BOLOGNA PEACEBUILDING FORUM 2021

Event Report

BOLOGNA PEACEBUILDING FORUM

AGENCY FOR PEACEBUILDING

OCTOBER 2021

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About the Agency for Peacebuilding

The Agency for Peacebuilding (AP) is a non-profit organization whose mission is to promote conditions to enable the resolution of conflict, reduce violence and contribute to a durable peace across Europe, its neighbouring countries and the world.AP is the first Italian organization specializing in peacebuilding. This allows us to occupy a unique role in the European landscape: on the one hand, we interpret and synthesize relevant topics for the benefit of Italian agencies and institutions working on peace and security; on the other, we highlight experiences, capacities and resources specific to the Italian system, which can contribute to the resolution of violent conflict.

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Introduction

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In what ways does climate change affect violent conflict? What opportunities – if any – can the climate emergency and related environmental challenges provide to enhance the prospects of durable peace? How is climate change impacting peace processes in the Mediterranean region?

The third edition of the Bologna Peacebuilding Forum addressed these and other questions related to the nexus between peacebuilding and climate change. The Forum is not new to tough questions and cutting-edge analysis and debates. From 2019, it has established itself as a major annual gathering fostering open and constructive dialogue on critical issues facing the peacebuilding field. In this, the Forum seeks to bridge knowledge gaps by offering space for dialogue between peacebuilding scholars and practitioners. Furthermore, the gathering strives to expand the discussion to larger audiences, including foreign policy experts, relevant civil society actors, policymakers, academics and the general public.

This year, the two-day event (18-19 May 2021) was organised by the Agency for Peacebuilding (AP) in partnership with the Johns Hopkins University School of Advanced International Studies (SAIS Europe) and several other partners.[1] In particular, this year AP partnered with the New Med Research Network, an ongoing research, outreach and dissemination project focussed on salient social, political, economic and security issues in the Mediterranean region coordinated by the Rome-based policy think tank, *Istituto Affari Internazionali* (IAI). Launched in 2014, the New Med Network is supported by the Italian Ministry of Foreign Affairs and International Cooperation, the OSCE Secretariat in Vienna and the Compagnia San Paolo Foundation.

The 2021 Forum hosted several international researchers, practitioners and policy-makers involved in the climate, conflict and peacebuilding domains. It aimed to promote new knowledge and understanding about the multidimensional threats and opportunities posed by such developments and the relationship between climate and environmental issues, peace diplomacy and international cooperation. This publication summarises key takeaways that emerged during the two-day event, and includes two novel analysis papers presented during the second day of the forum and drafted by leading international scholars on climate change, international diplomacy and conflict in the Middle East and North Africa (MENA).

Structured around four panel sessions, the Forum saw researchers and practitioners discuss different dimensions of the complex linkages between climate, environment and conflict. They explored potential pathways through which climate change can increase the occurrence of armed conflict or aggravate existing conflict situations, while also exploring potential opportunities these developments may have on the objective of relaunching peace processes and negotiations. In addressing the challenges that climate change pose for peacebuilding, scholars examined how environmental shocks and complex international dependencies can negatively affect the outcome of peace processes, modifying the cost-benefit calculus of conflicting parties or enhancing the propensity for zero-sum thinking and competition.

1 *See the Bologna Peace Building Forum 2021 Agenda in the Appendix.*

The Forum also addressed climate-fragility risks that should be included in peacebuilding interventions and explored concrete entry points for integrated peacebuilding and climate resilience programming. In addressing these links by drawing on case studies and examples from multiple regions and locations, special attention was directed towards the Mediterranean basin during the second day of the Forum, when two paper givers were invited to present their analysis on recent international diplomacy on climate change in the Mediterranean and the implications of food insecurity for conflict and sustainability in the MENA region. The updated and revised versions of these analysis papers are published in chapters two and three in this volume, following an in-depth conference report published in chapter one.

The conference report provides an overview of the deliberations during the two-day Forum. Scholars generally recognised that global warming, and related environmental challenges, have a direct impact on vulnerable groups and individuals, particularly in fragile contexts. Resource scarcity has long been recognised as a conflict driver, particularly at the local level. That said, it is hard to speak of a direct, causal link between climate change and armed conflict. Assessments require in-depth and multidimensional analysis, both to understand the ways in which climate can act as a threat multiplier, aggravating a series of pre-existing conflict triggers that span the socio-economic, political and security domains, and to articulate the most suitable policy responses to so-called environmental conflicts.

Notably, early interest in climate and security stemmed from the desire to elevate the issue of climate change by directly linking it to security in ongoing policy debates, rather than an interest in peacebuilding as such. Such efforts have been remarkably successful. It took 30 years to discuss the connection between climate change and security and another two decades to recognise climate change as a security concern. Against this backdrop, it is first important to acknowledge that climate effects are highly contextual and their impact on peace and conflict varies across time and space, depending, among other things, on the presence and strength of local institutions and social contracts, socio-economic development, as well as pre-existing political, ethnic or confessional tensions. Experts moreover noted that research demonstrates that interventions to manage natural resources can have a positive effect on peacebuilding, helping to break the chain that connects these issues. Yet, it is important to implement tailor-made programmes and interventions, rather than applying a one-size-fits-all approach across various contexts and geographic areas.

The need to start from an ecosystems-based analysis, viewing nature and human beings as interconnected and interdependent, was highlighted during the proceedings. At the same time, the need to learn how to use relevant data remains a challenge. Climate is science-driven, while peacebuilding is about process-facilitation. This could create a massive gap between climate, security and peace experts. Each has its own triggers, knowledge structures, incentives; and knowledge sharing is required in order to bridge gaps and promote genuine collaboration across disciplines.

Overall, participating scholars and experts exhorted participants to embrace the complexity of the issue(s) at hand, underscoring how climate change and its effects are part and parcel of larger global trends that have cascading effects on states and societies the world over. While often framed as a long-term challenge, the climate emergency is no longer a distant threat, as we are already witnessing a number of its multidimensional impacts, including in the conflict domain, as witnessed for instance across the Sahel region. Adopting a climate-security lens helps plan ahead by looking at the world in 2030 and 2050, but it should not detract from the urgency of adopting new approaches today. Moreover, the climate-security nexus should not be used as an excuse to shift focus away from other pre-existing challenges, but rather focus on how the climate emergency intersects and further aggravates other issues related to good governance, socio-economic inclusion and human security.

The second chapter, "Environmental Security and Climate Diplomacy in the Mediterranean", provides a comprehensive overview of recent scholarly research into the nexus between climate change, environmental security and armed conflict, with a particular emphasis on the Mediterranean region and the role and policies of key international organisations involved in this area. Drafted by Jürgen Scheffran from the Climate Change and Security Research Group at the University of Hamburg, the chapter takes stock of the multiple climate vulnerability risks in the Mediterranean region, their possible links to new or ongoing violent conflicts in the area and the potential of climate change to act as a risk multiplier in a number of regional hotspots, exacerbating pre-existing vulnerabilities at the sub-national, state and regional levels. A second section moves to address the policies advanced or advocated by key international actors, including the European Union (EU), and others – such as the Planetary Security Initiative, NATO and the UN – in seeking to promote sustainable development and peace in the area by promoting adequate climate adaptation and mitigating policies while relaunching more effective and balanced multilateral cooperation. Particular emphasis is placed on environmental peacebuilding, a means to integrate both dimensions of conflict resolution and environmental security and advance more holistic approaches to tackling these challenges.

The final chapter in the volume, "The Brewing Crisis of Food (In)Security, Conflict and Climate Change in the Mediterranean: Causes, Outcomes and Mitigating Strategies", moves to examine a specific dimension – food scarcity – of climate and environmental risk in the Mediterranean. Drafted by Yara Asi, Post-Doctoral Scholar at the University of Central Florida, Non Resident Fellow at the Arab Center in Washington DC and a Policy Analyst with the Al-Shabaka Policy Network, the chapter provides a comprehensive analysis of food insecurity trends in the MENA region. In examining how climate and environmental risks are further exacerbating an already fragile regional outlook, already reeling from pre-existing political and security challenges and the implications of the Covid-19 pandemic, the author assesses various means to integrate food security and climate risks into development and peacebuilding interventions in the region. Highlighting how the vast majority of MENA states rely heavily on food imports, the dimension of global supply chains and international food price fluctuations assume even greater salience when it comes to ensuring sustainability in Mediterranean region and developing mitigating strategies that diminish the possibility that resource scarcity led to new or renewed conflict.

Critically **assessing donor policies and international efforts to enhance food security and climate adaptability in the region**, the author cautions against an excessive reliance on food aid or short-term stabilisation efforts, arguing that more holistic and integrated approaches are needed to support peacebuilding and sustainable development. Against this backdrop, it is also necessary to address the multiple conflicts and geopolitical Fault lines present in the Mediterranean, as these pre-existing challenges and divisions are further complicating efforts to devise new models of development capable of ensuring food security and genuine cooperation while preparing for a future that will inevitably imply increased climate and environmental risks and pressures on states and societies across the Mediterranean basin.

It is our hope is that this publication will contribute to **raising awareness about the risks and opportunities that climate change offers for enhancing the prospects of peace**. If properly addressed, shared environmental problems spurred by climate change can become a catalyst for cooperation rather than increased competition and divisions. It is this effort to devise a positive agenda of cooperation and peacebuilding across multiple disciplines and policy-making circles that spurred the present volume and cooperative framework for the 2021 edition of the Bologna Peacebuilding Forum. Our commitment to these issues will continue beyond this volume and Forum and it is our hope that this publication can spur increased public interest in the multidimensional relationship between conflict, peacebuilding and climate change, today and in the future.

Climate, conflicts and environmental peacebuilding

Image credit: Pablo Tosco/Oxfam

This section covers the key issues and insights emerged during the first two sessions of the Bologna Peacebuilding Forum (18 May 2021).

1 **The first session, titled "Climate, conflicts and peacebuilding"**, aimed at answering the guiding question: "How does climate change affect both the causes and evolution of armed conflicts and what are the implications for peacebuilding?" The speakers included: Farah Hegazi, Stockholm International Peace Research Institute (SIPRI), Oli Brown, Chatham House, and Ayan Mahamoud, Intergovernmental Authority on Development (IGAD). The session was introduced and moderated by Bernardo Monzani, President of the Agency for Peacebuilding (AP).

Farah Hegazi presented SIPRI's strategic approach to understanding the connections between climate change and conflict. She noted that it is not possible to generalize how climate change impacts different armed conflicts worldwide. Indeed, effects are highly contextual. They depend, among other factors, on the presence and strength of social institutions, on a population's vulnerability and resilience, on social attitudes towards displaced populations. As a result, SIPRI adopts an approach focused on four different pathways, interacting with each other, which are based on four kinds of climate change impacts on human security. The four pathways are: worsening livelihood conditions, affecting migrations and mobility, changing tactics of armed groups, increased élite's exploitation of local grievances.

The pathways impact both the causes and the evolution of conflict. For instance, worsening livelihood conditions can increase the risk of conflict by marginalizing vulnerable groups and causing grievances. Furthermore, the absence of alternative sources of income and scarcity of resources can push individuals to join armed groups to generate revenue. Ultimately, climate change diminishes the capacity to find viable livelihood alternatives.

A concrete example of this dynamic is the case of Mali, where erratic rainfalls have recently affected the availability of water and pasture. Consequently, pastoralists now migrate earlier than in the past. In so doing, pastoralists come into contact with farming communities increasing the risk of conflict between farmers and herders. It must be said that this conflict has existed for a long time. However, the difference today is that local mechanisms to manage conflict around natural resources have changed. There is a shift in social norms and natural resource arrangement, as young armed people challenge the authority of those actors previously in power. In addition, the recruitment dynamics of armed groups are incredibly complex. Climate-related loss of livelihoods facilitates recruitment. In Mali, three factors contribute to natural resource scarcity: climate change, armed conflicts, and demographic growth. Concerning climate change, various regions in Mali are susceptible to droughts and livelihoods are affected by floods. The impact of armed conflict on natural resources is self-evident. Concerning the demographics, with a population growth of 3 per cent per year, there is increasing pressure on resource growth and increased competition for land. The effects of this triple pressure on livelihoods foster the recruitment of armed groups. In the absence of viable alternatives, people's survival can rely on joining such violent groups. In Mali, there is also a relation between child recruitment and scarce rainfall in Mali: families let their children join armed groups as a means to generate income when rainfall is scarce. Notably, during regular rainy seasons, the recruitment of children in armed groups decreases.

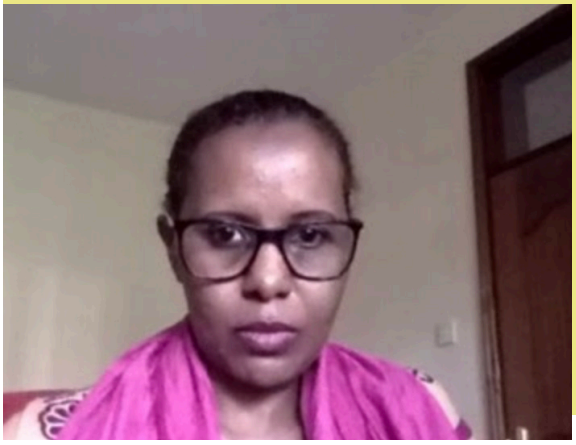
Effects of climate change and security are dependent on the context in which they are happening. What happens in Northern Mali is very different from what happens in central Mali. Perspective on how to address this is critical. The nature of conflict is changing: it is no longer civil wars that are the concern, but conflicts between communities. It is controversial to identify the implications of these dynamics for peacebuilding. Pathways are complex and offer multiple entry points for solutions. Interventions to manage natural resources can positively affect peacebuilding because they break the chain that connects the pathways.

Oliver Brown discussed the origins of the climate-security debate and its influence on current conversations on the topic. He then highlighted both the positive and negative sides of the climate-security approach. He argued that, concerning the origins of the climate–security debate, the early interest in the issue started from the desire to elevate the priority of climate change on the political agenda. The most functional way to achieve this was to link the concept of climate change to security rather than to peacebuilding itself. As a result, the presence of climate change in the political agenda improved. In achieving this aim, the link between climate and security has been remarkably successful. Ultimately, the influence of the climate-security agenda needs to be evaluated on two domains: its significance for violence mitigation, and for conflict prevention. Currently, the prevailing impression is that the climate-security agenda has impacted more mitigation than prevention.

Referring to the positive sides of the climate-security approach, it is possible to observe that the recognition of climate change as a systemic risk contributed to improving the understanding of non-traditional security threats. In particular, it highlighted the complexity of the interplay between climate change and conflict dynamics. In so doing, it inspired research and reflection on the future of conflict prevention. The link between climate and security also allowed peacebuilding practitioners to recognise that climate change is one of many significant trends reshaping the world, besides historical trends like population growth, rural to urban migration, and automation. Traditionally, peacebuilders focus on ongoing armed conflicts. However, reflecting on how wars are changing historically allows imagining possible future scenarios and development of the field.

Potential downsides of the climate-security approach include privileging systemic and historical trends, disregarding other more particular and contingent issues, like corruption and bad governance. Focusing on macro-trends risks downplaying the role of individual decisions in originating conflicts, giving despots a "get out of jail free card". Furthermore, the focus on the exhaustion of resources risks having a negative impact on the strategic decisions of countries, as the increasing scarcity of land could encourage win-lose rhetoric on the ground.

Regional organisations can play a critical role in this matter. They understand the specific culture, socio-economic contexts to better bring these groups together and manage and mediate competing needs. The challenge is that regional organisations can be dominated by one hegemonic country. Where hegemonic power is involved, regional organisations are not an ideal starting point. This is where larger organisations such as the United Nations should get involved.



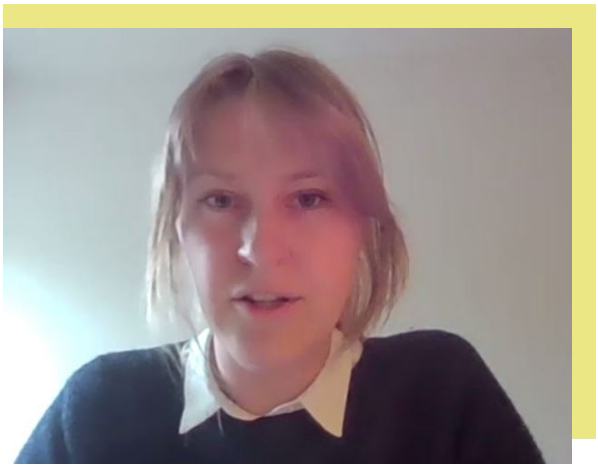
Finally, **Ayan Mahamoud** discussed fragility risks in the IGAD region, which includes countries from the Horn of Africa (Djibouti, Ethiopia, Somalia, Eritrea), the Nile Valley (Sudan and South Sudan), and the African Great Lakes (Kenya, Uganda). Her presentation focused on a conflict-sensitive programming approach used in the Horn of Africa. Over the last 50 years, the Horn of Africa has suffered recurring droughts and soil erosion, with 60-70% of the region characterised as arid or semi-arid land. Climate change has further exacerbated grievances and there is a consensus that the region is affected by climate-driven conflicts. In Sudan, climate change has had a long-lasting effect since the early 1980s, when a famine in the Darfur region killed nearly 100 thousand people and provoked massive displacements. In Somalia, drought forced 2.5 million people to leave their homes. In Tigray, Ethiopia, where conflicts are exacerbating the ongoing crises since November 2020, drought has provoked mass displacements.

In this context, IGAD has decided to work with a broad regional approach on cross-border investments, as climate change has a long-term spill-over effect on the region. The approach includes aligning relief with development, preventive and reactive approaches. The programming connects peacebuilding and conflict prevention to climate resilience through a combination of basic social service, health, migration, preventing extremisms and polarization. IGAD developed a 15-year aid initiative to tackle natural and resource management, bring communities together to sustainably manage resources, diversify livelihood, and tackle human capital and gender in social development.

IGAD identified 60 conflict typologies, or drivers of fragility, that affect pastoralist communities in the region, making them vulnerable to conflict and violence. The most common issues concern land conflicts and gender-based violence. As a result, all IGAD's projects must be gender and conflict-sensitive to promote social cohesion and economic and ecological sustainability.

The initiative also involved risk financing. For example, securing pastoral assets while creating a demand, and thus a business opportunity, for quality feed and fodder. Combined with social safety nets, this will hopefully be transformative and significant enough to tackle poverty and provide security to beneficiary communities. IGAD has the imperative of working with a regional approach to harmonize plans and policies, establish common frameworks, to share information, to provide monitoring and reporting, and foster common leadership and cooperation.

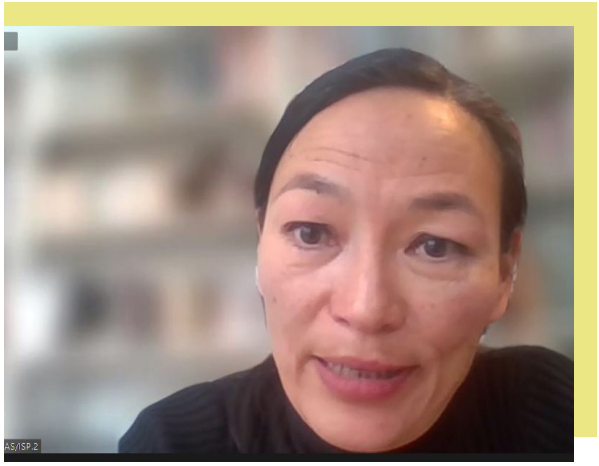
2 **The second session, "Environmental Peacebuilding"**, followed the guiding question "What opportunities do climate change and related environmental issues offer for enhancing the prospects of a durable peace?". Giulia Caroli, from the Consortium of International Agricultural Research Centers (CGIAR), moderated the debate between Julie Raasten of the European Institute of Peace (EIP), Mariko Peters from the European External Action Service (EEAS) and Olivia Lazard, from Carnegie Europe.



Julie Raasten presented how climate change and environmental degradation matter to peacemakers as they affect conflict dynamics and peace options. Until recently, it was not clear what an environmental peacebuilding approach would entail for peacemakers and mediators. EIP implemented consultations with peacemakers and other relevant stakeholders, realizing that the peacebuilding sector is committed to working on the consequences of climate change, such as environmental degradation. However, peacemakers require more support and tools to improve their actions. Consultations also revealed the awareness among peacemakers that environmental degradation is extremely relevant to their work, and that opportunities will be missed if climate issues are not brought into the peacebuilding process.

The introduction of the concept of environmental peacebuilding leads to several challenges. First, the division of tasks between peacebuilding and other sectors, including development and climate scientists. Environmental peacebuilding represents the political angle of the issue and is centred on mediation between actors. Environmental and peacebuilding objectives are highly intertwined. Conflict resolution should ensure that environmental issues are addressed sufficiently, but it should not be limited to this matter as conflict causes are various and complex. The point is to ensure that climate and environment are involved in the peacebuilding process.

Overall, environmental peacebuilding is the application of traditional peacebuilding in a climate change context. The added value of conflict resolution to environmental projects is the political function of mediation and the involvement of several actors, including institutions and governments. Environmental peacebuilding covers activities linked to track II diplomacy, like convening informal dialogues and pushing new agendas with policy-makers and practitioners. The added value consists of extending environmental activities to new actors. Peacemakers are well-placed to contribute to reframing environmental issues, overcoming a win-lose approach. Peacebuilders can approach environmental issues proposing cooperation, win-win situations, facilitating talks and processes, connecting communities, so to combine environmental and peacebuilding objectives.



Mariko Peters presented her perspective as a civil servant working in the European Union (EU). She made four remarks on the EU's work on environmental peacebuilding. Firstly, she discussed how it took over 20 years to gain awareness on the impact on climate change on the security landscape. The current challenge is to translate this awareness into action. To do so, existing tools of peacebuilding need to be updated from a climate perspective. Climate change is now considered a threat multiplier and an existential threat. Several UN Council Resolutions tackle the link between climate and diplomacy. This paved the way for important policy-making, such as the Green New Deal. Against this

backdrop, the EU has adopted a new biodiversity strategy, a new forest strategy, a climate and defence roadmap, and new mediation guidelines to take climate awareness as a guiding principle for EU support in this domain.

To operationalise this new climate awareness, an entirely new way of working is required. Institutional reforms are needed and difficult to obtain and require decades of work: therefore, accelerating the process is crucial. EU funding provides a huge opportunity to take action. Significant investments have been decided to mitigate climate change, with a specific focus on conflict-affected states. As a result, conducting conflict analysis in these countries is a priority. Analysis should include climate change indicators in their early warning mechanisms. The integration of climate in the EU's early warning system is a recent introduction, from the last two years.

A further challenge is filling the massive gap between the experts and the practitioners in the various disciplines: climate, environment, security and peace. Each field has its own triggers, knowledge and incentives. Each field also has its methodologies: climate studies are science-driven, peacebuilding is about process facilitation. This requires new collaboration arrangements and knowledge sharing, and civil society organisations can play an important role.

It is also necessary to broaden the narrative: security threats and multipliers give a partial perspective: human action, gender, geopolitics must be integrated into the discourse. There are no direct causal links, and the current context rather shows a complex interplay of existing vulnerabilities. Strong action is required both towards institutions that must be held accountable for their action on environmental peacebuilding and the public opinion, whose awareness must be raised and improved. Politics and pressure get institutions moving, if they present the risk, for institutions, of losing reputation or see an opportunity to thrive. This dynamic can accelerate the process of reform. Concerning public opinion, we also have to fight disinformation and accept the complexity of the issues.

In this framework, to affirm the importance of an environmental peacebuilding approach and implement the issue effectively, it is also necessary to hold institutions accountable and feed the public debate on the urgency of undertaking complex actions.

Finally, **Olivia Lazard** presented the challenges of reframing climate change into a notion of a wider ecological challenge that also involves conflict.

Climate change is a symptom of the ecological disintegration driven by human extraction-predation activities. Drivers of climate change are not located simply in conflict zones and here is an oversimplification of the issue. Instead, climate change must be observed from two different perspectives. For instance, the release of greenhouse gases, which is mostly driven by developed economies and major industries, and a larger issue of ecological collapse: collapse of soil health, water cycles, whose drivers involve actors all over the world.

Furthermore, climate health depends on the health of marine and terrestrial ecosystems. These, in turn, depend on water and carbon cycles. The ecological interdependencies thus contribute to the proper functioning of the ecosystems. These dynamics provide environmental resources for societies to thrive on. Ecological sustainability is therefore the precondition of any stability. The focus on climate change risks disregarding the vital role of the ecosystem in human security. Therefore, a thorough environmental approach needs to include attention on terrestrial and marine ecosystems.

Many different factors affect water systems, soil, animal biodiversity, fisheries to help the ecosystem regulate climate change. These issues need to be harmonized with one another. Plunging ecosystems rarefy natural resources, particularly water. Resources rarefication leads to more poaching – as transnational economies encroach on remaining living systems – and the commodification of resources such as water, which becomes a tradable commodity on stock markets.

Against this backdrop, a link between environment and conflict is established as regeneration priority areas are often located in conflict zones. Environmental action can tackle agriculture and industrial systems in finding solutions based on climate science, but this is not practicable in conflict zones. Here, governance and stability issues emerge and facing these issues goes beyond the mandate of environmental projects.
Therefore, peacebuilding needs to start cooperating with sectors that so far have been considered too technical. With a connection between environmentalists and peacebuilders, fragility and conflicts can be tackled to not contribute further to climate change. A broad ecological foundation that includes conflict dynamics is necessary to tackle the challenges of the next two decades.

An ambitious and urgent goal is to reconcile people, nature and economies in a multi-level context (local, national, regional). The inclusion of various population segments – women, youth, religious leaders – is crucial to shift patterns and behaviour, especially in semi-arid and arid places. The multi-level context also allows embracing ecological complexity and interdependence – for example, the Congo basin is connected to the issues in the Sahel and beyond, and the deforestation in Congo contributes to a drop in rainfall in Ethiopian highlands. An ecosystems-based approach allows interpreting different issues connected to avoid isolating gender, youth, and climate as individual issues.

The day's proceedings were closed by AP's Director, Bernardo Venturi. IIn his final remarks, he pointed to the necessity to broaden the view on climate change and conflict. A higher perspective allows interpreting current trends as part of historical and global long-term dynamics. Thus, a multi-level approach is required to integrate climate sciences with peace processes, local issues with global trends, single political decisions with international strategies. The awareness of the high complexity of the multi-layered challenges is the first step to elaborate an effective action on peacebuilding and climate change.

The Brewing Crisis of Food (In)Security, Conflict and Climate Change in the Mediterranean: Causes, Outcomes and Mitigating Strategies

*Yara M. Asi**

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Introduction

Thousands of years ago, life was flourishing within the Fertile Crescent, encompassing the areas around the Tigris, Euphrates and Nile rivers, colloquially known today as the "cradle of civilisation". While the area of the southern Levant was originally seen as the origin of plant and animal domestication, it is now thought that human management of crops and livestock developed throughout this entire region independently. Wild cereals like barley, einkorn, rye and emmer, along with wild lentils and figs were among the first crops to be purposefully manipulated by humans for cultivation.[1] Some of these same crops continue to grow in the region today.

Evidence of dust activity gathered from stalagmites, however, indicates that a sudden dry period brought upon the downfall of one of the first empires in history, the Akkadian Empire, which ruled Mesopotamia. The northern parts of the empire, where crop production was most active, was affected by drought.[2] They could no longer provide food for their armies or distribute food to allies. Settlements became overpopulated as inhabitants moved to urban areas; unsustainable land practices, such as overgrazing by livestock, contributed to shortages and instability.[3] This led to regional conflicts, mass migration and even the construction of a wall, the "Repeller of the Amorites", built to prevent refugees from fleeing south.[4]

It is not difficult to draw parallels between these events of more than 4000 years ago with the state of this region today. The Middle East and North Africa (MENA) has sustained life for thousands of years and has propelled human civilisation forward in countless ways. Yet it also provides historical and contemporary evidence of the dangers of unsustainable human practices coupled with unmitigated climate change. While there is debate and speculation about what led to the climate change events of thousands of years ago, it is much easier to point to human-made choices that have led to the acceleration of climate change today. But the negative effects on people are similar, especially when assessing the linkages of food insecurity, climate change and conflict.

There is no region where this is more apparent than the MENA, which hosts a disproportionate number of the world's conflicts and vulnerable people and is also a region that is especially susceptible to the effects of climate change. The region is also the largest importer of food due to intemperate climates and increasingly unsuitable land for agriculture. It is also a diverse region, with some of the world's wealthiest states as well as many of the world's greatest humanitarian crises, leading to a range of outcomes with regard to food security (see Table 1). On top of these factors, many of the countries in the MENA region are outpacing the world average in terms of population growth, coupled with rapid urbanisation. And of course, part of the region's dependence on oil gives many of its most powerful states a disincentive to accelerate climate change mitigation efforts. This analysis, drawing upon cases from throughout MENA and surrounding areas, will explore these linkages, culminating in a series of strategies that draw on lessons from the past to build a more sustainable, and potentially more peaceful, future.

1 *Melinda A. Zeder, "The Origins of Agriculture in the Near East", in Current Anthropology, Vol. 52, Supplement 4 (October 2011), p. 221-235, https://doi.org/10.1086/659307.*

2 *Stacy A. Carolin et al., "Precise Timing of Abrupt Increase in Dust Activity in the Middle East Coincident with 4.2 ka Social Change", in PNAS, Vol. 116, No. 1 (2 January 2019), p. 67-72, https://doi.org/10.1073/pnas.1808103115.*

3 *Dan Lawrence, Alessio Palmisano and Michelle W. de Gruchy, "Collapse and Continuity: A Multi-Proxy Reconstruction of Settlement Organization and Population Trajectories in the Northern Fertile Crescent During the 4.2kya Rapid Climate Change Event", in PLoS ONE, Vol. 16, No. 1 (2021), Article e0244871, https://doi.org/10.1371/journal.pone.0244871.*

4 *John Noble Wilford, "Collapse of Earliest Known Empire Is Linked to Long, Harsh Drought", in The New York Times, 24 August 1993, https://www.nytimes.com/1993/08/24/science/collapse-of-earliest-known-empire-is-linked-to-long-harsh-drought.html.*

Table 1 | Food Security Index of selected states from MENA and surrounding region, December 2020

Country	Food Security Index
Yemen	35.7
Sudan	36
Ethiopia	37
Chad	39.4
Syria	40
Burkina Faso	47.4
Niger	47.6
Mali	52.7
Jordan	60.4
Egypt	61.1
Tunisia	61.4
Morocco	62
Bahrain	64.6
UAE	68.3
Saudi Arabia	69.5
Qatar	69.6
Oman	70.2
Kuwait	70.7

Note: Lower score indicates higher food insecurity.

Source: Economist Intelligence Unit, Global Food Security Index, 2020, https://foodsecurityindex.eiu.com/index.

The state of food insecurity in the MENA

The global community has long recognised food insecurity as a significant threat, including in the United Nations Sustainable Development Goals (SDGs), made up of 17 goals for various sectors which guide global development efforts from 2015-2030. While SDG 2 explicitly aims for zero hunger, lagging progress in MENA on this and many of the other goals related to food and agriculture,[5] including reducing poverty (SDG 1), clean water and sanitation (SDG 6), decent work and economic growth (SDG 8), sustainable cities and communities (SDG 11), climate action (SDG 13), and peace, justice and strong institutions (SDG 16), is a poor sign of the future of food security in the region. Many of these worrying indicators were captured before the sudden disruption of COVID-19. Shortly after the onset of the pandemic, leaders from UNICEF, FAO, WFP, and the WHO immediately identified MENA as a region with high potential for growing food crises.[6]

5 *UN Department of Economic and Social Affairs (UNDESA), Sustainable Development Goals Progress Chart 2020, July 2020, https://sustainabledevelopment.un.org/node/26443.*

6 *UNICEF, FAO, WFP and WHO, Food Crisis Likely to Worsen in the Middle East and North Africa as COVID-19 Continues, 27 May 2020, https://shar.es/aWfNiT.*

Although the MENA region is not the most food insecure in the world, the United Nations estimates that approximately 50 million people in the region suffer from chronic undernourishment. Of these people, more than two-thirds live in conflict-affected countries, which report high rates of stunted growth and wasting among children as well as undernutrition across demographics.[7] Conflict is an obvious contributor to the region's food security, but there are several other factors that lead to almost entirely preventable levels of food insecurity across the MENA.

Poverty

Like in many other regions with poor social support, household food insecurity is closely associated with poverty in the MENA.[8] Despite multiple initiatives and agenda-setting measures, the rate of extreme poverty in MENA states has been increasing in recent years, nearly doubling between 2005 (3.8%) and 2018 (7.2%). The socio-economic ramifications of the COVID-19 pandemic are expected to contribute to higher poverty figures in 2021 and beyond.[9] While still lower than extreme poverty levels in other regions, protracted conflicts in Syria, Palestine, Libya and Yemen, along with corrupt or ineffective governments like those in Egypt, Iraq, Algeria and Lebanon have exacerbated economic inequalities and led to a poor government response to declining socio-economic indicators. Public spending has been declining in this region for decades, and non-state networks of economic support have filled some of these gaps, but social resilience in these communities has been rapidly expanded and is much more difficult to regain.[10] Moreover, the MENA region has a high rate of unemployment, especially among young adults, which leads not just to poverty and food insecurity, but brain drain and social unrest, which are contributors to conflict. High youth unemployment is thought to be a significant contributor to the Arab uprisings in late 2010 and beyond, which initiated as organic movements of change and reform to provide the region's youth with hope and opportunity, but ultimately led to destabilisation throughout the region.[11]

Population growth

MENA population is growing at a pace almost double the world average, with only sub-Saharan Africa reporting higher population growth.[12] Although growth rates have slowed in recent years, from 1950 to 2000 the population of the region increased from 100 to 380 million, outpacing any other region in long-term growth patterns. Development in MENA states had stalled due to decades of colonialism prior to the emergence of many of the nation-states recognised in the region today. In this context, innovations such as antibiotics and sanitation were particularly beneficial to prolonging life and decreasing infant mortality in these previously neglected areas. Despite decreasing birth rates, population momentum from the current generations of young people means that the population of MENA will likely double from 2000 to 2050.[13] More people entail higher demand for food and greater use of finite resources like arable land, water and energy. Higher population growth also tends to lead to greater urbanisation, which can leave the rural areas where domestic food production is based under-resourced. Thus, unmanaged population growth leads to both supply and demand issues that will lead to greater food insecurity and malnutrition.[14]

7 *United Nations, Around 52 Million in Near East, North Africa, Suffering Chronic Undernourishment, New UN Food Agency Report Reveals, 8 May 2019, https://news.un.org/en/story/2019/05/1038111.*

8 *Hans Lofgren and Alan Richards, "Food Security, Poverty, and Economic Policy in the Middle East and North Africa", in TMD Discussion Papers, No. 111 (February 2003), https://www.ifpri.org/node/3510.*

9 *World Bank, MENA: Global Action is Urgently Needed to Reverse Damaging Jumps in Extreme Poverty, 9 October 2020, https://www.worldbank.org/en/news/press-release/2020/10/09/mena-global-action-is-urgently-needed-to-reverse-damaging-jumps-in-extreme-poverty.*

10 *Steven Heydemann, "In the Middle East, Poverty Is Down But Economic Grievance Is Up. Why?", in Order from Chaos, 2 March 2021, https://brook.gs/3dWfSkO.*

11 *Krishna B. Kumar, "Crisis Beyond the Crisis. MENA's Youth Unemployment Problem", in Horizons: Journal of International Relations and Sustainable Development, No. 16 (Spring 2020), p. 186-197.*

12 *World Bank Data, Population Growth (Annual %)- Middle East and North Africa. https://data.worldbank.org/indicator/SP.POP.GROW?locations=ZQ.*

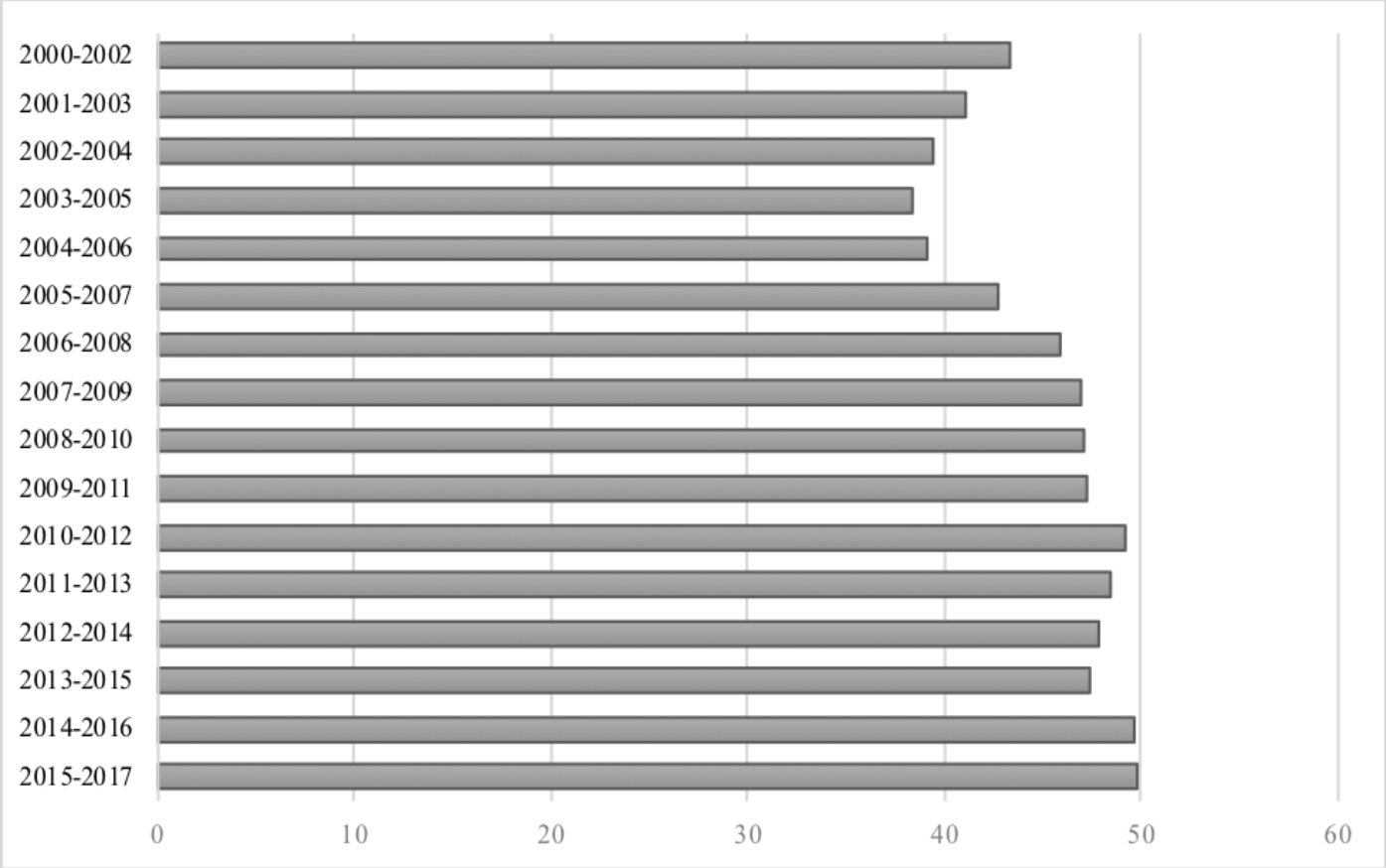
13 *Farzaneh Roudi-Fahimi, Population Trends and Challenges in the Middle East and North Africa, Washington, Population References Bureau, October 2001, https://www.prb.org/resources/population-trends-and-challenges-in-the-middle-east-and-north-africa.*

14 *Population Action International (PAI), Why Population Matters to Food Security, Washington, PAI, 2011, https://pai.org/wp-content/uploads/2012/02/PAI-1293-FOOD_compressed.pdf.*

Domestic food production

The demographic changes in the region, coupled with its pre-existing climate constraints, makes the MENA region one of the largest food importers in the world, despite its former reputation as an agrarian centre (see Figure 1). States in the region are almost entirely dependent on international food supply chains for the bulk of their goods.[15] Due to environmental limitations, it is not possible for the region to become self-sufficient with regards to food. Only 30% of the region's land is adequate for food production, and the bulk of that (25%) is grazing land for livestock. Only 5% of land in the region is arable, and of that potential cropland, nearly half needs irrigation to be viable. Further, land is being degraded by natural disasters and land mismanagement, further decreasing available land for food production. Many of the region's staple foods, like grains, are too water-intensive to grow in any significant quantities.[16] That said, it is also not necessary for the region to grow most of its food to remain food secure. The agricultural limitations of water scarcity, for example, are manageable by simply importing the needed food, which contains the virtual water embedded in the produced food but takes the burden off the water-insecure location.[17] This limits food insecurity, but as with any other innovation, has trade-offs like increasing dependence and potentially reducing the urgency to improve water management practices.

***Figure 1 |** Cereals import dependency ratio, Western Asia and Northern Africa (2000-2017)*



Note: A measure of the dependence of a country or region from cereal imports. Greater value indicates greater dependence.

Source: FAOSTAT, Cereal Import Dependency Ratio (Percent) (3-Year Average), http://data.un.org/Data.aspx?q=dependency+ratio&d=FAO&f=itemCode%3A21035.

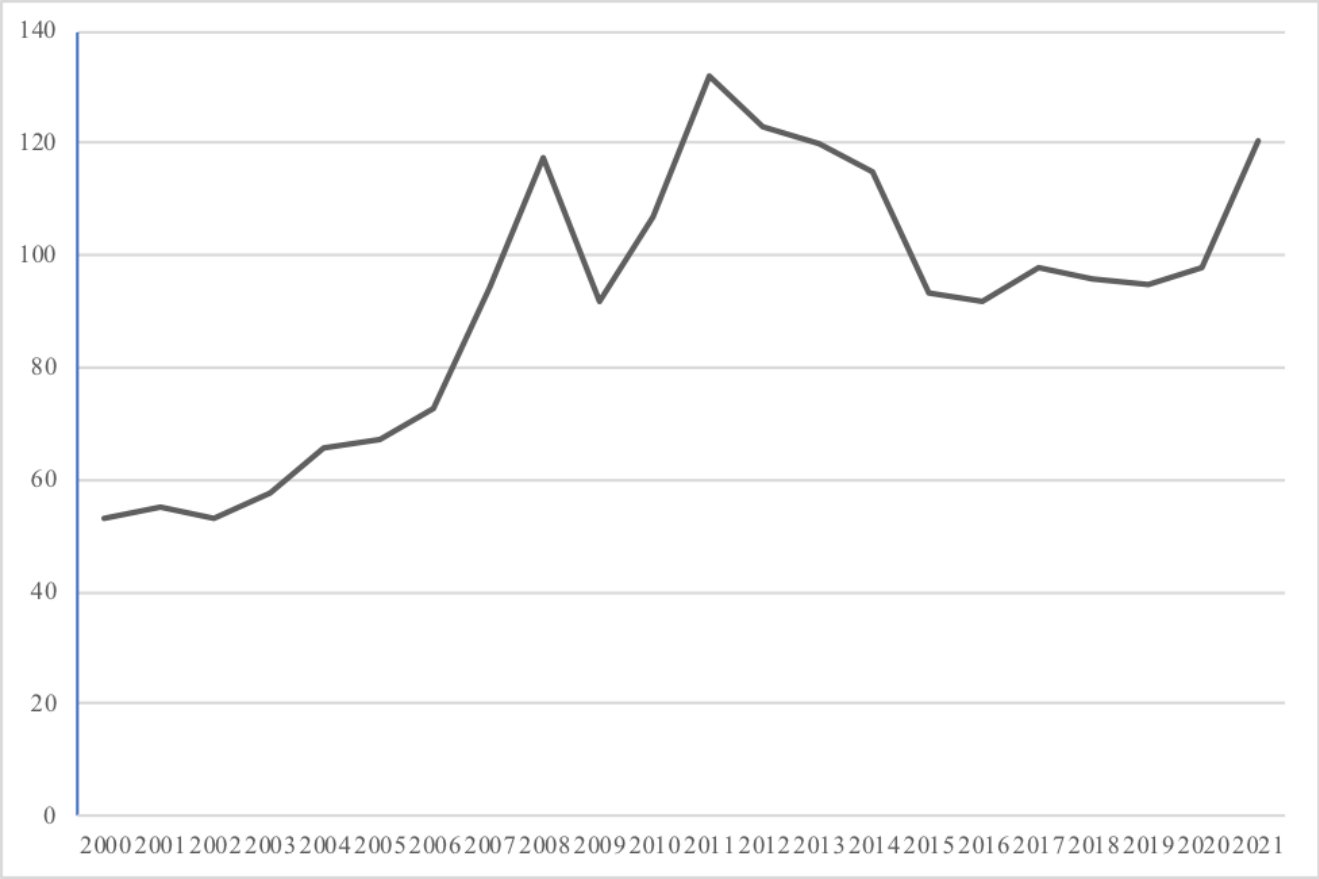
15 *Amal Kandeel, "Interconnected: Trade, Food Security, and Stability in the GCC and MENA", in MEI Articles, 9 July 2019, https://www.mei.edu/node/80271.*

16 *Omer Karasapan, "Striving for Water and Food Security", in The Cairo Review of Global Affairs, No. 36 (Winter 2020), p. 39-47, https://www.thecairoreview.com/?p=10585.*

17 *Neal T. Graham et al., "Future Changes in the Trading of Virtual Water", in Nature Commununications, Vol. 11 (2020), Article 3632, https://doi.org/10.1038/s41467-020-17400-4.*

Indeed, as with hunger across the world, the issue is not with food availability, but access. Dependence on imports means these states are highly sensitive to food supply chain disruptions, as was the case at the onset of the COVID-19 pandemic.[18] MENA countries that rely on imports are also vulnerable to global food prices, which spiked shortly before the Arab uprisings in the early 2010s and have been increasing again in recent years (see Figure 2 on next page).[19] Currencies are being devalued, and there's also rising inflation across the region, all factors that these states are wholly unprepared to contend with. As climate change shifts agricultural yields across countries that export crops and prepared foods, supply chains are liable to be disrupted. Despite efforts from governments across the MENA region to intervene, for example with food price subsidies, price volatility tests these efforts. Further, the logistics of importing, storing and distributing imported food also increase access issues, especially for the most vulnerable populations[20]

Figure 2 | *Cereals import dependency ratio, Western Asia and Northern Africa (2000-2017)*



Note: The FAO Food Price Index is an average of 5 commodity group price indices (meat, dairy, cereals, vegetables/oils and sugar).

Source: FAO Food Price Index, http://www.fao.org/worldfoodsituation/foodpricesindex.

18 *Abhijit Barman, Rubi Das and Pijus Kanti De, "Impact of COVID-19 in Food Supply Chain: Disruptions and Recovery Strategy", in Current Research in Behavioral Science, Vol. 2 (November 2021), Article 1000017, https://doi.org/10.1016/j.crbeha.2021.100017.*

19 *Food and Agriculture Organization (FAO), International Food Prices Continue Rising in April, 6 May 2021, http://www.fao.org/news/story/en/item/1397812.*

20 *Elena Ianchovichina, Josef Loening and Christina Wood, "How Vulnerable are Arab Countries to Global Food Price Shocks?", in World Bank Policy Research Working Papers, No. 6018 (March 2012), http://hdl.handle.net/10986/11976.*

Conflict

An abundant literature base suggests that food insecurity and conflict have a causal, cyclical relationship. Food insecurity contributes to a conflict's complexity and length, while conflict both directly and indirectly disrupts food production and distribution.[21] In such contexts, markers like the degradation of health systems, destruction of infrastructure and conflict-related economic shocks are often present long before food insecurity reaches crisis levels. There are many factors that mediate this relationship, including destruction of local markets, subjugation of women (who are disproportionately responsible for food production and household food security) and blockage of humanitarian access, especially in environments that are highly dependent on agriculture for livelihoods.[22]

Food is also often used as a weapon of war, such as the blockades and sieges seen in Syria, the Gaza Strip, Yemen and Libya. In Yemen, for example, where 90% of food is imported, the Saudi-led coalition imposed restrictions at Yemen's major ports after missiles from Yemen's Houthi rebels threatened the Saudi capital Riyadh. This, on top of pre-existing inspections and port congestion, severely disrupted Yemen's food supply chain. At the same time, the Houthis within Yemen were allegedly stealing food aid for their own economic benefit, which led the World Food Programme to change their food distributions mechanisms, resulting in a 50% decrease in aid provided.[23] As a result, Yemen is by far the worst humanitarian crisis in the world, with famine-like conditions throughout the country and some of the world's highest rates of malnutrition in children and pregnant women.[24]

It is not surprising that many of the major food crises of today are in conflict-affected states, including in and around the MENA and the Sahel, such as Afghanistan, Burkina Faso, Ethiopia, Iraq, Mali, Niger, Palestine, Somalia, Sudan, South Sudan, Syria and Yemen.[25] The Sahel is especially vulnerable to these disruptions as a microcosm of the broad issues driving instability: climate change, rapid population growth, conflict, migration and poverty. Food insecurity tripled in several states in the Sahel during 2020, the year of the COVID-19 pandemic,[26] and without significant investment in both agricultural and political stabilisation, it is unclear how this burgeoning food insecurity rate will dissipate, especially as Africa contends with a very slow vaccine roll-out.[27]

21 *Tilman Brück and Marco d'Errico, "Food Security and Violent Conflict, in World Development, Vol. 119 (July 2019), p. 145-149, https://doi.org/10.1016/j.worlddev.2019.04.006.*

22 *International Committee of the Red Cross (ICRC), "It Is Important to Address the Humanitarian Consequences of Hunger, But We Must Also Treat and Prevent Its Causes", 11 March 2021, https://www.icrc.org/en/node/88120.*

23 *Alessandra Perteghella, "The Circular Crisis: Food Insecurity in the Middle East's War Zones", in ISPI Publications, 11 July 2020, https://www.ispionline.it/en/node/26888.*

24 *World Food Programme (WFP) website: Yemen Emergency, https://www.wfp.org/node/299.*

25 *Food Security Information Network (FSIN), 2020 Global Report on Food Crisis, April 2020, https://www.donorplatform.org/publication-agenda-2030/id-2020-global-report-on-food-crisis.html; WFP, WFP Central Sahel Situation Report, 3 April 2021, https://reliefweb.int/node/3732350.*

26 *Caitilin Welsh, "Humanitarian Aid in Sahelian Cities: Lessons for Long-Term Food Security", in CSIS Commentaries, 21 January 2021, https://www.csis.org/node/59559.*

27 *World Health Organization (WHO), Risks and Challenges in Africa's COVID-19 Vaccine Rollout, 14 May 2021, https://www.afro.who.int/node/14554.*

Environmental Degradation, Climate Change and Food Availability

Current instability trends across the globe, from the humanitarian crises of nations like Syria and Yemen to the democratic backsliding across parts of the Western world, are worrying signs for social and economic indicators across the board, including food security. Yet one of the most potentially disruptive forces at all levels, and especially for the prospect of feeding billions of people, is largely being ignored by policymakers. Although climate change has already started showing many worrying outcomes (the last seven years have been the warmest on record), the worst seems yet to come.[28]

There are several mechanisms with which climate change will exacerbate food insecurity in the region. The most obvious is the effect of high temperatures, and the connected risk of increasing need for water. In 2021, five countries in the MENA have already registered temperatures that have topped 50° C (122° F), before the hottest summer months even began. These temperatures at this time of year are approximately 15° above average.[29] Such conditions of temperature and humidity test the limits of human tolerance.[30] These temperatures, and subsequent reductions in precipitation, are also highly threatening to many staple crops. Although irrigation helps mitigate some of these risks,[31] the MENA region is already among the most water insecure. Further, very few crops can grow at these temperatures to begin with, increasing the need for food imports and threatening the livelihoods of farmers. In higher temperatures, livestocks are also more likely to suffers from pests or disease. There are already decreasing yields across all states of the Mediterranean, from Morocco to Italy, from Syria to Egypt, especially for water-intensive crops which make up more than half of what is grown in the region.[32] Moving forward, the Mediterranean basin is projected to experience the greatest decline of projected rainfall of any area on Earth, and with most of the crops in the region rain-fed, this will be a critical loss for many of the region's crops, forests and biodiversity.[33]

Much of MENA is already composed of dry lands, inhospitable to many crops and plagued by frequent dust storms. Desertification, which occurs when previously fertile land becomes desert, is hastened by climate change. Just a few degrees of global warming, as is expected in the coming decades, would mean an increase in summer temperatures of up to 8° C, a 75% reduction in water runoff and an increase of land aridity by more than 60%. In urban regions that import food, this will increase food prices, while in rural areas that depend on agriculture, farmers will be subject to increased hunger, malnutrition and poor economic outcomes as a result of low yields.[34]

Increased natural disasters and extreme weather events, exacerbated by climate change,[35] are already occurring in the Mediterranean region, even in states that are currently stable and relatively wealthy. These pose significant risks for food security, especially heat waves, droughts, floods and the land degradation that comes with them. They threaten crops that are already growing as well as reduce future yield potential. These events cause both migration and urbanisation, which leads to food shortages and supply chain bottlenecks

28 *NASA, 2020 Tied for Warmest Year on Record, NASA Analysis Shows, 14 January 2021, https://climate.nasa.gov/news/3061.*

29 *Matthew Cappucci, "Record Heat Bakes Middle East As Temperatures Top 125 Degrees", in The Washington Post, 7 June 2021, https://www.washingtonpost.com/weather/2021/06/07/record-june-heat-wave-middle-east.*

30 *Colin Raymond, Tom Matthews and Radley M. Horton, "The Emergence of Heat and Humidity Too Severe for Human Tolerance", in Science Advances, Vol. 6, No. 19 (6 May 2020), Article eaaw1838, https://doi.org/10.1126/sciadv.aaw1838.*

31 *Paolo Agnolucci et al., "Impacts of Rising Temperatures and Farm Management Practices on Global Yields of 18 Crops", in Nature Food, Vol. 1 (2020), p. 562-571.*

32 *OECD and FAO, OECD-FAO Agricultural Outlook 2018-2027, July 2018, p. 67-107, https://doi.org/10.1787/agr_outlook-2018-en.*

33 *Roman Brogli et al., "Causes of Future Mediterranean Precipitation Decline Depend on the Season", in Environmental Research Letters, Vol. 14, No. 11 (2019), Article 114017, https://doi.org/10.1088/1748-9326/ab4438.*

34 *Katharina Waha et al., "Climate Change Impacts in the Middle East and Northern Africa (MENA) Region and Their Implications for Vulnerable Population Groups", in Regional Environmental Change, Vol. 17 (2017), p. 1623-1638.*

35 *Sandra Banholzer, James Kossin and Simon Donner, "The Impact of Climate Change on Natural Disasters", in Zinta Zommers and Ashbindu Singh (eds), Reducing Disaster. Early Warning Systems for Climate Change, Dordrecht, Springer, 2014, p. 21-49, https://www.ssec.wisc.edu/~kossin/articles/Chapter_2.pdf.*

and constrains the already-limited amount of arable land in the region. The effect of these events, including higher temperatures, are of course not localised to the MENA region. Many of the crop-producing nations from which the states in the Mediterranean import their food are also likely to suffer from some degree of disrupted food production. This may lead to domestic food shortages and increased food prices across the board. Whether it is due to the limited capacity of the domestic output, or the limited capacity to import needed foods, food availability in the region is going to be very difficult to sustain as the consequences of climate change become more visible and extreme.

Climate-Induced Food Insecurity in the Mediterranean Region and Risk of Conflict

For years, there was speculation that climate change-induced water scarcity contributed to the uprisings that triggered the repressive and destructive response by the Assad regime, sparking the civil war in Syria.[36] Many influential world leaders posited this very theory. Although later research questioned the direct connection, [37]what is clear from the literature is that food scarcity does cause tensions that can lead to violence or political instability. For example, there are examples across the Middle East and Africa that farmers who were suffering poor yields were more likely to lend support to extremist groups, like the self-proclaimed Islamic State or the Taliban and Boko Haram, who promised food or money or threatened their land or water access.[38] These poor yields are typically caused by land degradation, drought, inefficient farming practices and other factors that could be addressed by a forward-thinking and functional state. Yet, in the context of conflict, corruption and political instability, the state is essentially ineffective.

Many of the states that are the focus of this analysis are highly militarised and are led by authoritarian leaders or, in some cases, elected leaders that are corrupt or otherwise ineffective. What research has suggested is that as conflict is a predictor of food insecurity, food insecurity is also a predictor of conflict. It is a vicious cycle that perpetuates as citizens grow more desperate. Further, parts of the region will simply become uninhabitable, so populations will be forced to migrate, often to city centres. This was part of the theorised trajectory of Syria's descent into a brutal civil war. More marginalised people, all crowded together, in a poorly governed state with little respect for human rights and pre-existing ethnic or political tensions, presents all the conditions needed for conflict. Adding the factor of desperation for food, water, or livelihoods will inevitably lead to tensions that can easily transition to more widespread social unrest and even warfare.

Increases in food prices, or wild fluctuations in either direction, are both a determinant of and a consequence of armed conflict. Food prices increase due to supply chain factors and environmental factors, as previously addressed, but also as conflict reduces market activity and disrupts local trade. As food prices go up, social tensions increase as groups compete for limited food, water, arable land, livestock and other resources. Ineffective government actors that do not respond to disruptions in resource allocation or respond in ways that accelerate inequalities only fuel these social tensions that lead to conflict, which, in turn, lead to even higher food prices.[39] In such environments, the elites of the state will be able to afford the higher prices and ensure they have the food they need. They can also pay for private security, to live in safer areas, or to leave the country entirely if necessary. The poorest and most vulnerable sections of society are instead left to fight over the limited food and resources that remain.

36 *Colin P. Kelley et al., "Climate Change in the Fertile Crescent and Implications of the Recent Syrian Drought", in PNAS, Vol. 112, No. 11 (17 March 2015), p. 3241-3246, https://doi.org/10.1073/pnas.1421533112.*

37 *Lina Eklund and Darcy Thompson, "Differences in Resource Management Affects Drought Vulnerability Across the Borders between Iraq, Syria, and Turkey", in Ecology and Society, Vol. 22, No. 4 (2017), Article 9, https://doi.org/10.5751/ES-09179-220409.*

38 *Jessica Caus and Siobhan O'Neil, "Climate Change is Fueling Recruitment into Armed Groups", in The Hill, 17 February 2021, https://thehill.com/node/539160.*

39 *Jacopo Bordignon, "Do High Food Prices and Droughts Fuel Conflict?", in IFPRI Blog, 30 March 2015, https://www.ifpri.org/blog/do-high-food-prices-and-droughts-fuel-conflict.*

Migration is another factor that can lead to conflict, both within countries and between them. While the direct links between migration and climate change are difficult to quantify due to the long-term nature of climate-related outcomes, current evidence from natural disasters, extreme weather events and deteriorating conditions suggest that migration, either long- or short-term, is intrinsically connected to these manifestations of climate change. Local populations dependent on agriculture or animal husbandry for their livelihoods will, in some areas, be forced to move, rendering them potentially homeless and impoverished. Host countries unprepared for "climate refugees" may have strict policies that increase food insecurity among these populations and potentially destabilise these nations. Further, as land degrades, these states will become even more dependent on food imports and will be less self-sustaining. Waiting until the relationships between these factors are unquestionably confirmed will delay our ability to make the changes required to protect both the migrants and their potential host communities.[40]

Within countries, migration from rural areas that are no longer amenable to a lifestyle supported by agriculture to urban areas is already occurring and will only increase in coming decades.[41] Between countries, the United Nations has identified climate change, and the resulting increase in extreme weather events and land degradation, as some of the most significant contributors to mass migration.[42] Natural disasters are already contributing to higher global displacement than conflicts; while conflicts are still the primary cause of displacement across the MENA,[43] the region is already poor at managing its existing refugees that are fleeing horrific violence. The addition of tens of thousands of refugees fleeing climate-related factors will only lead to greater instability, resource scarcity and nationalism. Often, these conditions coalesce in the same areas, making climate a potential threat multiplier for the many other causes of conflict and instability. In the Sahel region, for example, both violence and environmental conditions have led to the displacement of millions of people within their home countries and also across the entire region. The situation is made even more volatile and potentially destabilising by the fact that people fleeing climate-induced conditions are not included in existing protections for refugees or those otherwise displaced by conflict or oppression.

Mitigating Strategies

With so much evidence linking the intersecting relationships between climate change, food insecurity and conflict, and a sobering assessment of an acceleration of these trends in the coming decades, the current hesitation in enacting transformative climate policies that will safeguard life and infrastructure is alarming. Even if worst case scenarios do not transpire, just maintaining the current trajectory of food insecurity and conflict in the MENA will lead to unnecessary loss of life, stagnant economic growth and an inability to tackle the food insecurity that already exists in the region. Time, of course, is not a renewable resource. With political will, which is unfortunately lacking at the moment, there are many actions that could be taken today to contend with some of these existing and future threats.

Many actors, with often positive intentions, will assume that offering food aid to hungry populations is the solution to food insecurity. While necessary in some situations of high fragility or near-famine, literature suggests food aid, when decoupled from political and social outcomes, actually increases the risk of conflict.[44]It also deepens dependence on external actors, which is not sustainable, and also depends on the constraints of donor nations, which fluctuate based on their own considerations. Aside from strategies to limit overall carbon emissions and rising global temperatures, ensuring food security in conflict-affected areas as the

40 *Kate Burrows and Patrick L. Kinney, "Exploring the Climate Change, Migration and Conflict Nexus", in International Journal of Environmental Research and Public Health, Vol. 13, No. 4 (2016), Article 443, https://doi.org/10.3390/ijerph13040443.*

41 *Audra K. Grant, Nicholas E. Burger and Quentin Wodon, "Climate-Induced Migration in the MENA Region: Results from the Qualitative Fieldwork", in Quentin Wodon et al. (eds), Climate Change and Migration. Evidence from the Middle East and North Africa, Washington, World Bank, 2014, p. 163-190.*

42 *UN High Commissioner for Refugees, Global Compact on Refugees (A/73/12(Part II)), 2018, https://digitallibrary.un.org/record/1640526.*

43 *Internal Displacement Monitoring Centre (IDMC), Global Report on Internal Displacement 2018, May 2018, https://www.internal-displacement.org/global-report/grid2018.*

44 *Nathan Nunn and Nancy Qian, "US Food Aid and Civil Conflict", in American Economic Review, Vol. 104, No. 6 (June 2014), p. 1630-1666.*

effects of climate change become more apparent will require significant collaborative efforts that go well beyond the provision of food and emergency assistance.

1 **First and foremost**, ending the conflicts and poor governance that prevent many of these states from tackling the other root causes of food insecurity would be the single most transformative effort. In May 2018, the United Nations recognised the cycle between conflict and hunger in a Security Council resolution. As David Beasley, Executive Director of the World Food Programme, said at the time, "Peace and food security go hand in hand. To end hunger, we need to end conflicts."[45] Conflicts in the MENA are complex and each has its own set of actors with its incentives, aspirations and limitations. Ending them would provide incalculable benefits to local populations and global stability. Yet, current climate change trends indicate that we do not have the luxury to wait until the region is stable before mitigation practices can be enacted.

All actors in the region must recognise that they are subject to scarce food supply. Global and regional actors should focus on bringing warring parties together to tackle food scarcity issues, even in the most fragile environments. Many of these countries share electricity grids, aquifers, and other water resources. Inter-regional trade, however, is limited, despite efforts like the Pan-Arab Free Trade Agreement, the Maghreb Arab Union, and the Agadir Agreement, which have encouraged some cross-border initiatives but have been disappointing in terms of building regional resilience.[46] Even the relatively stable and wealthy Gulf states are at risk of potential food insecurity if regional conflict reduces their ability to access their ports, creating a cascading negative effect across the region.[47] Coalescing around shared goals and outcomes may be more effective in peacebuilding than focusing on areas of disagreement. At the moment, warring parties use food to punish populations, by destroying farmland, stealing food supplies, blocking food aid and, in essence, encouraging starvation or migration. There are always parties that profit or benefit from such actions. External actors must work to reverse the incentive structures for these parties and critically assess their own role in potentially perpetuating conflicts by bolstering humanitarian agencies or client groups over building the capacity of fragile states and their civil societies.

2 Second, reforms and adaptations to farming systems must be implemented to increase resilience. Land management in the MENA is exceedingly poor: Jordan, Algeria, Egypt, Iraq, Syria, Tunisia and Palestine report over 60% of their land as degraded. Evidence suggests that every dollar invested in land restoration nets up to thirty dollars in economic benefits. Yet, ineffective governments with inadequate budgets do not have the capacity to tackle these issues, and the private sector is not incentivised to participate in such efforts.[48] Farmers should be trained in evidence-based practices like crop rotation, diversifying seed varieties, drip irrigation and agroforestry. Countries should also shift to growing crops more suitable for their climates with less focus on the most water-intensive crops that are grown in insufficient quantities to sustain population demand. At the same time, it is also important that restoration efforts maintain cultural and indigenous agricultural practices that are meaningful to local populations.

3 Third, risk-assessment practices need to be emphasised to identify areas of vulnerability and ensure consistent data collection. Many conflict-affected environments do not have consistent and credible data, especially with regards to highly localised or specific measures. With limited resources, internal and external stakeholders must be able to assess areas of prioritisation and increased need.

4 Fourth, institutions in conflict-affected states must be built to be able to transition to an era of growing food scarcity and significant shifts in food procurement and resource management. Policies in these states must reflect these realities. For example, the future of food security in the region is fundamentally linked to the

45 *WPF, We Can't End Hunger If We Don't End Conflict, 24 May 2018, https://www.wfp.org/stories/we-cant-end-hunger-if-we-dont-end-conflict.*
46 *Omer Karasapan, "MENA's Economic Integration in an Era of Fragmentation", in Future Development, 7 May 2019, https://brook.gs/2H5XWC7.*
47 *Amal Kandeel, "Interconnected: Trade, Food Security, and Stability in the GCC and MENA", cit.*
48 *World Bank, Sustainable Land Management and Restoration in the Middle East and North Africa Region. Issues, Challenges, and Recommendations, Washington, World Bank, 2019, http://hdl.handle.net/10986/33037.*

future of water security, but most wastewater in the region is not recycled, water tariffs are the lowest in the world and there is little accountability for excessive or wasteful water usage.[49] On top of water waste, despite the food insecurity of the region, there is significant food waste as well; approximately a third of all food in the region is lost or wasted. All the resources used to produce the food, from land to water to shipping materials, are essentially lost as well. This waste largely occurs due to poor harvesting, storing, handling and marketing practices, which are made possible by weak regulatory mechanisms and other governance flaws.[50] Reforms in these areas would reduce wasting precious food and water and would also offer economic incentives to actors to streamline food production and distribution processes, making food available to more people.

5 Another overlooked issue is the handling of so-called climate refugees. Rising sea levels, increased natural disasters, degraded land and other factors are already pushing populations to flee affected areas. However, there are no global legal protections for these populations. The agencies tasked with handling refugees are reluctant to reclassify these "environmental migrants" as refugees, in part because they are already underfunded and unable to meet current refugee needs. Creating legal frameworks for these migrants, as well as funding mechanisms to enable those who can adapt to climate change in their homes to do so while supporting migrating populations and the communities that will host them. These are two long overdue steps that can mitigate some of the social tension that mass migrations can portend.

6 Lastly, this is not solely a local or regional effort. Global actors at all levels have identified managing food security, and related issues of agricultural and water sustainability, as one of their highest priorities in the coming decades. While the UN Agenda 2030 laid out by the SDGs is perhaps the cornerstone of these efforts, many other initiatives have been announced in just the past few years, including the European Union's New Agenda for the Mediterranean, which will allocate up to €7 billion in economic investments,[51] the Union for the Mediterranean, who called for strengthening Euro-Mediterranean trade ties to avoid food security crises,[52] and the International Center for Agricultural Research in the Dry Areas, which started the Enhancing Food Security in Arab Countries initiative in 2011, meant to promote sustainable agricultural practices.[53]

These initiatives signal an understanding of the current and emerging needs of the region, exacerbated by the COVID-19 crisis, and the necessity to increase regional resilience and sustainability. They promote opportunities to provide safety nets for the region's most vulnerable, as well as the economic development that many states across the Southern Mediterranean, MENA, and the Sahel desperately needs to lift their populations out of poverty and decrease dependence. Yet, in a global system, global solutions are necessary. More attention to market volatility, efficiency in supply chains, and harmonised trade policies should be given in tandem with local development efforts to ensure long-term food security.[54] Many of these countries are food insecure not for inherent lack of resources or social capital, but due to the legacies of colonialism, foreign intervention, and conflict that have been inflicted upon them. The states that contributed to these destabilizing events should not assume that financial investment and development efforts are sufficient compensation; indeed, fundamentally rethinking the global systems that have thus far excluded the world's poorest and most vulnerable is required to ensure global equity and sustainability.

49 *World Bank, Beyond Scarcity. Water Security in the Middle East and North Africa, Washington, World Bank, 2018, http://hdl.handle.net/10986/27659.*

50 *FAO website: Tackling Food Loss and Waste in the Near East and North Africa, http://www.fao.org/neareast/perspectives/food-waste.*

51 *European Commission, Southern Neighbourhood: EU Proposes New Agenda for the Mediterranean, 9 February 2021, https://ec.europa.eu/commission/presscorner/detail/en/ip_21_426.*

52 *European Commission, Union for the Mediterranean Ministers Highlight the Importance of Regional Trade in Economic Recovery, 10 November 2020, https://trade.ec.europa.eu/doclib/press/index.cfm?id=2210.*

53 *International Center for Agricultural Research in the Dry Areas (ICARDA), ICARDA Calls Upon Joining Forces to Improve Food Security in MENA Region, 20 March 2018, https://www.icarda.org/node/2642.*

54 *Aysen Tanyeri-Abur, "Food Security in the Southern Mediterranean/North Africa", in Antonella Vastola (ed.), The Sustainability of Agro-Food and Natural Resource Systems in the Mediterranean Basin, Cham, Springer, 2015, p. 3-14, https://doi.org/10.1007/978-3-319-16357-4_1.*

Shifts in global food supply chains will be necessary, from growing food in suitable regions to finding ways to produce and ship food more efficiently and in ways that do not increase carbon emissions. Volatility in food prices can be addressed through assessing trade protections, taking corruption seriously, strengthening markets in fragile states by building infrastructure and supporting context-appropriate regulation. This can be further supported by providing reliable, consistent and up-to-date information on crop yields, stocks and availability. These reforms should be implemented with the involvement and support of local populations at all levels, and not presented as dictates from humanitarian agencies, donor states or other external actors. States should be incentivised to try different initiatives and report back honestly on their progress. Failure in achieving target outcomes should be treated as evidence with which to move on to different practices, not as justification that climate change, conflict or food insecurity are simply too complex to address through policy changes and mitigating strategies.

Conclusion

Food is intrinsic to human life and well-being. Being deprived of food when there is no shortage of food produced should not still be a common occurrence today, and yet, for too many people, it is. Many of these populations also live in areas affected by conflict or political instability. These people will be among the first to experience the negative effects of climate change and the least likely to see reforms that will benefit them in the long-term.

The history of human development thus far is awe-inspiring. Still, there are too many instances today where we rely on the ideas of the past to tackle the threats of the future. Food insecurity, climate change and conflict are some of the areas that are most detrimental to a functional and prosperous global system, yet the most likely to be obscured in policy choices because their root causes are so complex and require levels of trust, accountability and cooperation that are unprecedented in human history. Only when policymakers and citizens begin to assess these issues as part of a larger effort to create a more sustainable and peaceful future, can the momentum and commitment to move forward in a different direction be created and sustained.

Environmental Security and Climate Diplomacy in the Mediterranean

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Climate vulnerability and risks

Characterised by hot, dry summers and cool, humid winters, the Mediterranean region – spanning southern Europe, North Africa and the Near East – is one of the most vulnerable regions to climate change. This relates to the region's exposure, sensitivity and adaptive capacities to climate variations.[1] The observed changes in annual mean temperatures in the Mediterranean basin are about 1.5°C above late 19th-century levels and exceed global mean temperature change. In North Africa, an average temperature rise of 2 to 3°C is expected by mid-century, with particularly high rates in mountain regions and more moderate trends across coastal areas.

Precipitation changes are less robust, but enhanced evapotranspiration and declining rainfall are expected to substantially reduce water availability throughout the Mediterranean region in the coming decades. A global warming of 2°C will probably result in a reduction of around 10–15% of summer precipitation in southern France, northwestern Spain and the Balkans and up to 30% in Turkey and Portugal.[2] The RCP8.5 scenario of the Intergovernmental Panel on Climate Change (IPCC)[3] projected decreasing annual precipitation, reaching -30 to -40% in some parts of the Mediterranean basin, relative to the 1986–2005 reference period, leading to increased dry spells and droughts.[4] Drying is affecting most Mediterranean countries and is aggravating semi-arid to arid conditions which will further stress water availability for many communities and terrestrial ecosystems. Changes in vegetation and ecosystems interact with soil quality, the carbon cycle, groundwater replenishment and a shrinking resource base.

Climate and environmental changes pose significant risks for Mediterranean countries, including extreme weather events and the degradation of water, soil and food.[5] Deserts, rivers and coastal zones are all affected, as are rural and urban areas as well as economic, social and political dynamics. Natural resources and vital infrastructure are particularly vulnerable to climate change.[6] These risks can undermine human livelihoods and development opportunities which in turn can trigger migration and political or even military tensions.[7] Low per capita income and its unequal distribution, lack of expertise and technology as well as tense state-society relations are limiting adaptive capabilities to mitigate the effects of climate change, a trend that is particularly present in North Africa compared to Europe but is even more pronounced in many African countries. Climate-fragility risks are indeed recognised as posing significant threats to the stability and development of states and societies across the Mediterranean region.[8] A number of these more salient risks are addressed below.

1 *Intergovernmental Panel on Climate Change (IPCC), Climate Change 2014. Impacts, Adaptation, and Vulnerability, Cambridge, Cambridge University Press, 2014, https://www.ipcc.ch/report/ar5/wg2.*

2 *Wolfgang Cramer et al., "Climate Change and Interconnected Risks to Sustainable Development in the Mediterranean", in Nature Climate Change, Vol. 8, No. 11 (November 2018), p. 972-980. For a comprehensive assessment see: Wolfgang Cramer, Joël Guiot and Katarzyna Marini (eds), Climate and Environmental Change in the Mediterranean Basin. Current Situation and Risks for the Future. First Mediterranean Assessment Report, Mediterranean Experts on Climate and Environmental Change (MedECC), November 2020, https://www.medecc.org/?p=3506.*

3 *RCP stands for Representative Concentration Pathways (RCPs) of greenhouse gas concentration scenarios adopted by the IPCC. The scenarios RCP2.6, RCP4.5, RCP6, and RCP8.5 represent 2.6, 4.5, 6, and 8.5 W/m2 radiative forcing values in the year 2100, respectively.*

4 *See Manfred A. Lange, "Climate Change in the Mediterranean: Environmental Impacts and Extreme Events", in European Institute of the Mediterranean (IEMed), Mediterranean Yearbook 2020, Barcelona, IEMed, 2020, p. 30-45, https://www.iemed.org/?p=19778.*

5 *Ibid.*

6 *Wolfgang Cramer et al., "Climate Change and Interconnected Risks to Sustainable Development in the Mediterranean", cit.*

7 *See Janpeter Schilling et al., "Climate Change, Vulnerability and Adaptation in North Africa with Focus on Morocco", in Agriculture Ecosystems & Environment, Vol. 156 (1 August 2012), p. 12-26; Janpeter Schilling et al., "Climate Change Vulnerability, Water Resources and Social Implications in North Africa", in Regional Environmental Change, Vol. 20 (2020), Article 15, https://doi.org/10.1007/s10113-020-01597-7.*

8 *Lukas Rüttinger et al., A New Climate for Peace. Taking Action on Climate and Fragility Risks, Berlin/London/Washington/Paris, adelphi, International Alert, The Wilson Center, EUISS, 2015, https://climate-diplomacy.org/node/5080.*

Local resource competition

Global warming together with population growth, local and short-term environmental changes affect the accessibility, scarcity and distribution of natural resources, such as water, soil and arable land, food, energy, fish, forests, biodiversity and raw materials. With increasing pressure on natural resources, competition can lead to instability, human displacement and conflict in the absence of effective dispute resolution mechanisms. This can burden social systems, lead to economic decline, weaken state authority and increase tension between social groups.

Extreme weather events and disasters

Weather extremes in the Mediterranean include droughts, heat waves, wild fires, heavy rainfall, coastal flooding, storms and surges, which affect millions of people. The regional crisis is affected by the frequency of droughts which have increased since the 1950s as well as heat waves which imply significant health risks for vulnerable populations, especially in cities.[9] Extreme events can increase human vulnerability, social fragility and grievances, especially in conflict-affected situations. Social consequences include the destruction of infrastructure (e.g. water, food, health, energy and transportation), threats to human life and livelihood, weakened human security and social stability.[10] While the risk of natural disasters is increasing in the Mediterranean as a whole, about two thirds took place in southern Europe and more than half were hydrological disasters such as floods and landslides.[11] At the same time, the number of severe casualties declined due to improved early-warning, forecasting and evacuation. Disaster vulnerability is diminished by adaptive capacities to cope with the consequences and balance climate impacts against the cost for protection, possibly amounting to several GDP percentage points. Governments, international organisations and civil society work together in crisis prevention, disaster risk reduction and climate change adaptation.

Sea-level rise and coastal degradation

Coastal zones in the Mediterranean are exposed to sea level rise and related land losses, possibly exceeding 1 meter by 2100. Half of the 20 global cities suffering most from rising sea levels by 2050 are in the Mediterranean and about 1/3 of the region's population may be impacted.[12] Most critical is the effect on the coastal cities, port infrastructure, salinisation of city aquifers and commercial trade. In addition, disagreements over maritime boundaries and ocean resources may increase. The inundation of the Nile River delta and its urban centres has already begun. In the city of Alexandria, five million people are directly exposed to rising waters flooding the basements of buildings. In addition, the Nile's flow is reduced by the construction of the Aswan High Dam and the upstream extraction of water by Ethiopia's Grand Renaissance Dam, resulting in decreased water flows and low replenishment of delta soils by river deposition. All of the factors combined threaten 30-40% of Egypt's agricultural production and much of its fishery resources which depend on the Nile Delta and Mediterranean coast but is increasingly exposed to salt water intrusion.[13]

Water stress and management

Water scarcity and drought are long-known and widespread challenges in Mediterranean (semi-)arid zones and will likely increase due to climate change and precipitation declines. In addition to global warming, local overexploitation of existing water reservoirs and groundwater aquifers and the utilisation of ecosystem services leads to water stress and shortages, affecting agriculture, forestry, glaciers, hydropower and ecosystem stability

9 *Wolfgang Cramer, Joël Guiot and Katarzyna Marini (eds), Climate and Environmental Change in the Mediterranean Basin, cit.*

10 *Jürgen Scheffran, "The Geopolitical Impact of Climate Change in the Mediterranean Region: Climate Change as a Trigger of Conflict and Migration", in IEMed, Mediterranean Yearbook 2020, Barcelona, IEMed, 2020, p. 55-61, https://www.iemed.org/?p=19854.*

11 *Daria Kerssenbrock, Effects of Natural Disasters on Conflicts in the Mediterranean Region, Master Thesis, Hamburg University, Institute of Geography, 2019.*

12 *Wolfgang Cramer, Joël Guiot and Katarzyna Marini (eds), Climate and Environmental Change in the Mediterranean Basin, cit.*

13 *Michael Link, Jasmin Kominek and Jürgen Scheffran, "Impacts of Accelerated Sea Level Rise on the Coastal Zones of Egypt", in Mainzer Geographische Studien, Vol. 55 (2013) p. 79-94, https://www.blogs.uni-mainz.de/fb09geomorphologie/files/2013/10/20130715-MGS-30-Henning-und-V%C3%B6tt-2013-AMK_Tagungsband.pdf.*

in many countries across the Middle East and North Africa (MENA). Together with projected population growth, access to safe drinking water and green water for agriculture (the most important consumer of water) will likely decline. Fresh water availability is to decrease by up to 15% which is among the largest decreases in the world, classifying more than 250 million people as "water-poor" within 20 years.[14] While MENA countries largely rely on precipitation or groundwater, Egypt's water for agriculture mostly comes from the Nile. Per capita water supply has dropped 60% in Egypt since 1970, however, and by 2025 the UN expects Egypt to face absolute water scarcity, while about 100 million people will be exposed to water scarcity in the region.[15] Groundwater extraction should not exceed replenishment. The imbalance between water demand and supply affects water availability and quality, making water a source of competition and tension which exacerbate pressure on governance structures. Transboundary water dispute settlement can be accompanied by stronger institutions, better dissemination of knowledge and peaceful water cooperation between governments in transboundary river basins, requiring a more efficient integrated and comprehensive water management in the Mediterranean. To reorganise regional water governance, the establishment of a Mediterranean Water Agency is suggested, together with a Mediterranean Network of Water Resources aiming at information exchange and cooperation between centres of expertise. This could be coupled with a Mediterranean Committee of Water Actors, to support decision-making among stakeholders on regional water policies and an executive body allotting financing that could be attached to an existing international agency.[16]

Land degradation and food insecurity

Mediterranean food security is restrained by global warming, which will likely decrease agricultural output due to heat stress and reduced water availability, deforestation and overgrasing, land clearance and intensification, soil salinisation, desertification and ecosystem degradation.[17] Agricultural practices that aim for greater crop yields have increased water use for irrigation, with adverse consequences for water, biodiversity and landscape functions, disturbances of environmental integrity and ecosystem services.[18] Pressures from climate change combine with disrupted food production, growing food demand, dependency on food imports and volatile food prices. While food demand is expected to increase, crop, fish and livestock yields may decline by 90%, continuing the trend of overfishing commercial fish stocks. [19]There are substantial differences in food security between southern Europe, which may adapt to climate change, and North Africa, where agricultural land is largely exploited and limited by the Sahara desert. Together with less oil revenues and international land speculations, such trends may contribute to regional food crises, protests, riots and civil conflict.[20] Food insecurity risks can be mitigated by better information and market access, technical advances in resource efficiency and improved agricultural policies that limit waste and are able to develop more resilient and self-sufficient food systems.

Livelihood insecurity and climate-induced migration

Migration is a complex multi-causal process that combines environmental and climate-related factors with other socio-economic, political and security drivers. With rising temperature, it may become more difficult to maintain living standards and development opportunities for growing sections of the population in this region. Undermining human security and livelihoods, climate change is becoming a driver for irregular migration flows and forced displacement. Weather extremes, food and water shortages are likely to displace millions, from rural to urban areas, across borders or further afield crossing the Mediterranean into Europe.

14 *Wolfgang Cramer, Joël Guiot and Katarzyna Marini (eds), Climate and Environmental Change in the Mediterranean Basin, cit.*
15 *Aziza Moneer, "Rethinking the Response to Climate Change Threats in the Mediterranean: Lessons from the Coronavirus Emergency", in IEMed, Mediterranean Yearbook 2020, Barcelona, IEMed, 2020, p. 145-152, https://www.iemed.org/?p=20049.*
16 *Institut de Prospective Économique du Monde Méditerranéen (IPEMED) website: Governance, Key to the Right to Water in the Mediterranean: Towards a Mediterranean Water Agency, http://www.ipemed.coop/en/our-projects-r16/water-c137/governance-key-to-the-right-to-water-in-the-mediterranean-towards-a-mediterranean-water-agency-sc209.*
17 *Wolfgang Cramer et al., "Climate Change and Interconnected Risks to Sustainable Development in the Mediterranean", cit.*
18 *Ibid.*
19 *Wolfgang Cramer, Joël Guiot and Katarzyna Marini (eds), Climate and Environmental Change in the Mediterranean Basin, cit.*
20 *Jürgen Scheffran, "The Geopolitical Impact of Climate Change in the Mediterranean Region", cit.*

Public statements, policy debates and the research literature have identified environmental migration as a security issue, intensifying social unrest, competition over farmlands, housing, wood, water, employment and social services which could potentially increase tensions in origin, transit and destination countries and regions.[21] Climate change is among the push and pull factors of migration, including large differences in income and risks between southern Europe and the MENA. North Africa is both a migration destination and transit region,

amplified by population pressures from the Sahel. In the past decade, millions of people migrated from Syria, Yemen, Afghanistan, Iraq and the Sahel. During the so-called European "refugee crisis" of 2015, anti-migration sentiments, nationalist governments and media coverage provoked tensions in Europe while the European Border and Coast Guard Agency (Frontex) expanded border control against refugees, raising humanitarian concerns. These developments framed the debate on environmental and climate migration in wake of the 2015 Paris climate conference and beyond. Since then, various recommendations on climate migration have been suggested to the German government, amongst others. These include, the promotion of climate change mitigation policies in Europe, with support for developing states in climate-smart transformation (climate matching) and climate adaptation in regions of origin and destination of displacement; enhance interventions and support for sustainable urban development to improve living conditions and create viable prospects for displaced persons.[22]

A constructive approach strengthens positive linkages between human migration, climate adaptation, resilience, sustainable development and peace-building, connecting capabilities, resources, expertise, technologies and remittances in migrant communities. Diaspora networks can facilitate cooperation, for instance in improving resource management and efficiency, the development of new types of natural resources and crop varieties, sustainable energy supply and disaster management.[23] Projects initiated and run by migrant organisations can be successful if jointly supported by co-development of governmental and non-governmental actors in countries of origin and destination. Since the 1960s, sub-Saharan African migrants to France, Spain, Italy, Germany, the UK and other countries have created organisations and initiated co-development projects to construct schools, clinics, drinking water and irrigation systems in their home countries, which can help to prevent forced migration. For instance, Migrations et Développement was founded in 1986 in France by immigrants from the Sousse region in Morocco. Projects were conducted in more than 400 villages serving over 100,000 people, including projects for electrification, drinking water and irrigation, education, health and agriculture.[24] To build infrastructures and institutions they cooperated with local authorities, governmental institutions, international funding bodies and the EU. The Program Against Drought established projects on rainwater collection and storage, construction of wadi dams, water resource management and networks of drinking water in dozens of villages.[25]

21 *Jürgen Scheffran and Hans Günter Brauch, "Conflicts and Security Risks of Climate Change in the Mediterranean Region", in Stefano Goffredo and Zvy Dubinsky (eds), The Mediterranean Sea. Its History and Present Challenges, Dordrecht, Springer, 2014, p. 625-640.*

22 *See Commission on the Root Causes of Displacement, Preventing Crises, Creating Prospects, Protecting People. Summary Report, Berlin, Federal Ministry for Economic Cooperation and Development, 2021, https://data2.unhcr.org/en/documents/details/87005.*

23 *Jürgen Scheffran, Elina Marner and Papa Sow, "Migration as a Contribution to Resilience and Innovation in Climate Adaptation: Social Networks and Co-development in Northwest Africa", in Applied Geography, Vol. 33 (April 2012), p. 119-127.*

24 *For more on this initiative see, https://www.migdev.org.*

25 *Jürgen Scheffran, Elina Marner and Papa Sow, "Migration as a Contribution to Resilience and Innovation in Climate Adaptation", cit.*

Environmental risks, violent conflict and climate instability

The Mediterranean has historically been a hotspot of overlapping geopolitical conflicts involving regional and international actors, as witnessed during both World Wars, the Cold War and beyond. In the 21st century, geopolitical landscapes and transformation processes in the Mediterranean became increasingly complex, connecting multiple scales, actors and dimensions of security which are influenced by environmental change. The Middle East remains at the centre of some of the world's most intractable security dilemmas and is lacking effective regional security structures.[26] There are numerous entangled conflicts in complex crisis constellations (Israeli-Arab-Palestinian; Turkey-Greece; Iraq, Libya, Syria, Yemen; the Balkan conflict; terrorist attacks; and popular mobilisations such as the Arab uprisings of 2011). Refugee movements, and many state and non-state actors, including external powers (the US, China, Russia, NATO and the EU) are also deeply involved in the area. Conflicts around the Mediterranean can spill over into neighbouring regions in Europe, the Sahel and sub-Saharan Africa as well as western, central and southern Asia.

In addition to hard security threats involving violence, militarisation and arms races, the Mediterranean region is experiencing "soft security" risks in energy security, climate change, environmental degradation, resource scarcity, population growth, health and development. Environmental security has been defined as "the way in which environmental degradation threatens the security of people, with a particular emphasis on the differentiated impacts of environmental degradation on different groups of people"[27]. Environmental security can entail environmental threats to national security, violent conflict and terrorist action, risks to military bases and supply lines, or undermine the territorial integrity of states (e.g. loss of small island states by sea-level rise). Human-centred security impacts shift the focus to human wellbeing, survival or the empowerment of people against environmental change. Environment-centred security, on the other hand, considers the environment as the main reference object and focuses on the risks and threats to the environment, such as biodiversity loss, ecological tipping points or the disruption of eco-systems.[28]

Climate change is a contributing but rarely dominant factor in armed conflict within and between nations, with large regional differences regarding vulnerability, adaptation and conflict resolution. More direct causalities are linked to communal violence, tensions between farmers and pastoralists or protests and riots against governments. That said, a correlation between temporal frequencies of armed conflicts and severe natural disasters in the Mediterranean region (based on the EM-DAT database and the Uppsala Conflict Data Program) finds a relevant probability that a conflict outbreak was preceded by a natural disaster.[29] Droughts are found to increase the likelihood of violence for ethnic diversity, political exclusion, low income and dependence on agriculture, particularly when combined with water scarcity and rising food prices. Forced displacement on a massive scale is likely to increase friction with established communities and government authorities.

Increasing water stress and water scarcity in the Mediterranean could overstretch the region's ability for sustainable water and peaceful crisis management. Hydrological over-exploitation and insecurity can contribute to social instability, border tensions or violent conflict, in particular in MENA's arid and semiarid zones. Water resources also face trans-boundary water disputes, often coinciding with land disputes, although there have been no interstate wars over water but rather water agreements and cooperation projects. While competition over shared water resources has long been an issue for the Nile, Euphrates, Tigris and Jordan rivers, climate change makes fair water sharing and dispute resolution more difficult, due to power imbalances and pre-existing political and socio-economic challenge and vulnerabilities.

26 *See for instance, Anoushiravan Ehteshami, Daniela Huber and Maria Cristina Paciello (eds), The Mediterranean Reset. Geopolitics in a New Age,Global Policy e-books, 2017, https://www.globalpolicyjournal.com/node/4217.*

27 *Jon Barnett, The Meaning of Environmental Security. Ecological Politics and Policy in the New Security Era, London/New York, Zed Boooks, 2001, p. 12.*

28 *Janpeter Schilling et al., "Resilience and Environmental Security: Towards Joint Application in Peacebuilding", in Global Change, Peace & Security, Vol. 29, No. 2 (2017), p. 107-127.*

29 *Jürgen Scheffran, "The Geopolitical Impact of Climate Change in the Mediterranean Region", cit.*

Climate change as a risk multiplier in regional hot spots

Global warming is one of multiple risk factors in the Mediterranean. These include:

- Environmental degradation (pollution, desertification, water scarcity and food insecurity);
- Critical supply networks and infrastructure stress (water, food, electricity, finance, health and wealth production more generally);
- Socio-economic problems (unemployment, recession, inequality, social divisions, hunger and poverty);
- Demographic drivers (population growth, ethnic diversity, migration, urbanisation);
- Political issues (marginalisation, inequality, authoritarianism and regime instability, riots, conflict and violence).

Reinforcing pre-existing challenges, climate change can act as a threat multiplier and generate compounded risks for multiple drivers that overburden the adaptive capacity and stability of fragile countries, many of which are already trapped in vicious cycles of conflict, political tensions and declining living standards. Particularly destabilising is the degradation of assets and infrastructures which are important for the capacity of a society to respond or adapt to climate impacts and essential to maintain state and societal resilience. Even seemingly stable states can be pushed towards fragility if climate stress is high enough. In the most affected regional hot spots, climate, political and socio-economic challenges may reach critical thresholds of state fragility, forced displacement and violent conflict, leading to tipping points and cascading risks. Instability in one part of the Mediterranean can undermine stability in other parts through spill-overs. High vulnerabilities and low adaptive capabilities increase the probability of climate–conflict linkages.

There are large regional differences between southern Europe, North Africa and the Near East regarding adaptation and conflict resolution capacities. For instance, around 90% of the land in Iraq is estimated to be at risk from desertification and land degradation, forcing rural communities to abandon their lands and leading to tensions with urban communities. Southern Mediterranean countries face pressing economic, social and political challenges of climate change, adding to frustration with the government due to social inequality, unemployment, poverty, lack of democracy and participation. Emergency measures are insufficient to avoid economic recession, social collapse and political instability in the long-run. The Covid-19 pandemic has demonstrated the region's vulnerability, imbalances and lack of preparedness to tackle emergency risks and pandemics. Yet, the response to the pandemic has also triggered new stimulus packages that aim to spur economic recovery that compatible with climate objectives.[30] These could provide an opportunity to re-address certain imbalances and vulnerabilities, albeit it will take time to produce results and improvements.

Egypt and its capital Cairo, for instance, are highly vulnerable to climate impacts, including water scarcity, land degradation and agricultural losses. Demographic pressures of a doubling population may intensify land and water competition further.[31] Egypt depends on the Nile for 95% of its water consumption and is affected by increasing water demand by upstream countries like Ethiopia and its Grand Renaissance Dam. The impacts of climate change on the Nile River Basin are yet uncertain. Past initiatives suggested agreements to regulate

30 *Aziza Moneer, "Rethinking the Response to Climate Change Threats in the Mediterranean", cit.*

31 *See Janpeter Schilling et al., "Climate Change, Vulnerability and Adaptation in North Africa with Focus on Morocco", cit.; Janpeter Schilling et al., "Climate Change Vulnerability, Water Resources and Social Implications in North Africa", cit.*

water distribution in the Nile basin to avoid violence[32], but tensions in the area remain very high.

Morocco's agriculture is also vulnerable to climate change but less to related environmental conflicts.[33] Algeria, Egypt and Libya, on the other hand, have experienced recent conflicts and thus retain an elevated conflict and potential instability risk in relation to water, resource scarcity and climate change.

In the wake of the popular mobilisations of 2011 across many MENA states, several studies argued that the political crises were aggravated by climate change due to extreme weather events, in particular drought and crop failure in China and Russia which contributed to rising global wheat prices and food shortages on markets worldwide, together with other drivers. As a major wheat importer, the MENA region suffered from aggravated hardships during this period, also contributing to popular grievances and potential political unrest.[34] This illustrates how beyond a tipping point, a compound of events can lead to a chain of cascading risks on third countries and regions. Among the consequences of the Arab uprisings were the fall of autocratic regimes, regional instability, refugee movements, terrorism, civil wars and external interventions in Libya, Syria and Yemen.

A further example of these compound risks is provided by Syria. In the years preceding the 2011 uprising, and specifically between 2007 and 2009, one of the worst drought periods hit the Fertile Crescent, making farmers vulnerable to reduced water availability, crop failures, soil infertility, cattle deaths and displacement from rural areas. The GDP share of agriculture in Syria, like employment rates, dropped significantly in the last two decades, aggravated by liberalisation, mismanagement and poor governance. Environmental change added to other conflict drivers, such as governmental failure and opposition to the Assad regime. There is disagreement in the literature about the role of climate change and specifically water scarcity in fuelling the Syrian crisis and revolution.[35] While some studies highlight its catalytic effect on protest and conflict, others doubt the significance of its impact. While disagreement persists, there is no debating the destabilising effects the Syrian civil war has had on the region and beyond.

From fossil fuel to renewable energy

MENA countries are rich in fossil fuel resources and dependent on carbon-intensive industries. Ensuring a just transition means avoiding the creation of new sources of carbon lock-in – that is, investment in or subsidies for fossil fuel activities and the increase in the dependence of small and medium-sized enterprises or public revenue on carbon-intensive industries.[36] Part of the revenues from energy exports are used to ensure access to water (e.g. through desalinisation plants) and food imports (virtual water) in the water-energy-food nexus. Declining gas and oil reserves are imminent factors in domestic decision making processes and geopolitical struggles, together with growing energy demand, weak state-society relations, political accountability and environmental damage. In the coming decades the region's fossil reserves will be nearly exhausted or their utilisation restrained by climate policies that aim to reduce carbon emissions. Weak legislative and absent governance frameworks impede effective national energy policies.

32 *Michael Link, Jasmin Kominek and Jürgen Scheffran, "Impacts of Accelerated Sea Level Rise on the Coastal Zones of Egypt", cit.*
33 *Janpeter Schilling et al., "Climate Change, Vulnerability and Adaptation in North Africa with Focus on Morocco", cit.*
34 *See, for instance, Caitlin E. Werrell and Franceso Femia (eds), The Arab Spring and Climate Change. A Climate and Security Correlations Series, Washington, Center for American Progress, 2013, https://ampr.gs/YZOKQF.*
35 *Tobias Ide, "Climate War in the Middle East? Drought, the Syrian Civil War and the State of Climate-Conflict Research", in Current Climate Change Reports, Vol. 4, No. 4 (December 2018), p. 347-354.*
36 *Noel Healy and John Barry, "Politicizing Energy Justice and Energy System Transitions: Fossil Fuel Divestment and a 'Just Transition'", in Energy Policy, Vol. 108 (September 2017), p. 451-459.*

The Mediterranean share of carbon emissions amounted to no more than 6% of global emissions[37] but due to population growth in the MENA (from 105 million in 1960 to 444 million in 2017) energy demand will further increase until 2050.[38] By 2040, energy consumption is likely to double in southern Mediterranean countries and electricity consumption is expected to triple, leading to a relevant increases of CO2 emissions.[39] Compared to fossil fuels, which are major drivers of global climate change, only few countries in the Mediterranean have relevant nuclear power programmes. While some (France, Spain) are reducing the share of nuclear electricity in their energy mix or have abandoned it (Italy), others are moving in the opposite direction (Turkey, Egypt and Jordan). Nuclear energy is associated with high costs, risks and proliferation fears, and also include climate change impacts. Moreover, Egypt is constructing its El Dabaa nuclear power plant at a site near Alexandria where it is exposed to sea level rise.[40]

Yet, Mediterranean basin countries are rich in renewable energy resources, largely wind and solar, to a smaller degree hydropower, bioenergy and geothermal. Southern Mediterranean states have great potential for photovoltaic (PV) and onshore/offshore wind power (mainly Morocco, Egypt, Jordan and Turkey) and the largest concentrated solar power (CSP) potential in the world.[41] Energy cooperation and transformation from fossil to renewable energy can attract income, investment and technology which could substantially reduce carbon emissions and help to establish economic development and social stability in the entire region. Connecting renewable energy by power grids creates multiple benefits in energy and climate security, including development and employment opportunities and may even provide avenues to reduce geopolitical tensions.

Renewable energy investments are still considered low in the Mediterranean region, increasing from around 1% in the 2004-2011 period to 4% of the global total in 2012 and 2013.[42] While renewable energy investment in the southern Mediterranean was planned to reach a potential $45 billion under the Mediterranean Solar Plan (MSP)[43], investments actually reached a record of $16.5 billion in 2018 and then dropped to $15.2 billion in 2018. [44]Egypt received support by international investors (including EU) of $490 million for a 200-megawatt wind project in the Gulf of El Zayt and Morocco $635 million for the 160-megawatt Ouarzazate Noor I CSP project.[45] Main barriers to renewable energy investments are the high risks and lack of profitability of related projects.[46]

An energy partnership across the Mediterranean offers new opportunities to tackle renewable energy poverty in the MENA and energy security in Europe. About a decade ago, one high-profile attempt to foster regional interconnections was the Desertec Industrial Initiative (Dii), aimed at connecting MENA and Europe by an electric power grid based on renewable energy systems. At its core was the large scale application of Concentrating Solar Power (CSP) plants in the desert areas of the region to meet the region's growing energy demand, offering multiple benefits in water, energy and climate security as well as development

37 *Food and Agriculture Organization (FAO) and Plan Bleu, State of Mediterranean Forests 2018, Rome/Marseille, FAO and Plan Bleu, 2018, http://www.fao.org/documents/card/en/c/CA2081EN.*

38 *Houda Ben Jannet Allal, Hassen El Agrebi and Dominique Campana (eds), Mediterranean Energy Transition: 2040 Scenario. Executive Summary, Madrid, MEDENER/OME, 2016, https://www.medener.org/wp-content/uploads/2016/07/2016_MediterraneanEnergyTransitionScenario2040_VEN.pdf.*

39 *Manfred A. Lange, "Climate Change in the Mediterranean: Environmental Impacts and Extreme Events", cit.*

40 *Ali Ahmad, "Nuclear Energy Prospects in the Mediterranean Countries", in IEMed, Mediterranean Yearbook 2020, Barcelona, IEMed, 2020, p. 288-291, https://www.iemed.org/?p=20504.*

41 *Organisation for Economic Co-operation and Development (OECD), Renewable Energies in the Middle East and North Africa: Policies to Support Private Investment, Paris, OECD, 2013.*

42 *Luigi Carafa, "Policy and Markets in the MENA: The Nexus Between Governance and Renewable Energy Finance", in Energy Procedia Vol. 69 (May 2015), p. 1696-1703, https://doi.org/10.1016/j.egypro.2015.03.132.*

43 *OECD, Renewable Energies in the Middle East and North Africa, cit.*

44 *Shaimaa Al-Aees, "Middle East, Africa Renewable Energy Investments Slip 8% in 2019", in Daily News Egypt, 14 June 2020, https://dailynewsegypt.com/?p=733243.*

45 *Luigi Carafa, "Policy and Markets in the MENA", cit.*

46 *Aziza Moneer, "Rethinking the Response to Climate Change Threats in the Mediterranean", cit.*

and employment opportunities.[47] Ending in disputes in 2013[48], the project was criticised as an apolitical techno-fix to the climate crisis, without addressing the political power structures, inequalities and conflicts in the region.[49] To avoid concerns over exploiting natural resources in developing countries by large and mostly western energy corporations, investments in sustainable energy must be rooted in the needs of local communities.[50] Environmental, economic, social and political criteria were suggested to meet certain standards for such a project, e.g. to create jobs und include community participation, protect human rights and livelihoods, strengthen sustainability and peace.[51] The political upheaval of the Arab uprisings created both opportunities and hurdles for energy cooperation in the MENA region.

To develop an integrative framework, multiple mechanism can be combined, including regulatory and financial incentives to speed up renewable energy investment, regional electricity market integration and value chains, knowledge and technology transfer between northern and southern neighbours.[52] A new energy partnership could establish comprehensive, open access knowledge platforms connecting existing centres and a Euro-Mediterranean Energy Institute acting as a regional melting pot of experience, know-how and scientific research.[53]

Climate diplomacy and integrated policies in the Mediterranean

Scientific cooperation can work to support regional dialogues and collaboration to achieve the objectives laid out in the European Green Deal. The Mediterranean has considerable potential for decarbonisation in renewable energy and land use which may provide the capital needed to stabilise societies, if effective policies are implemented. While mitigation of climate change is the best way to diminish the threat posed by climate-fragility risks, additional steps should be taken to manage, minimise and adapt to the risks of on-going climatic changes. Single-sector interventions are important but not sufficient to deal with compound risks. The challenge is to integrate measures in different policy fields — such as climate change adaptation, sustainable development, humanitarian aid and peacebuilding — to strengthen resilience to climate-fragility risks and realise significant co-benefits.

Addressing these challenges involves a number of strategies and approaches:

1 **A regionally-specific assessment of climate-fragility risks** is a precondition to contain vicious circles of insecurity, violent conflict and forced migration.[54] Rather than framing climate change as a security threat calling for military responses, it is more promising to develop preventive and cooperative approaches in the context of common security to strengthen virtuous circles of human security, resilience and environmental peacebuilding, moving from a negative nexus of problems to a positive nexus of solutions.

47 *See, for instance, Franz Trieb, Wolfram Krewitt and Nadine May, "Solar Energy as a Key for Power and Water in the Middle East and North Africa", in Hans Günter Brauch et al. (eds) Facing Global Environmental Change.*

48 *Andy Colthorpe, "MENA to Europe 'Supergrid' Could Bring Regions Close to 100% Renewables, Says Fraunhofer", in PV Tech, 19 April 2016, https://www.pv-tech.org/?p=52581.*

49 *Louise Sarant, "Desertec: An Aborted Project or Just a Change of Direction?", in Nature Middle East, 5 January 2015), https://doi.org/10.1038/nmiddleeast.2015.4.*

50 *Aziza Moneer, "Rethinking the Response to Climate Change Threats in the Mediterranean", cit.*

51 *Jens Klawitter, Towards a Sustainability Framework for the Desertec Concept, Master Thesis, University of Applied Sciences in Eberswalde, 2010, https://www.clisec.uni-hamburg.de/en/pdf/thesis-klawitter-2010.pdf.*

52 *Moncef Ben Abdallah et al., Towards a Euro-Mediterranean Energy Community: Moving from Import-Export to a New Regional Energy Model, Paris, Institut de Prospective Économique du Monde Méditerranéen (IPEMED), 2013, http://www.ipemed.coop/en/publications-r17/building-the-mediterranean-c49/towards-a-euro-mediterranean-energy-community-a2014.html.*

53 *Aziza Moneer, "Rethinking the Response to Climate Change Threats in the Mediterranean", cit.*

54 *Wolfgang Cramer, Joël Guiot and Katarzyna Marini (eds), Climate and Environmental Change in the Mediterranean Basin, cit.; MedECC, Risks Associated to Climate and Environmental Changes in the Mediterranean Region. A Preliminary Assessment by the MedECC Network Science-Policy Interface, 2019, https://www.medecc.org/?p=1807.*

2 **Climate mitigation and emission reduction** are essential to prevent climate security risks, conflicts and instabilities. Risk minimisation and management can contain threats, while anticipation and adaptation support actions to avoid, minimise and respond to potential climate impacts. "Conflict-proofing" of climate adaptation plans diminishes conflict sensitivity. Governments in the Mediterranean would benefit from acting together to break down barriers and obstacles to climate diplomacy, such as securitisation, insufficient financing and lack of cooperation. Fragile countries – such as Syria, Lebanon, Libya, Iraq and Egypt in the Mediterranean (according to the Fragile States Index)[55] – often have low adaptive capacity and climate finance.

3 **Bridging asymmetries between Europe and the MENA** needs collaboration in building long-term structures for sustainable energy transitions across the Mediterranean basin. Compared to unilateral geopolitical ambitions and interventions, multilateral cooperation and multiple pathways are key to environmental peacebuilding and sustainable peace. Technical-economic capabilities and socio-political need to be established to minimise climate impacts, conflicts and inequalities and help stabilise the Mediterranean region. Resilience is important to absorb shocks and channel radical change to climate-fragility risks through the political process and aid programmes.

4 **Development assistance and humanitarian aid** help fragile states and populations build their adaptive capabilities and improve resilience to shocks. Despite some progress, mainstreaming climate into development programmes is not yet standard practice, which can benefit from foreign investment and active participation of NGOs and citizen networks. Peacebuilding and conflict prevention programmes address the causes and effects of fragility and conflict by reducing tensions and creating an environment for sustainable peace. Collaboration should not be left to national powers and bilateral relations, but be embedded into multi-level networks and collaborations. Integrating policies and programmes in climate change adaptation, development, humanitarian aid and environmental peacebuilding strengthens resilience to climate-fragility risks and the benefits of cooperative synergies.

5 A fair and just transition takes into consideration existing **inequalities between southern and northern Mediterranean countries**, indicated by different measures of well-being, economic development, government effectiveness and social networks.[56] Marginalised individuals and groups have lower capabilities to absorb new shocks which means that some countries or regions are more affected than others. In line with the Polluter Pays principle, industry needs to pay a fair share of the environmental costs and damages.[57] International financial assistance should help countries which are more vulnerable to climate change risks, have lower adaptive capacity and less responsibility for historical greenhouse gas emissions.[58] Diversified investments can create short-term jobs and incomes and long-term community resilience and sustainable economic transformation. Besides renewables, energy efficiency or sustainable transport infrastructure, examples include resilience to weather extremes; preservation or restoration of ecosystem services; remediation of polluted lands, water and sanitation.[59]

55 *Patricia Taft Nasri et al., Fragile States Index Annual Report 2021, Washington, The Fund for Peace, 2021, https://fragilestatesindex.org/?p=1253.*
56 *Aziza Moneer, "Rethinking the Response to Climate Change Threats in the Mediterranean, cit.*
57 *Noel Healy and John Barry, "Politicizing Energy Justice and Energy System Transitions", cit.*
58 *Greg Muttitt and Sivan Kartha, "Equity, Climate Justice and Fossil Fuel Extraction: Principles for a Managed Phase Out", in Climate Policy, Vol. 20, No. 8 (2020), p. 1024-1042.*
59 *Aziza Moneer, "Rethinking the Response to Climate Change Threats in the Mediterranean", cit.*

Key actors, initiatives and institutions

The climate emergency does not respect national borders and cannot be solved by single a government. It can only be addressed by inter-governmental actions and commitments to design and implement integrated responses and planning at multiple levels. New capacities and cross-sectoral policies, best practices and lessons learned need to be applied in shared data resources, research and risk assessments, building joint knowledge platforms to inform multilateral processes and structures.

Anticipating, analysing and addressing climate risks goes beyond existing institutional structures which need to be routinised, integrated and elevated to climate security and diplomacy issues (climate-proofing). Cooperative platforms, interagency frameworks and multi-institutional processes are beneficial to bridge diverse interests across the region and establish rapid response mechanisms. Climate Diplomacy practices are implemented by a broad range of actors, including national and local governments involved in policy making, international organisations, such as the UN and the EU, NGOs and donor funding projects. Regional partnerships and initiatives can connect global and local actions, jointly address climate-fragility risks and improve resilience, engaging with existing networks, fora and conferences. A number of non-exhaustive reflections on key actors and their policies is provided below.

European Union

Benefitting from its advanced economies, technical capabilities and political institutions, the EU can– and actually aspires – to be a key actor promoting climate diplomacy in the Mediterranean region. The European Green Deal is central to reach net-zero greenhouse gas emissions by 2050 and will also have implications beyond the EU's borders. The EU is active in different realms of climate diplomacy, in climate mitigation and adaptation, management of climate stress, resource scarcity and weather extremes as well as associated security risks and conflicts in the Mediterranean. In multilateral contexts, European member states have been a leading voice for climate security at the highest levels. As part of its Common Foreign and Security Policy, the EU has developed a climate diplomacy programme, including bilateral dialogues. In its Common Security and Defence Policy (CSDP), the EU endorsed a Climate Change and Defence Roadmap that was prepared by the European External Action Service (EEAS), which aims to enhance synergies between existing tools and instruments, such as the Early Warning System, the conflict analysis tool, weather forecasting and climate prediction modelling capacities, the civilian CSDP Missions Analysis Capability and the crisis management toolbox.[60] EU member states have also thrown their support behind the UN Climate Security Mechanism, integrating climate security into all levels of the UN.[61] In its role as chair of the UN Security Council (UNSC), Germany proposed a resolution in 2020 to identify potential climate-related risks and mechanisms which met resistance by the United States, China and Russia.

Climate change is also a focus in the EU's instruments for international assistance. The new Neighbourhood, Development and International Cooperation Instrument Global Europe (NDICI) (nearly 80 billion Euros for 2021-2027) allocated 30% of the budget to climate-related activities.[62] Incentivising climate-related action in the Mediterranean provides new opportunities for environmental peacebuilding. While climate change drives regional instability, selective climate funding and assistance can contribute to insecurity if they influence power balances between groups in a way that is not conflict-sensitive. Merging different financial instruments into the combined NDICI instrument aims to address several policy challenges and objectives.

60 *European External Action Service (EEAS), Climate Change and Defence Roadmap, EEAS(2020)1251, November 2020, https://data.consilium.europa.eu/doc/document/ST-12741-2020-INIT/en/pdf.*

61 *Erin Sikorsky and Francesco Femia (eds), The World Climate and Security Report 2021, International Military Council on Climate and Security (IMCCS), June 2021, https://wp.me/PaSeaC-Yi.*

62 *Beatrix Immenkamp, "A New Neighbourhood, Development and International Cooperation Instrument – Global Europe", in EPRS Briefings, July 2021, https://www.europarl.europa.eu/thinktank/en/document.html?reference=EPRS_BRI(2018)628251.*

In January 2021, the EU Council adopted its findings on "climate and energy diplomacy", and noted a doubling of financial commitments in global public climate financing to $23.2 billion between 2013 and 2019.[63] One aim is to move from reducing investments to fossil-fuel infrastructures in third countries to climate financing for the renewable energy transition, in line with the European Green Deal in the Eastern Mediterranean: "The EU will support the ambitions and efforts of countries in the Southern Neighbourhood, Western Balkans and the Eastern Partnership in tackling environmental, climate and energy challenges."[64] A comprehensive strategy could better define roles, practices and governance mechanisms for institutional actors. Implementation for development, diplomacy and security requires adequate resources for personnel, training, research, analysis and other activities.

Planetary Security Initiative and Responsibility to Prepare

Since 2015, climate security and climate diplomacy discourses were elevated to the highest political levels in national, regional and multilateral fora. Related events were the publication of the G7 report "A New Climate for Peace"[65] and the launch of the Planetary Security Initiative (PSI) with several conferences and related activities.[66] This includes the Hague Declaration on Planetary Security in 2017 and the initiative "Responsibility to Prepare and Prevent"[67] which develops a range of concepts to influence climate diplomacy. These suggested to integrate climate security considerations into policymaking processes and financial instruments of EU institutions and develop preventive measures to enhance global and regional stability in climate hot spot areas such as the Mediterranean. Among these, recommendations include developing rapid response capabilities in the "Climate and Security Crisis Watch Centre"[68] and climate-related warning and responses through the EU project "Prevention of conflicts, Rule of law/SSR, Integrated approach, Stabilisation and Mediation division" (PRISM) which connects a range of agencies and interventions for conflict prevention. In 2019, EU Foreign and Defence Ministers called for improved monitoring, early warning, situational risk assessment and response capabilities to slow-onset and extreme climate events and work towards the reduction of their respective military carbon footprints.

Other multilateral processes

Although the Mediterranean region lacks formal cooperative security institutions, avoiding climate-related instability and conflict is a high priority to prevent already fragile states sliding into further conflict or instability. Thus, a sufficient amount of traditional investment into hard security needs to be shifted to soft security, particularly in climate mitigation and adaptation.[69] Multilateral dialogues providing frameworks for climate diplomacy coexist at different levels (OSCE, NATO, UN, EEAS) but with little interaction amongst them. More improvement and synergies are therefore needed. Such multilateral efforts could also include key powers external to the Mediterranean (the US, Russia, China, Iran and Saudi Arabia) to identify cooperative pathways in North-South or South-South frameworks.[70]

63 *Council of the European Union, Council Conclusions on Climate and Energy Diplomacy - Delivering on the external dimension of the European Green Deal (5263/21), 25 January 2021, https://www.consilium.europa.eu/media/48057/st05263-en21.pdf.*

64 *Beatrix Immenkamp, "A New Neighbourhood, Development and International Cooperation Instrument", cit.*

65 *Lukas Rüttinger et al., A New Climate for Peace, cit.*

66 *For more on the PSI see, https://www.planetarysecurityinitiative.org.*

67 *Caitlin Werrell and Francesco Femia, The Responsibility to Prepare and Prevent. A Climate Security Governance Freamework for the 21st Century, Washington, Center for Climate and Security, October 2019, https://wp.me/P1t6fZ-4Pz.*

68 *Erin Sikorsky and Francesco Femia (eds), The World Climate and Security Report 2021, cit.*

69 *Francesco Femia and Caitlin Werrell (eds), The World Climate and Security Report 2020, International Military Council on Climate and Security (IMCCS), February 2020, https://imccs.org/report2020.*

70 *Anoushiravan Ehteshami, Daniela Huber and Maria Cristina Paciello (eds), The Mediterranean Reset, cit.*

NATO has expressed interest in the security dimension of climate change and the capability to conduct missions to mitigate climate-driven instability in the MENA, with a particular emphasis on risks emanating from the degradation of infrastructure and operations. NATO has developed a network of partnership with seven southern Mediterranean countries under the Mediterranean Dialogue (MD) and with four countries of the Persian Gulf region through the Istanbul Cooperation Initiative (ICI), both of which are coordinated by the Political and Partnerships Committee.[71] Building upon these dialogues, scholars suggested to deepen NATO partnerships with institutions such as the EU, the Union for the Mediterranean and the African Union for collective and shared analysis on environmental, climate- and human-security threats and create improved Mediterranean environmental cooperation.[72] In this regard, ecological considerations can contribute to deconfliction and long-term cooperation in the Mediterranean basin.[73]

The United Nations offers multiple frameworks for cross-sectoral integration of different policy fields, such as the Sustainable Development Goals, the Sendai Framework on Disaster Risk Reduction and climate change adaptation policies, all of which are relevant for the Mediterranean region. The UN Department of Peacekeeping Operations has tasked two UN peacekeeping missions (UNAMI in Iraq and MINUSMA in Mali) to take into account how climate change aggravates resource stresses and tensions between conflicting groups. UN Headquarters became involved in field operations to assess climate and security impacts and report consequences for consideration to the UN Security Council.[74]
Multi-issue regimes among Mediterranean riparian states include the Barcelona Declaration of 1995 establishing a Euro-Mediterranean Partnership and its 2008 successor, the Union for the Mediterranean. Both of these instruments and frameworks have met substantial challenges in seeking to promote Euro-Mediterranean cooperation and integration.[75] These regimes provide frames for discussion of issues of common concern (e.g. migration and health, energy and water, climate and environmental protection, employment or terrorism) but have suffered due to pre-existing political and geopolitical fractures present across Mediterranean states and perennial intra-EU divisions over policy priorities and interests.

Various institutional frameworks can be used for the promotion of climate diplomacy in the Mediterranean. These include the network of Mediterranean Experts on Climate and Environmental Change (MedECC), l'Institut de Prospective Économique du Monde Méditerranéen (IPEMED), the European Institute of the Mediterranean (IEMeD), the Center for Mediterranean Integration (CMI) and La Verticale Africa–Mediterranean–Europe (AME), a foundation promoting regional integration between the European, MENA and African spaces. These frameworks support integrated approaches based on strengthened cooperation between northern and southern shores and on shared solutions, e.g. regarding fighting climate change, adaptation and co-responsibility in CO2 emission reduction. A Mediterranean New Deal could offer a framework of cooperation and joint initiatives.[76] Together with the EU Green Deal and as the Fit for 55 initiative, the New Agenda for the Mediterranean offers an ambitious and innovative framework to relaunch and strengthen the strategic partnership between the EU and Southern Neighbourhood partners, including a dedicated Economic and Investment Plan to spur the long-term socio-economic recovery.[77] To support MENA states with shared added value and technology transfer, development aid could be combined with co-development and coproduction.

71 *The MD involves seven non-NATO countries of the Mediterranean region: Algeria, Egypt, Israel, Jordan, Mauritania, Morocco and Tunisia. The four states of the ICI are Bahrain, Kuwait, Quatar, United Arab Emirates. See IEMeD, "Other Cooperation Initiatives in the Mediterranean", in IEMed, Mediterranean Yearbook 2020, Barcelona, IEMed, 2020, p. 396-408, https://www.iemed.org/wp-content/uploads/2021/01/Other-Cooperation-Initiatives-in-the-Mediterranean.pdf.*

72 *Andreas Kraemer, Olivia Lazard and Alessandro Secchi, "Emerging Theatres: The Mediterranean", in Ronald A. Kingham and Olivia Lazard (eds), Sustainable Peace & Security in a Changing Climate. Recommendations for NATO 2030, Brussels/The Hague, Environment & Development Resource Centre (EDRC), 30 April 2021, p. 43-46, https://www.brusselsdialogue.net/ncwes.*

73 *Ibid.*

74 *Francesco Femia and Caitlin Werrell (eds), The World Climate and Security Report 2020, cit., p. 62.*

75 *Jürgen Scheffran and Hans Günter Brauch, "Conflicts and Security Risks of Climate Change in the Mediterranean Region", cit.*

76 *Franco Bassanini, Jean-Louis Guigou and Miguel-Angel Moratinos, "A New Deal between Europe, the Mediterranean and Africa", in EURACTIV, 9 October 2015, https://www.euractiv.com/?p=881300.*

77 *Union for the Mediterranean (UfM), EU Proposes a New Agenda and Investment Plan for the Mediterranean, 10 February 2021, https://ufmsecretariat.org/?p=113729; European Parliament, Legislative train schedule: Fit for 55 Package under the European Green Deal, https://www.europarl.europa.eu/legislative-train/theme-a-european-green-deal/package-fit-for-55.*

The New Deal for Engagement in Fragile States has endorsed a number of principles to better understand and respond to relevant climate-fragility compound risks.[78] These should be better integrated to EU and international policy action in the Mediterranean.

Sustainable peace and environmental peacebuilding

In the implementation of climate adaptation and mitigation policies, the risk of unintended negative effects in fragile contexts need to be addressed. A successful transformation requires climate-sensitive and conflict-sensitive mitigation and adaptation that minimise conflict potentials and resistance, for instance regarding land use conflicts with local communities over bioenergy (e.g. Palm Oil plantations), wind and hydro power, carbon capturing and geoengineering, strategic metals or construction of dams.[79] The challenge is to avoid these side-effects and to realise potential co-benefits and synergies between different institutions and frameworks towards integrated approaches. Sectoral organisations and multilateral institutions can facilitate access to climate finance mechanisms and implement integrated initiatives for resilience-building and humanitarian assistance, conflict prevention and environmental peacebuilding.

The framework of sustainable peace aims for preventive strategies of global risk reduction, rooted in the satisfaction of human needs without destroying the conditions for life. The concept of environmental peace investigates how environmental cooperation can contribute to peace, transforming conflict through building trust, confidence and the participation of stakeholders.[80]

78 *See for instance, International Dialogue on Peacebuilding and Statebuilding, A New Deal for Engagement in Fragile States, 30 November 2011, https://www.pbsbdialogue.org/en/new-deal/about-new-deal; Yannick Hingorani, "The New Deal for Engagement in Fragile States: Where Are We Now?", in Journal of Peacebuilding & Development, Vol. 10, No. 2 (August 2015), p. 87-93.*

79 *Jürgen Scheffran and Thomas Cannaday, "Resistance Against Climate Change Policies: The Conflict Potential of Non-Fossil Energy Paths and Climate Engineering", in Achim Maas et al. (eds.) Global Environmental Change. New Drivers for Resistance, Crime and Terrorism?, Baden-Baden, Nomos, 2013, p. 261-292.*

80 *Ashok Swain and Joakim Öjendal (eds), Routledge Handbook of Environmental Conflict and Peacebuilding, London/New York, Routledge, 2018; Tobias Ide, "Climate War in the Middle East?", cit.*

Case study: Water collaboration and environmental peacebuilding in the Middle East

While peacebuilding and development organisations focus on conflict resolution or environmental security, some integrate both in environmental peacebuilding. EcoPeace Middle East aims to promote cooperative efforts to protect the shared environmental heritage of Israel, Palestine and Jordan, by bringing communities of the three countries together to work on common issues in a highly politicised environment. Ecopeace's Good Water Neighbors (GWN) project works with communities and municipalities across the three borders to develop a regional understanding of the problems, raise awareness of the shared water reality, create political will for transboundary cooperation and build trust in order to solve issues of water pollution and allocation. GWN aims to conserve regional water resources, improve water-related infrastructure, hinder construction of barriers to common water management in conflict environments, strengthen bottom-up agency and facilitate conflict resolution.

The GWN project has been running since 2001 and has expanded its participants from 11 to 28 communities which share water resources, analysing the environmental situation in all three countries, addressing environmental insecurity (e.g. improving water infrastructure and environmental knowledge in Palestine) and works on wider conflict-related problems (e.g. by organising meetings of young people and local politicians from various countries or lobbying for a Israeli–Jordanian–Palestinian water treaty). Proposed measures include environmental education of young people, coordinated establishment of resilient infrastructure and sustainable conservation areas, high level political lobbying, lawsuits and personal meetings between citizens from Israel, Jordan and Palestine. In the shared environment, a Palestinian sewage network was connected to the neighbouring Israeli network, resulting in reduced wastewater pollution. The GWN project provides an illustrative example for joint application of environmental security and resilience in the context of peacebuilding. The success in integrated water management and regional peacebuilding has been limited by technocratic approaches and de-politisation, however, reminding audiences about the hardship of not addressing underlining political and security concerns when seeking to promote cooperative frameworks for climate and environmental risk mitigation in the MENA region (and further afield).

Conclusion

The Mediterranean region, including Southern Europe, North Africa and the Near East, is a complex crisis landscape and a hotspot vulnerable to climate change risks, weather extremes and vital infrastructures. High vulnerabilities and low adaptive capacities of MENA countries are expected to diminish water availability and agricultural production, income and food security. The shrinking resource base undermines human livelihoods and development opportunities for a growing population. Mediterranean climate change interacts with other pre-existing challenges (political, security, social, economic) and contributes to political instability, violent conflict and forced displacement, resulting in compound risks. As is summarised by MedECC: "Recent accelerated climate change has exacerbated existing environmental problems in the Mediterranean Basin that are caused by the combination of changes in land use, increasing pollution and declining biodiversity."[81] State and social fragility has been enhanced by the Covid pandemic, collapse of oil prices and energy transition needs.

To speak of cooperation in the Mediterranean is hard given the wide disparity and internal divisions of the area. Growing awareness is being directed at climate and environmental vulnerabilities and risks as common security challenges. In this context, the recent initiatives (Green New Deal, Agenda for the Mediterranean, efforts by NATO, UN and UfM/MedECC) are all important and can transform the challenge into opportunity. Assessing and addressing climate change offers a wide range of activities and initiatives, for instance a new energy partnership serving as a knowledge platform connecting energy-related institutions, or a Mediterranean water agency and network for information exchange, cooperation and regional water governance among stakeholders and decision-makers among stakeholders. Governance opportunities and challenges are highlighted by MedECC in its comprehensive assessment study on the Mediterranean:

> Policies for the sustainable development of Mediterranean countries need to mitigate these risks and consider adaptation options, but currently lack adequate information — particularly for the most vulnerable southern Mediterranean societies, where fewer systematic observations schemes and impact models are based. A dedicated effort to synthesise existing scientific knowledge across disciplines is underway and aims to provide a better understanding of the combined risks posed.[82]

81 *MedECC, Risks Associated to Climate and Environmental Changes in the Mediterranean Region, cit., p. 4.*
82 *Ibid.*

Appendix 1: Conference Agenda

Bologna Peacebuilding Forum 2021

Peacebuilding and Climate Change

18-19 May 2021

15:00-17:00 CEST | On Zoom

DAY 1

Session 1 – 15:00-16:00
Climate, conflicts and peacebuilding

Guiding question: How does climate change affect both the causes and evolution of armed conflicts and what are the implications for peacebuilding?

Speakers
- **Farah Hegazi**, Stockholm International Peace Research Institute (SIPRI)
- **Oli Brown**, Chatham House
- **Ayan Mahamoud**, Intergovernmental Authority on Development (IGAD)
- Moderator: **Bernardo Monzani**, Agency for Peacebuilding (AP)

Session 2 – 16:00-17:00
Environmental peacebuilding

Guiding questions: What opportunities do climate change and related environmental issues offer for enhancing the prospects of a durable peace?

Speakers
- **Julie Raasten**, European Institute for Peace (EIP)
- **Mariko Peters**, European External Action Service (EEAS)
- **Olivia Lazard**, Carnegie Europe

- Moderator: **Giulia Caroli**, CGIAR Focus Climate Security

17:00 Final remarks: **Bernardo Venturi**, Agency for Peacebuilding (AP)

DAY 2

Session 1 – 15:00 - 16:00
Environmental Security & Climate Change in the Mediterranean

Guiding questions: How is climate change impacting armed conflicts and peace processes in the Mediterranean region? What is the state of play of international climate diplomacy and multilateral efforts to address the relationship between climate change and security in the Mediterranean? What lessons can be drawn for or from other regions?

Speakers
- Keynote Speech: **Grammenos Mastrojeni**, Union for the Mediterranean
- Speaker (paper-giver): **Jüergen Scheffran**, University of Hamburg
- Discussant: **Marwa Daoudy**, Georgetown University School of Foreign Service (SFS) and Center for Contemporary Arab Studies (CCAS)
- Moderator: **Emiliano Alessandri**, OSCE Secretariat

Session 2 – 16:00-17:00
Food (in)Security and Climate Change in the Mediterranean

Guiding questions: Widely recognised as a climate change hotspot, the Mediterranean is already today host to a number of tensions linked to resource management and scarcity. How will climate change and the climate-food nexus affect conflicts in the wider Mediterranean region and what mitigating strategies can be put in place to better manage implications in the socio-economic, political and environmental domains?

- Speaker (paper-giver): **Yara Asi**, Arab Center Washington DC
- Discussant: **Ruth Hanau Santini**, Università degli Studi di Napoli "L'Orientale" and World Food Programme
- Moderator and final remarks: **Andrea Dessì**, Istituto Affari Internazionali and New Med Research Network

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