is an opportunity to tip the balance in the EMME region towards a more participatory approach to environmental action and conflict resolution. Addressing the environmental issues in question promises to indirectly support conflict resolution.</p> <p>This is an opportunity to move the EMME region towards a more co-operative approach towards transboundary environmental issues, based on a heightened awareness of being custodians of a shared natural heritage.</p>	<p>THREATS</p> <p>This project depends on the assumption that communities will agree to engage with the project and their regional peers.</p> <p>As in many countries in the region participatory approaches are seen by the authorities as disempowering them, in other words as a zero-sum game. A considerable amount of advocacy will be needed to ensure local authorities do not seek to minimise the consultative aspects of the project. The training of policy makers in participatory development can greatly benefit this process.</p> <p>There are limits to environmental peacebuilding when it comes to seemingly intractable conflicts. The aim is conflict transformation rather than conflict resolution (i.e. demonstrating pathways to reconciliation through environmental co-operation that will most likely be implemented by the members of the CBCs, if not by the entire societies within which they operate).</p>

have a greater carrying capacity to deal with movements of displaced populations, while population movements themselves can result in further environmental degradation. In summary, in the EMME region, climate change is a threat multiplier for biodiversity and for conflicts, while those conflicts are restricting the ability of societies to adapt to climate change, and further eroding the biodiversity on which populations depend to survive climate change.

Objectives

The Biodiversity Oases are based on the premise that biodiversity and the climate are ideal entry points for collaborative, participatory conflict transformation, and that both of these are affected by climate change. Bringing together local, participatory forums (CBCs) for biodiversity conservation and climate adaptation into a wider, regional knowledge exchange network (the Biodiversity Qanat) promotes a model of conflict transformation driven by climate adaptation and protection of shared natural resources, which can have an impact at the regional level.

Stakeholders

Communities in four to six pilot areas in the EMME region face three challenges: biodiversity degradation, climate change and conflict. **The communities at the sites chosen will be the primary stakeholders of this action** (the idea is to focus on “tandems” of two conflicting communities in each area). Examples of pilot areas could include the Palestinian-Israeli and Jewish-Israeli communities of the coastal city of Haifa (Israel), the Al Batuf Valley (Bet Netofa) in Northern Galilee (Israel), the UN-patrolled demilitarised buffer zone in Cyprus, the Gulf of Aqaba region (Jordan), the refugee camps on Lesbos island (Greece) and the Evros river on the Greek-Turkish border. Aside from the consortium partners, other stakeholders will include the national authorities of the countries we are operating in, as well as international agencies and civil society organisations operating already with the chosen communities.

Intervention logic

The overall intervention logic is centred on the complex interaction between conflict, environmental degradation and climate change, where each factor of this nexus is both a factor and an affected area. Conflicts and tensions are pervasive in the current systems of governance in the EMME region, in resource allocation and in the distribution of identity and cultures. They are already influencing the development of communities. This project is realistic in the sense that it does not expect that working in four to six pilot areas will put an end to deeply ingrained, possibly intractable conflicts. However, it will aim to demonstrate at a local scale the potential of environmental co-operation for providing pathways to conflict transformation. At the same time, this project is designed to

take a conflict-sensitive approach, enlisting conflicted communities which have indicated a willingness (with demonstrative steps) to put aside their conflict to work on common environmental problems (i.e. communities that would welcome such an intervention), and operating with local organisations which have a clear understanding of the local context. The participatory, co-design element of this project would also enable communities to share their local knowledge of biodiversity hotspots, and leverage efforts at biodiversity restoration and protection from climate change impacts. This conflict-sensitive approach does not address local divides directly but rather creates trust and relationships for the common good. Conflict resolution and mitigation will therefore emerge as a result of the focus on co-operation on joint measures to conserve a shared natural heritage and protect it from further biodiversity loss due to environmental and climate deterioration.

Cross-cutting issues

All the countries in the area of action of this proposed project are parties to the Convention on Biological Diversity, while the EU Member States involved are all part of the EU Natura 2000 programme, the largest network in the world of nature/biodiversity conservation areas. In 2020, the European Parliament published a study on biodiversity as a human right, and its implications for the European Union's external action. This study found that biodiversity and ecosystem degradation will undermine the achievement of 80% of the SDG targets, and that people's right to a healthy life depends on healthy and diverse ecosystems. On the latter point, for example, there is mounting evidence of the role of climate change in conflict, and migration, as well as in the spread of VBDs, and conversely of the positive role of biodiversity and healthy ecosystems as a buffer to mitigate these impacts. In parallel to the project's strong connection with a range of SDGs, the Cyprus Institute (through the Cyprus Research and Educational Foundation) is the physical home of the Sustainable Development Solutions Network (SDSN), Cyprus. Engaging the knowledge networks of SDSN Mediterranean and global networks will offer access to the vast global educational resources of the SDG Academy. Finally, this project will also support the development of deliberative democracy skills among target communities.

Particular value-added elements

The injection of biodiversity into the climate-conflict-migration nexus highlights a shared natural heritage around which collaboration can coalesce, and a visible example of the ravages of climate change. The composition of the consortium (Cyl, Heschel Center for Sustainability, EcoPeace Middle East Environmental, the University of the Aegean) provides added value, bringing together local knowledge from Cyprus, Greece, the Aegean Sea, Israel and Jordan as well as a complementary, multidisciplinary team with intimate knowledge of the geopolitical and environmental challenges facing the region, and of the

skills required for successful implementation: education, climate change, participatory development, sustainable development, advocacy, networking, biodiversity, etc. The fact that this action emerged out of the EMME-CCI initiative described earlier, an initiative which has been discussed and endorsed at regional political summits, and that already brings together experts and practitioners from all over the EMME region, provides this action with an additional level of legitimacy, and embeds it within wider efforts to address the specific needs of the region. The consortium plans to create additional added value by approaching major media partners (e.g. AP, AfP, Euronews, Al Jazeera, etc.) in order to ensure wide publicity for actions and outputs, and a solid social media identity from the onset. Finally, the engagement of SDSN will help ensure that these efforts are connected with the implementation of the SDGs in the region and can transcend national boundaries.

Implementation issues

Action plan

This policy has already been submitted as a proposal to the EuropeAid Conflict and Climate 2021 Call for Proposals, and as such, a detailed plan of action has already been developed, regardless of whether the project is funded or not within the framework of this particular call.

Actions needed for the implementation

- **Scoping of pilot areas** and target communities as well as associated stakeholders. (Year 1)
- **Community consultations** in selected communities (also involving international organisations and public authorities operating in the selected regions) within the four to six selected pilot areas. These will form the basis for recruiting participants in the CBCs and building acceptance within the communities for the project. (Year 1)
- **Sub-contracting of local expertise** to help with the establishment and facilitation of the local CBCs, as well as providing knowledge of local biodiversity, as well as local cultural and conflict sensitivities. (Year 1)
- **Establishing Citizens' Biodiversity Councils** in each pilot area: Education efforts will be focused on affected communities. The CBCs will extend to a social network between the pilot areas and within the wider region (the Biodiversity Qanat). (Year 1)
- **Co-design of educational/training courses** on biodiversity conservation, climate adaptation, sustainable development, etc. in the four to six pilot areas. The methodology will promote soft skills and attitudes related to conflict resolution, citizenship, communication, advocacy, co-operation, problem solving and critical thinking. Digital skills, where needed for the online communication and online citizen assemblies, will also be utilised. (Year 2)

- **Training of trainers for CBC members, activists and other local stakeholders** based on the co-designed educational/training materials. (Year 2)
- **Co-design of local biodiversity conservation and climate adaptation measures**, based on the training programme and participatory consultations via the CBCs. (Year 2)
- Put in place the “**Climate Oases deals**” in a subset of the pilot areas (see Policy Recommendation No. 3). (Year 3)
- **Establish the Biodiversity Qanat**: An online forum bringing together the four to six CBCs into a regional network and channel of communication. (Year 3)
- **Compile a regional framework** for biodiversity conservation, climate adaptation and conflict resolution, based on the best practices and measures emerging from the local co-design processes in the four to six pilot areas. (Year 3)
- **Organise a final symposium** of the Biodiversity Qanat members (i.e. the four to six CBCs) on biodiversity, climate and human security, resulting in a pre-conceptual regional (EMME) biodiversity and climate adaptation plan, addressing the challenges posed by climate change and conflict and leveraging the conservation of biodiversity to mitigate those challenges. (Year 3)

Agencies responsible for implementation

This project ideally would be implemented by a consortium of partners from across the region. Being multidisciplinary in nature, it would involve scientific institutions, nongovernmental organisations, international organisations, etc.

Level of readiness for implementation

Several institutions have already expressed an interest to support this measure: the Cyprus Institute, the University of the Aegean, the SDSN Network, the Cyprus Research and Educational Foundation, the Heschel Center for Sustainable Development, the ARAVA Institute, etc.

Funding needed

In its initial form, this project could be implemented for EUR 3.5 million.

Suggested funding sources

Funding has already been sought with EuropeAid’s Climate and Conflict 2021 call, but other sources of funding can be considered.

Potential role of scientific organisations in supporting the policy

This is a multidisciplinary policy by definition, but scientific organisations will in particular be needed to provide knowledge about climate change in the region, about biodiversity in

the region, about social cohesion and community resilience and of course, to co-design and deliver the training and education programmes.

Other players in the area potentially involved in the policy

International development agencies, international organisations working on development, migration and environment such as UNDP, UNEP, CBD, IOM, UNHCR, ESCWA, SDSN, PRIMA network, etc.

Opportunities to be generated

- Green jobs
- Healthier ecosystems and thus healthier lives and livelihoods
- Conflict transformation and resolution
- Improved community resilience
- Reduced pressures for migration
- Conservation of shared natural heritage

Local content/value added/generation of local value/jobs, regional value added

As above.

6. Summary and recommendations

The Eastern Mediterranean and Middle East (EMME) region is at the confluence of several global challenges: this highly populated region of almost 400 million inhabitants is not only suffering disproportionately from the effects of climate change, but it is also prone to a range of challenges, from environmental degradation, to economic challenges, to civic strife and conflicts, with migration being a major consequence.

Climate change in the region is expected to result, in the coming decades, in increased temperatures, more frequent heatwaves and decreased precipitation, with negative consequences for the natural environment and human societies. Climate change is also a clear threat multiplier, and although the full extent of its impact on migration at the present time is hotly debated, most analysts agree that it will play a larger role in decades to come as a driver of migration, either directly or indirectly. In this context, the goal of the EMME-CCI Migration Task Force was to review linkages between climate and migration in the region, identify knowledge and policy gaps and propose concrete policy recommendations and frameworks aimed at addressing the challenges posed by the climate-migration nexus.

Unfortunately, the policy landscape in the EMME region is characterised by a shortage of policies aimed at addressing the combined challenges of climate and migration, and a shortage of efforts aimed at transboundary co-operation to address these issues, combined with some major gaps in knowledge of the precise interaction between climate and migration in the region. Finally, although it is always preferable to address the root causes of migration through climate adaptation and other measures, it is clear that most such measures would come too late, or would be insufficient, to prevent forced migrations, and so must be accompanied by measures to ensure the well-being of internally or internationally displaced people, and to facilitate regular pathways for migration when necessary (i.e. recognising that migration can sometimes be a valid climate adaptation measure).

In consequence, the policy recommendations outlined in this report focus first and foremost on collecting data to inform the policy-making process (i.e. the CLIMIV Index), on prevention measures that promote community resilience and are conflict- and migration-sensitive (Climate Oases, Biodiversity Oases), and also on adaptive measures to improve the well-being of refugee and migrant communities in cases where migration is the best form of climate adaptation, and to help them better integrate in their host countries. These measures are classified in table 4 as short term (i.e. immediate), intermediate

TABLE 4. Proposed measures: Summary and timing

Proposed measure	Time frame
An Eastern Mediterranean and Middle East (EMME) Climate-Migration Vulnerability Index (CLIMIV Index): An evidence-based policy tool that is endorsed by policy makers in the majority of EMME countries, for identifying climate-driven migration hotspots.	Short term. This research component needs to precede all the other recommendations, which will use this index to focus their own interventions.
Enabling community engagement to control vector-borne diseases (VBDs) among displaced populations of the EMME region: The aim is to create, within refugee camps throughout the EMME region, community-based groups monitoring populations of disease vectors, as well as providing education to the displaced populations about VBDs (on hygiene measures, health measures, vaccination campaigns, etc.), early warning to authorities of VBD outbreaks and implementation of simple measures to reduce the likelihood of insect and other vectors breeding in refugee camps. Ultimately, the objective should be to see a 25% reduction in the incidence of VBDs within refugee camps within a decade.	Medium term
Climate oases deals: The aim is to foster community resilience to climate change and reduce the incentives for migration through the creation of a significant percentage of green jobs through the implementation of concrete climate adaptation measures.	Medium term
Enabling policy frameworks integrating climate-driven migration: This recommendation recognises that in many cases, migration will be a valid climate adaptation measure, that most climate migration would be internal, that climate change drivers are difficult to prove and that not all migration is forced. As such, the idea is to promote the consistent integration into national legislation throughout the EMME of existing international treaties and policy frameworks which recognise the climate-migration linkages, to protect and integrate migrants, whether they are internally displaced or refugees, and to engage with them as actors in the climate adaptation struggle.	Long term
Biodiversity oases: Based on the premise that healthy ecosystems act as buffers against the worst impacts of climate change, and build community resilience, this initiative will provide pathways to conflict transformation and climate adaptation for the EMME region, based on a series of participatory pilot projects centred on the protection of biodiversity, ultimately leading to the creation of incentives to reduce the pressure for climate- or conflict-driven exodus and migration.	Medium term

(i.e. by 2030) and long term (mid-century and beyond), referring to the expected completion of each measure (the inception of all measures should be immediate).

In order for any of these suggested policy measures, frameworks and initiatives to be successful, we must first address the massive gaps in knowledge of the climate-migration nexus in the EMME region. The CLIMIV Index (Policy Recommendation No. 1) will contribute to that, but the Migration Task Force must also join forces with the MeDeCC network, which, having produced a report on climate change in the Mediterranean, is now launching a series of reports on many of the same subjects that the EMME-CCI is studying, including migration.

References

- Abel, G.J., Brotrager, M., Crespo Cuaresma, J., & Muttarak, R. **2019**. Climate, conflict and forced migration. *Glob. Environ. Chang.* **54**:239–249. DOI: <https://doi.org/10.1016/j.gloenvcha.2018.12.003>
- Al-Delaimy, W. **2020**. Vulnerable Populations and Regions: Middle East as a Case Study. in: “Health of People, Health of Planet and Our Responsibility: Climate Change, Air Pollution and Health”, W. Al-Delaimy, V. Ramanathan, and M. Sanchez Sorondo, Eds. Cham, Switzerland: Springer Open, pp. 121–133.
- Anderson, M. **1994**. “People-Oriented Planning at Work: Using POP to Improve UNHCR”. A Practical Planning Tool for Refugee Workers by Mary B. Anderson, Collaborative for Development Action, Inc. Geneva, 1994. <https://www.unhcr.org/3bfa3daa4.pdf>
- Baldwin-Edwards. **2005**. *Migration in the Middle East and Mediterranean*. A Regional Study Prepared for the Global Commission on International Migration. https://www.iom.int/sites/g/files/tmzbdl486/files/jahia/webdav/site/myjahiasite/shared/shared/mainsite/policy_and_research/gcim/rs/RS5.pdf
- Balsari, S., Dresser, C., & Leaning, J. **2020**. Climate Change, Migration, and Civil Strife. *Current Environmental Health Reports*, **7**(4): 404–414. DOI: <https://doi.org/10.1007/s40572-020-00291-4>
- Bastien, A., Baillat, A., & Gemenne, F. **2017**. RAPPORT D'ETUDE N°1 - Rétrospective et typologie de crise 1. Observatoire défense et climat. https://www.iris-france.org/wp-content/uploads/2017/02/OBS-Climat-et-defense_RE1_02-17.pdf
- Benveniste, H., Oppenheimer, M., & Fleurbaey, M. **2020**. Effect of border policy on exposure and vulnerability to climate change. *PNAS*, **117** (43): 26692–26702. DOI: <https://doi.org/10.1073/pnas.2007597117>
- Black, R., Adger, W.N., Arnel, I.N.W., Dercon, S., Geddes, A., & Thomas, D. **2011**. The effect of environmental change on human migration. *Glob. Environ. Chang.* **21**: S3–S11. DOI: <https://doi.org/10.1016/j.gloenvcha.2011.10.001>
- Boas, I., Farbotko, C., Adams, H., Sterly, H., Bush, S., van der Geest, K., Wiegel, H., Ashraf, H., Baldwin, A., Bettini, G., Blondin, S., de Bruijn, M., Durand-Delacré, D., Fröhlich, C., Gioli, G., Guaita, L., Hut, E., Jarawura, F.X., Lamers, M., Lietaer, S., Nash, S.L., Pigué, E., Rothe, D., Sakdapolrak, P., Smith, L., Tripathy Furlong, B., Turhan, E., Warner, J., Zickgraf, C., Black, R., & Hulme, M. **2019**. Climate Migration Myths. *Nature Climate Change*, **9**: 901–903. DOI: <https://doi.org/10.1038/s41558-019-0633-3>
- Bower, E., & Weerasinghe, S. **2021**. “Leaving Place, Restoring Home: Enhancing the evidence base on planned relocation cases in the context of hazards, disasters and climate change”. Platform on Disaster Displacement. <https://disasterdisplacement.org/portfolio-item/leaving-place-restoring-home>
- Bowles, D.C., Butler, C.D., & Morisetti, N. **2015**. Climate change, conflict and health. *Journal of the Royal Society of Medicine* **108**(10): 390–395. DOI: <https://doi.org/10.1177/0141076815603234>
- Buhaug, H. **2015**. Climate–conflict research: some reflections on the way forward. *WIREs Climate Change*. DOI: <https://doi.org/10.1002/wcc.336>
- Buhaug, H., Nordkvelle, J., Bernauer, T., Böhmelt, T., Brzoska, M., Busby, J.W., Ciccone, A., Fjelde, H., Gatzke, E., Gleditsch, N.P., Goldstone, J.A., Hegre, H., Holtermann, H., Koubi, V., Link, J.S.A., Link, P.M., Lujala, P., O’Loughlin, J., Raleigh, C., Scheffran, J., Schilling, J., Smith, T.G., Theisen, O.M., Tol, R.S.J., Urdal, H., & von Uexkull, N. **2014**. One effect to rule them all? A comment on climate and conflict. *Climatic Change*, **127**: 391–397. <https://link.springer.com/article/10.1007/s10584-014-1266-1>
- Chazalnoel, M.T., & Ionesco, D. **2021**. “Environmental migration–multifarious solutions to engage now”. Published by The European - Security and Defence Union. <https://environmentalmigration.iom.int/environmental-migration-%E2%80%93-multifarious-solutions-engage-now>
- Clement, V., Kumari Rigaud, K., de Sherbinin, A., Jones, B., Adamo, S., Schewe, J., Sadiq, N., & Shabahat, E. **2021**. “Groundswell Part 2: Acting on Internal Climate Migration”. Washington, DC: the World Bank. <https://openknowledge.worldbank.org/handle/10986/36248>
- Crawford, A., & Donaldson, J. **2021**. “Climate Security and Peacebuilding in a Time of Converging Crises”. IISD blogs. <https://www.iisd.org/articles/climate-security-and-peacebuilding-time-converging-crises>

- Crawford, A., & Brown, O. **2009**. *Rising Temperatures, Rising Tensions: Climate change and the risk of violent conflict in the Middle East*. An IISD publication: <https://www.iisd.org/publications/rising-temperatures-rising-tensions-climate-change-and-risk-violent-conflict-middle>
- Dudley, N., & Alexander, S. **2017**. Agriculture and biodiversity: a review. *Biodiversity*, **18** (2-3): 45-49. DOI: <https://doi.org/10.1080/14888386.2017.1351892>
- EMME-CARE project (Cyprus Institute), **2021**. Vision. <https://emme-care.cyi.ac.cy/about>. Last accessed: 29/06/21.
- EMME-CCI. **2021**. Report of the Cultural Heritage Task Force
- EMME-CCI. **2021**. Report of the Energy Task Force
- EMME-CCI. **2021**. Report of the Health Task Force.
- EMME-CCI. **2021**. Report of the Physical Basis Task Force.
- ESCWA. **2019**. "The Global Compact for Safe, Orderly and Regular Migration: The Promise of Making Migration Work for all in the Arab Region". Link: https://archive.unescwa.org/sites/www.unescwa.org/files/publications/files/global-compact-safe-orderly-regular-migration-english_2.pdf
- ESCWA. **2020**. "Situation Report on International Migration 2019: The Global Compact for Safe, Orderly and Regular Migration in the Context of the Arab Region". https://archive.unescwa.org/sites/www.unescwa.org/files/publications/files/situation-report-international-migration-2019-english_1.pdf
- European Parliament. **2020**. "Climate Change and Migration - Legal and policy challenges and responses to environmentally induced migration". Document requested by the European Parliament's Committee on Civil Liberties, Justice and Home Affairs. Link: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/655591/IPOI_STU\(2020\)655591_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/655591/IPOI_STU(2020)655591_EN.pdf)
- Finlayson, C. **2005**. Biogeography and evolution of the genus *Homo* *Trends in Ecology and Evolution*, **20** (8):457-463, DOI: <https://doi.org/10.1016/j.tree.2005.05.019>
- Fraser, E.D.G. **2003**. Social vulnerability and ecological fragility: Building bridges between social and natural sciences using the Irish Potato famine as a case study. *Ecol. Soc.* **7**(2). DOI: <https://doi.org/10.5751/es-00534-070209>
- Geddes, A. **2015**. Governing migration from a distance: interactions between climate, migration, and security in the South Mediterranean. *European Security*, **24**(3):473-490. DOI: <https://doi.org/10.1080/09662839.2015.102819>
- Gemenne. **2010**. Migration: a possible adaptation strategy. *Synthèses*, **3**. https://www.iddri.org/sites/default/files/import/publications/sy_1003_gemenne_migration.pdf
- Gemenne, F., & Blocher, J. **2016**. How can migration support adaptation? Different options to test the migration-adaptation nexus. IOM *Migration, Environment and Climate Change working paper series*, **No 1/2016**. https://publications.iom.int/system/files/pdf/working_paper_series_1.pdf
- Gemenne, F., & Blocher, J. **2017**. How can migration serve adaptation to climate change? Challenges to fleshing out a policy ideal. *The Geographical Journal*, **183**(4). DOI: <https://doi.org/10.1111/geoj.12205>
- Gleick, P.H. **2014**. Water, Drought, Climate Change, and Conflict in Syria. *Weather Clim. Soc.* **6**:331-340. DOI: <https://doi.org/10.1175/WCAS-D-13-00059.1>
- Government of Fiji. **2018**. "Planned Relocation Guidelines A framework to undertake climate change related relocation". IOM Environmental Migration Portal. <https://environmentalmigration.iom.int/planned-relocation-guidelines-framework-undertake-climate-change-related-relocation>
- Hsiang, S.M., Burke, M., & Miguel, E. **2013**. Quantifying the Influence of Climate on Human Conflict. *Science* **341** (6151). DOI: <https://doi.org/10.1126/science.1235367>
- ICRC. **2020**. "When rain turns to dust - understanding and responding to the combined impact of armed conflicts and the climate and environment crisis on people's lives". <https://www.icrc.org/en/publication/4487-when-rain-turns-dust>
- Ide, T. **2018**. Climate War in the Middle East? Drought, the Syrian Civil War and the State of Climate-Conflict Research. *Curr. Clim. Chang. Reports* **4**: 347-354. DOI: <https://doi.org/10.1007/s40641-018-0115-0>

- IDMC. **2021**. "Internal Displacement in a Changing Climate". *Global Report on Internal Displacement 2021*. Link: <https://www.internal-displacement.org/global-report/grid2021/>
- IOM. **2015**. *The Nansen Initiative: Agenda for the Protection of Cross-Border Displaced Persons in the Context of Disasters and Climate Change*, Volume I and II. Grand-Saconnex, Switzerland: International Organization for Migration. <https://environmentalmigration.iom.int/agenda-protection-cross-border-displaced-persons-context-disasters-and-climate-change>
- IOM. **2017**. *The Atlas of Environmental Migration*. Authors: Dina Ionesco, Daria Mokhnacheva, François Gemenne. <https://environmentalmigration.iom.int/atlas-environmental-migration>
- IOM. **2018**. "Mapping Human Mobility (Migration, Displacement and Planned Relocation) and Climate Change in International Processes, Policies and Legal Frameworks." Implementation of the Workplan of the Task Force on Displacement under the Warsaw International Mechanism for Loss and Damage (WIM) United Nations Framework Convention on Climate Change (UNFCCC) - Pillar II: Policy – International/Regional Activity II.2. <https://environmentalmigration.iom.int/sites/environmentalmigration/files/WIM%20TFD%20II.2%20Output.pdf>
- IOM. **2020**. "Internal displacement in the context of the slow-onset adverse effects of climate change." Submission by IOM to the special rapporteur on human rights of internally displaced persons. <https://environmentalmigration.iom.int/sites/environmentalmigration/files/IDP%20SR%20Report.pdf>
- IOM. **2021**. "First session of the International Dialogue on Migration 2021 - Accelerating integrated action on sustainable development: migration, the environment and climate change". 25-27 May 2021. Summary of Conclusions. Link: <https://phap.informz.net/phap/data/images/IDM%2025-27%20May%202021%20Summary%20of%20Conclusions.pdf>
- IOM Migration Data Portal. 2021. "Environmental Migration." https://migrationdataportal.org/themes/environmental_migration_and_statistics.
- IOM, Georgetown University and UNHCR. **2017**. "A Toolbox: Planning Relocations to Protect People from Disasters and Environmental Change". IOM Environmental Migration Portal. <https://environmentalmigration.iom.int/toolbox-planning-relocations-protect-people-disasters-and-environmental-change>
- Ionesco, D. **2019**. "Let's talk about climate migrants, not climate refugees" <https://www.un.org/sustainabledevelopment/blog/2019/06/lets-talk-about-climate-migrants-not-climate-refugees>
- Ionesco, D., & Chazalnoel, M.T. **2015**. "Migration as an Adaptation Strategy to Climate Change". SDG book club blog. IOM Blog. <https://weblog.iom.int/migration-adaptation-strategy-climate-change>
- Ionesco, D., & Chazalnoel, M.T. **2018**. "Perspectives on Environmental Migration — 10 Key Takeaways from the Global Compact for Migration". IOM Blog. <https://weblog.iom.int/perspectives-environmental-migration%C2%A0%E2%80%94-10-key-takeaways-%C2%A0global-compact-migration%C2%A0>
- IPCC and IPBES. **2021**. "IPBES-IPCC co-sponsored workshop - Biodiversity and Climate Change". Workshop Report.
- IUCN. **2020**. "IUCN Mediterranean Programme 2017-2020". https://www.iucn.org/sites/dev/files/content/documents/iucn_mediterranean_programme_2017-2020.pdf
- Jarraud, N., & Lordos, A. **2012**. Participatory approaches to environmental conflict resolution in Cyprus. *Conflict Resolution Quarterly*, **29(3)**: pp 261-281.
- Kaniewski, D., Van Campo, E., & Weiss, H. **2012**. Drought is a recurring challenge in the Middle East. *PNAS*, **109(10)**: 3862-3867. DOI: <https://doi.org/10.1073/pnas.1116304109>
- Kaniewski, D., Guiot, J., & Van Campo, E. **2015**. Drought and societal collapse 3200 years ago in the Eastern Mediterranean: A review. *WIREs Climate Change*, **6(4)**. DOI: <https://doi.org/10.1002/wcc.345>
- Kelley, C.P., Mohtadi, S., Cane, M.A., Seager, R., & Kushnir, Y. **2015**. Climate change in the Fertile Crescent and implications of the recent Syrian drought. *Proc. Natl. Acad. Sci. U.S.A.* **112**:3241–3246. DOI: 10.1073/pnas.1421533112
- Klepp, S., & Fröhlich, C (Eds.). **2020**. Migration and Conflict in a Global Warming Era. A Political Understanding of Climate Change. *Social Sciences, Special Issue*, November 2020. https://www.mdpi.com/journal/socsci/special_issues/migration_conflict_globalwarming

- Lelieveld, J., Hadjinicolaou, P., Kostopoulou, E., Giannakopoulos, C., Pozzer, A., Tanarhte, M., & Tyrlis, E. **2013**. Model projected heat extremes and air pollution in the eastern Mediterranean and Middle East in the twenty-first century. *Reg. Environ. Change* **14**, 1937–1949. DOI: <https://doi.org/10.1007/s10113-013-0444-4>
- Lelieveld, J., Proestos, Y., Hadjinicolaou, P., Tanarhte, M., Tyrlis, E., & Zittis, G. **2016**. Strongly increasing heat extremes in the Middle East and North Africa (MENA) in the 21st century. *Clim. Change* **137**: 245–260. DOI: <https://doi.org/10.1007/s10584-016-1665-6>
- Le Page, M. **2021**. Why rescuing the climate and saving biodiversity go hand in hand. *New Scientist*, **3329**. <https://www.newscientist.com/article/mg25033291-800-why-rescuing-the-climate-and-saving-biodiversity-go-hand-in-hand>
- Lordos, A., and D. Hyslop. **2021**. “The Assessment of Multisystemic Resilience in Conflict-Affected Populations,” in *Multisystemic Resilience: Adaptation and Transformation in Contexts of Change*, 417–52). Oxford University Press.
- Mallick, B., & Schanze, J. **2020**. “Trapped or Voluntary? Non-Migration Despite Climate Risks”. *Sustainability*, **12**: 4718. DOI: <https://doi.org/10.3390/su12114718>
- McMichael, C. **2015**. Climate change-related migration and infectious disease. *Virulence*, **6(6)**: 548–553. DOI: <https://doi.org/10.1080/21505594.2015.1021539>
- McMichael, C., Barnett, J., & McMichael, A.J. **2012**. An ill wind? Climate change, migration, and health *Environmental Health Perspectives*, **120** (5): 646–654. Public Health Services, US Dept. of Health and Human Services. DOI: <https://doi.org/10.1289/ehp.1104375>
- MedECC. **2020**. “Climate and Environmental Change in the Mediterranean Basin – Current Situation and Risks for the Future. First Mediterranean Assessment Report”. [Cramer, W., Guiot, J., Marini, K. (eds.)] Union for the Mediterranean, Plan Bleu, UNEP/MAP, Marseille, France, 632pp. ISBN: 978-2-9577416-0-1. DOI: <https://doi.org/10.5281/zenodo.4768833>
- Missirian, A., & Schlenker, W. **2017**. Asylum applications respond to temperature fluctuations. *Science*, **359**(6370): 1610–1614. DOI: <https://doi.org/10.1126/science.aao0432>
- Mosello, B., König, C., Wright, E., & Price, G. **2021**. “Climate migration can be a viable adaptation strategy, if policy keeps up.”. <https://www.cascades.eu/climate-migration-can-be-a-viable-adaptation-strategy-if-policy-keeps-up/>
- Mowafi, H. **2011**. Conflict, Displacement and Health in the Middle East. *Global Public Health*, **6(5)**: 1–16. DOI: <https://doi.org/10.1080/17441692.2011.570358>
- Newbold, T., et al. **2016**. Has land use pushed terrestrial biodiversity beyond the planetary boundary? A global assessment. *Science*, **653 (6296)**: 288–291. DOI: <https://doi.org/10.1126/science.aaf2201>
- Oke, T., Mills, G., Christen, A., & Voogt, J. **2017**. *Urban Heat Island*. In *Urban Climates* (pp. 197–237). Cambridge: Cambridge University Press. DOI: <https://doi.org/10.1017/9781139016476.008>
- Pasini, A., & Amendola, S. **2019**. Linear and nonlinear influences of climatic changes on migration flows: a case study for the ‘Mediterranean bridge’. *Environmental Research Communications*, **1(1)**. DOI: <https://doi.org/10.1088/2515-7620/ab0464>
- Platform on Disaster Displacement. 2020. “New Pact Paves Way for Innovative Solutions to Disaster and Climate Change Displacement in Africa.” <https://disasterdisplacement.org/staff-member/new-pact-paves-way-for-innovative-solutions-to-disaster-and-climate-change-displacement-in-africa>.
- Podesta, J. **2019**. The Climate Crisis, Migration and Refugees. *Policy brief prepared for the 2019 Brookings Blum Roundtable*. Link: https://www.brookings.edu/wp-content/uploads/2019/07/Brookings_Blum_2019_climate.pdf
- RICCAR. **2017a**. “Integrated Vulnerability Assessment: Arab Regional Application”. RICCAR Technical Note. United Nations Publication Reference: E/ESCWA/SDPD/2017/RICCAR/TechnicalNote.2. http://www.riccar.org/publications/integrated-vulnerability-assessment-arab-regional-application?language_content_entity=en
- RICCAR. **2017b**. “Training Manual on the Integrated Vulnerability Assessment Methodology”. United Nations Publication Reference: E/ESCWA/SDPD/2017/RICCAR/Manual. http://www.riccar.org/publications/training-manual-integrated-vulnerability-assessment-methodology?language_content_entity=en

- Rigaud, Kanta Kumari; de Sherbinin, Alex; Jones, Bryan; Bergmann, Jonas; Clement, Viviane; Ober, Kayly; Schewe, Jacob; Adamo, Susana; McCusker, Brent; Heuser, Silke; & Midgley, Amelia. **2018**. Groundswell: Preparing for Internal Climate Migration. World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/29461>
- Rigaud, Kanta Kumari; de Sherbinin, Alex; Jones, Bryan; Adamo, Susana; Maleki, David; Abu-Ata, Nathalie; Arora, Anmol; Casals Fernandez, Anna Taeko; Chai-Onn, Tricia, and Mills, Briar. **2021** (forthcoming). Groundswell Africa: Internal Climate Migration in West African Countries. Washington, DC: The World Bank
- Rüttinger, L. **2020**. "Climate Change in the United Nations Peacebuilding Commission and Fund". Published by Adelphi research for the Climate Security Expert Network. <https://climate-diplomacy.org/magazine/cooperation/climate-change-united-nations-peacebuilding-commission-and-fund>
- SeeD, **2021**. "Livelihood Resilience and Escaping Poverty in Liberia", SeeD-PBO-UNDP.
- Selby, J., Dahib, O.S., Fröhlich, C., & Hulme, M. **2017**. Climate change and the Syrian civil war revisited. *Political Geography*, **60**: 232-244. DOI: <https://doi.org/10.1016/j.polgeo.2017.05.007>
- Shultz, J.M., Rechkemmer, A., Rai, A., & McManus, K.T. **2019**. Public Health and Mental Health Implications of Environmentally Induced Forced Migration. *Disaster Med. Public Health Prep.* **13**(2):116-122, Apr. 2019. DOI: <https://doi.org/10.1017/dmp.2018.27>
- Sills, J. **2019**. Rohingya refugees and the environment. *Science*, **364** (6436): 138.
- Tabari, H., & Willems, P. **2018**. More prolonged droughts by the end of the century in the Middle East. *Environ. Res. Lett.* **13**(10). DOI: <https://doi.org/10.1088/1748-9326/aae09c>
- Thompson, M. C. **1995**. "Disease Prevention through Vector Control – guidelines for relief organizations". Oxfam Practical Health Guide No. 10. ISBN 0 85598 306 X. <http://bvspers.paho.org/share/ETRAS/AyS/texcom/desastres/oxfdispr/indice.pdf>
- Tierney, J.E., deMenocal, P., P.B., & Zander, P.D. **2017**. A climatic context for the out-of-Africa migration. *Geology*, **45**(11): 1023-1026. DOI: <https://doi.org/10.1130/G39457.1>
- Turoğlun & Uludağ. **2013**. Possible hydrographic effects of climate change on lower part of transboundary Meriç river basin (Turkey). *Trakya University Journal of Natural Sciences*, **14**(2): 77-85. <https://dergipark.org.tr/tr/download/article-file/234504>
- UN (United Nations). 2015. "Paris Agreement." Geneva: United Nations. https://unfccc.int/sites/default/files/english_paris_agreement.pdf.
- UNDESA. 2018. "World Urbanization Prospects." <https://population.un.org/wup/>.
- UNDP. **2015**. "Predicting Peace - the Social Cohesion and Reconciliation Index as a tool for Conflict Transformation." Link: <https://www.cy.undp.org/content/dam/cyprus/docs/ACT%20Publications/Score-July20.pdf>
- UNDRR. 2015. "Sendai Framework for Disaster Risk Reduction 2015-2030." <https://www.undrr.org/publication/sendai-framework-disaster-risk-reduction-2015-2030>.
- UNFCCC. **2017**. "Human mobility and the Paris Agreement: Contribution of climate policy to the global compact for safe, orderly and regular migration". Input to the UN Secretary-General's report on the global compact for safe, orderly and regular migration, in response to Note Verbale of 21 July 2017, requesting inputs to the Secretary-General's report on the global compact for safe, orderly and regular migration. Authored by Koko Warner, Manager of the Impacts, Vulnerabilities and Risks subprogramme, UN Climate Secretariat (UNFCCC). Bonn, 19 September 2017. https://refugeesmigrants.un.org/sites/default/files/stocktaking_unfccc.pdf
- UNHCR. 1994. *Refugee Children: Guidelines on Protection and Care*. UNHCR, Geneva. <https://www.unhcr.org/protection/children/3b84c6c67/refugee-children-guidelines-protection-care.html>
- UNHCR. **2020a**. "Global trends: forced displacement in 2019" Link: <https://www.unhcr.org/flagship-reports/globaltrends/globaltrends2019>
- UNHCR. **2020b**. "Climate Change and the Future of Safe Returns". <https://www.unhcr.org/protection/environment/5fb28b504/climate-change-future-safe-returns.html>
- UNHCR. **2020c**. "Sustainable Energy, Displacement and Climate Resilience". September 2020. <https://www.unhcr.org/protection/environment/5f60a3c44/sustainable-energy-displacement-climate-resilience.html>

- UNHCR. **2020d**. "Legal considerations regarding claims for international protection made in the context of the adverse effects of climate change and disasters". <https://www.refworld.org/docid/5f75f2734.html>
- UNHCR. **2021a**. "Displaced on the frontlines of the climate emergency". <https://storymaps.arcgis.com/stories/065d18218b654c798ae9f360a626d903>
- UNHCR. **2021b**. "Strategic Framework for Climate Action". <https://www.unhcr.org/604a26d84/strategic-framework-for-climate-action>
- UNHCR & IOM. **2021a**. "Bridging the Divide in Approaches to Conflict and Disaster Displacement: Norms, Institutions and Coordination in Afghanistan, Colombia, the Niger, the Philippines and Somalia.". Authored by Sanjula Weerasinghe. <https://www.globalprotectioncluster.org/wp-content/uploads/Bridging-the-Divide-SYNTHESIS-REPORT-with-ANNEXES-2021.pdf>
- UNHCR & IOM. **2021b**. "UNHCR and IOM call for improved safeguards for the displaced on the frontlines of climate emergency". <https://www.unhcr.org/news/press/2021/2/601af5b14/unhcr-iom-call-improved-safeguards-displaced-frontlines-climate-emergency.html>
- Waldock, J., Parham, P.E., Lelieveld, J., & and Christophides, G.K. **2013**. Climate and Human Health: The Impact of Climate Change on Vector-Borne Diseases, Paphos, Cyprus (17–19 October 2012). *Pathog. Glob. Health*: **107**(8): 387–392. DOI: <https://doi.org/10.1179/2047772413Z.000000000161>
- WHO (World Health Organization). **2015**. *Vector control and personal protection of migrant and mobile populations in the GMS: A matrix guidance on the best options and methodologies*. World Health Organization Regional Office for South-East Asia, New Delhi.
- World Bank. **2018**. "Beyond Scarcity: Water Security in the Middle East and North Africa," Washington, DC: World Bank. DOI: <https://doi.org/10.1596/978-1-4648-1144-9>.
- Zittis, G. **2015**. *Regional Climate Modelling in the eastern Mediterranean and the Middle East: Aspects of summer warming and related feedbacks under a changing climate*. Thesis for: PhD in Environmental and Atmospheric Sciences at the Cyprus Institute. DOI: 10.13140/RG.2.1.4698.3845.
- Zickgraf, C. **2019**. "Keeping People in Place: Political Factors of (Im)mobility and Climate Change". *Social Sciences*, **8**(8): 1-17. <https://ideas.repec.org/a/gam/jscscx/v8y2019i8p228-d252784.html>
- Zittis, G., Hadjinicolaou, P., Almazroui, M., Bucchignani, E., Driouech, F., El Rhaz, K., Kurnaz, L., Nikulin, G., Ntoumos, A., Ozturk, T., Proestos, Y., Stenichikov, G., Zaaboul, R., & Lelieveld, J. **2021**. Business-as-usual will lead to super and ultra-extreme heatwaves in the Middle East and North Africa. *Npj Climate and Atmospheric Science*, **4** (20). DOI: <https://doi.org/10.1038/s41612-021-00178-7>



Executive Summaries

- 1 The Physical Basis of Climate Change
- 2 Energy Systems
- 3 The Built Environment
- 4 Health
- 5 Water Resources
- 6 Agriculture and the Food Chain
- 7 Marine Environment/Resources (web version only)
- 8 Education and Outreach
- 9 Migration
- 10 Tourism (web version only)
- 11 Enabling Technologies
- 12 The Green Economy and Innovation
- 13 Cultural Heritage